

HUNGARIAN ARCHAEOLOGY AT THE TURN OF THE MILLENNIUM

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COMMENDATION

Archaeology... The word itself makes the heart beat faster. Many people sigh when hearing this word and say that they too wanted to be archaeologists. And no wonder, for the desire for knowledge burns in all of us, as does the eternal question: who are we and for what purpose have we been brought into the world, whither are we going, and is there some genuine goal we have to attain? The other elementary question is also self-evident: whence do we come from? It is only natural that we seek the answers to these questions in the past. We have all studied history at school, we all have a perception of the brilliant periods of the national past, we remember the names of exceptional men and women and their outstanding deeds, yet at the same time we long for something more personal, something more tangible.

On Sunday afternoons we ask our grandparents to speak about their own grandparents – and within a few seconds we find ourselves moving back a hundred and fifty years in time. Looking at old, faded photos – and, on occasion, discovering perhaps our own features on one of the portraits – we try to recall the names of our forebears and their friends, we attempt to evoke a characteristic episode of their lives, but our memory often fails us, and we are left with nothing, but uncertainties. The photos gradually become nameless and though these family relics are important for us, who knows whether our children will preserve them, together with our great-grandfather's favourite armchair, grandmother's mirror and the other, time-worn, useless bric-a-brac. If they are wise enough, they will not throw them out and if they interesting enough for a collection, they will find a final resting place in a museum. After receiving an inventory number, they are placed into a storeroom and they will perhaps be exhibited at some point.

Objects can perhaps be saved, but what happens to the associated memories, the personal history, the intimacy of family tradition? Many thousands of families lost their personal histories during the turmoils of the last century, before they could even realize the importance of tradition. Our innate curiosity cannot be stifled. It erupts from our innermost self, and the more annoying the feeling of deprivation, the stronger it grows, enticing some to watch educational television programmes and others to search for their family tree in provincial parish registers or to set out and search for long-lost, fabulous treasures, lavish royal burials, long-forgotten tunnels leading to faraway regions. Many long for even more and concoct a colourful past for themselves or blindly believe the stories freely re-arranging the facts or downright neglecting them, presenting the past as infinitely more attractive or more idyllic than it really was. Obviously, there is nothing reprehensible about believing these stories. It is part of human nature to attempt to flee the problems of the present and seek solace and reassurance in the face of any misgivings we may have about the distant future or in a mythical golden age of the past. The myth of a Golden Age is nothing new: two thousand years ago, Albius Tibullus, a Roman poet from an age since long studied by modern man, too believed the distant past to have been better than his own age.

*Divitis hoc vitium est auri, nec bella fuerunt,
Faginus adstabat cum scyphus ante dapes.
Non arces, non vallus erat, somnumque petebat
Securus sparsas dux gregis inter oves.
Tunc mihi vita foret, volgi nec tristia nossem
Arma nec audissem corde micante tubam.*

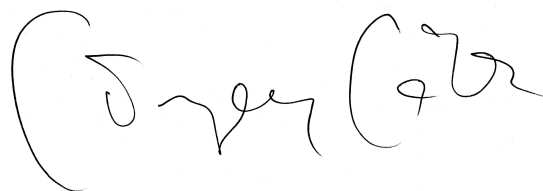
The individual is free to interpret the findings of the disciplines studying the past – archaeology, history and their sub-disciplines: heraldry, sigillography, numismatics, epigraphy – to his own liking, but on a social level, the evidence must be handled according to the standards of academic scholarship. One of the most characteristic features of archaeology is the adoption of methods developed in the natural and social sciences, and that in the formulation of any conclusions, it strives for strict objectivity. Because of this and because archaeology is holistic in its approach – meaning that it is interested in everything related to humankind's past activity – the discipline is suitable for complementing and, on occasion, for verifying the historical evidence with the findings of archaeology. History is based on the study and analysis of written records, but in the case of periods from which written sources are meagre or entirely lacking, it is the artefactual material that must be addressed using archaeological methods. We may therefore confidently state that in spite of the fact that millions of archaeological finds are housed in our museums, research must be continued since there is need for new data in order to gain a better knowledge and understanding of human history and, also, because the new advances in science means that we can collect more precise data than before.

This discipline has come a long way since its emergence and even though many of its earlier findings are still valid today, our overall picture of the past of the Carpathian Basin has been enriched with many details. We now know that many of the so-called ‘pagan forts’ and ‘Cumanian mounds’ in fact date from different periods – and even if we cannot always link them to a particular people or a specific period with certainty, scholars of the past can distinguish the heritage of the Eravisci, the Boii, the Scythians, the Sarmatians, the Alans, the Huns, the Goths, the Gepids, the Avars and the ancient Hungarians, as well as of peoples whose name has not come down to us and who have been named after their pottery (such as the Alföld Linear Pottery culture) or after the site where their artefacts were first found (such as the Szakálhát group and the Vátya culture). It has sometimes been asked, what do we have to do with these peoples, whether unknown or known by name, why public funds should be spent on collecting their relics. The answer lies in the need to know history. Neither should we forget that the men of bygone ages lived in greater harmony with nature, exploiting the available resources with greater care. The traces of human impact on the environment are preserved in the artificial features of the European landscape. The natural catastrophes of the recent past have shown that it is well worthwhile to acquaint ourselves with the experiences amassed by past generations, for example on where the destructive forces of a river can best be harnessed, and with the subsistence strategies attuned to nature’s cycles, which areas are suitable or, conversely, unsuitable for house construction. Our ancestors’ experiences, the fruits of their labour surround us everywhere, even if they are often only visible to the trained eye. When travelling in the Danube valley or along the Tata Trench, we rarely pause to think that these very roads were first trodden by a group of prehistoric hunters in search of prey or that the Roman military engineers too regarded these long-trodden paths as most suitable for building a road.

This volume is a landmark accomplishment in providing an overview of how archaeology has contributed to a better knowledge of Hungary’s past and how this discipline evolved during the five hundred years from King Matthias’ reign to our own age. It presents the many bits and pieces of information that can be gained both with the spade, the archaeologist’s traditional tool, and with more modern research methods, such as aerial photography. The authors of the volume are all field archaeologists and renowned experts in their own field, who have collaborated to offer us a glimpse into their profession. This lavishly illustrated volume will no doubt be useful and enjoyable reading to all those interested in the past.

The reader will find that archaeology is not the mystical craft suggested by popular movie films – it is a far more exciting intellectual pursuit, much in the same way as the one-time reality unfolding from the tiny, factual details is infinitely more fascinating than the stories begotten by flights of fantasy.

It is my hope that this volume will encourage the reader to visit museums and to find the opportunities to assist archaeologists in their work. There is need for the general public’s active involvement in archaeological work, for there is still much to be done; at the same time, participation in these projects will bring a wider awareness of the results of this discipline and of the need to preserve Hungary’s rich cultural heritage.



GÁBOR GÖRGEY
Minister of National Cultural Heritage

EDITORS' FOREWORD

The present volume is the fruit of two and a half years' work. Originally given the title *Hungarian archaeology in 2000* and now published as *Hungarian archaeology at the turn of the millennium*, the volume reflects the concerted efforts of renowned specialists in this field of research to present a comprehensive overview of the emergence and development of this discipline, of the country's archaeological heritage and of the institutional background of archaeological work.

The Department of Monuments of the Ministry of National Cultural Heritage that co-ordinated the publication of the present volume was organized no more than a few years ago. The main goal in creating this department, active since 1999, was to monitor and supervise the national monuments and to work out the much-needed new legislation for the protection of archaeological sites that had until then been part of the museum structure, a task that called for a broad overview of the theoretical and practical problems of Hungarian archaeology. The idea of this "handbook" arose almost simultaneously with the creation of the department, a proposal received with sympathy and enthusiasm by all of our archaeologist colleagues. The managing editor presented a detailed proposal, an outline of the contents that was adopted in its more or less original form, although with slight alterations. Our objective was to present an overview of Hungarian archaeological research, highlighting also the modern practices and advances made in the protection of the archaeological heritage, with an emphasis on all major contributions to this discipline made by Hungarian archaeology. In addition to the three editors working on the manuscripts, this book is also the "baby" of the ten editors who edited individual chapters and of the almost eighty authors who wrote various sections between the "gestation period" from the first meeting of the editorial board in April, 2000 and the submission of the manuscript to the printers in November, 2002. This book is a unique achievement in the history of Hungarian archaeology since only two volumes of the planned series on the archaeology of Hungary have appeared so far (one describing field methods, the other covering the Palaeolithic in Hungary, written by László Vértes). The volumes of the highly popular *Hereditas* series, used also as university textbooks, did not discuss all aspects of Hungarian archaeology in such detail.

Although the publication of the volume was often endangered owing to technical problems, the patience of our colleagues and of the ministry's senior officials, their abiding faith and patience tided us over the difficulties. The Teleki László Foundation undertook the editing and pre-publishing work after Agnes Tóth, who had played a key role in the preparation of the manuscripts for publication, gave birth to a lovely baby and could no longer participate in this work. Owing to the delay in the publication compared to the original schedule, some chapters had to be revised: the new Heritage Act and the restructured institutional framework of heritage protection meant that some sections had to be re-written. We also had to update the illustrations and the bibliography, meaning that the manuscript was finally closed in November, 2002. It must be emphasized that the volume was intended for the general public, rather than the academic community – but it must also be noted that the authors and the editors strove to achieve a high professional standard in the submitted manuscripts. There are no footnotes since the book was written for the public; this also set certain limits to the scope of each chapter: each of our colleagues struggled with the limitations in their chapters' scope since instead of a detailed overview of each period and each subject, there was only the possibility of offering a review of the problems and for summarizing new advances in their particular field of research. The illustrations were compiled according to this consideration. The chronological chart, based on the chronological data provided by the editors, was designed to aid a better overview of the various periods by providing a framework of the chronological and spatial dimensions of the archaeological periods in Hungary.

The book held by the reader was primarily written for the educated public. At the same time, it was also our intention to appeal to decision-makers who determine the fate of, and are thus responsible for, heritage protection and, in particular, for the fate and future of the archaeological heritage. It is our belief that with this volume we can demonstrate the importance of this discipline, our lives' vocation, in the hope that decision-makers and senior officials will understand that there is more to archaeology than just the collection of antiquities as objects of curiosity – archaeology is, at the same time, one of the country's cultural treasures, a powerful driving force behind culture, economy and tourism, as well as a means of enriching the lives of the communities living here. We would like to see this book as the first volume in a series presenting new and exciting advances in Hungarian archaeology.

There is much to be gained from this overview of Hungarian archaeology, a landmark accomplishment in the history of this discipline, reflecting the happy collaboration of specialist from different fields of research. It is our hope that this volume will be of interest not only to the wider public, fascinated by the relics and history of bygone ages, but also to our fellow archaeologists and colleagues working in related disciplines.

Finally, we would like to express our heartfelt gratitude to everyone, who helped the publication of this volume: our colleagues, who contributed their studies, who bore our endless requests with patience and who participated in the work with unfailing enthusiasm. We are also indebted to all our colleagues, who generously provided photos and drawings of their excavations and finds. Thanks are also due to all those institutions that enriched this volume with material from their documentation and photo archives, contributing thereby to the production of this book. And last, but not least, we wish to thank Dénes Jankovich-Besán and Katalin Wollák, who undertook the burdens and the responsibility of the financial side of this project and who never failed to provide encouragement. As the Director and senior official of the Directorate of Cultural Heritage and, later, of the Office of National Cultural Heritage, both of them unselfishly worked to create the optimal conditions for our work.

ZSOLT VISY
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PRAEFATIO*

*“Celestial spirit dallying with mortals”...***

...are the words perhaps best describing our discipline, deluding us into believing that we can know the past as it really was. We readily take for granted that our work enjoys huge popular interest, and that our research and excavation reports satisfy a wide public demand. There has been a welcome surge in the appreciation of our work, combined with a growing awareness of the need for preserving our cultural heritage. This volume hopes to fulfil these expectations and it is therefore addressed to the general public. I am honoured to have been requested to write a preface to this volume. I have to admit that presenting a brief overview of the achievements of Hungarian archaeology during the past two hundred years was a more difficult task than writing a concise summary of the research of a particular historical period would have been.

Anyone truly interested in the achievements of Hungarian archaeology should start by leafing through the bibliography compiled first by János Banner and Imre Jakabffy and, later, by Imre Jakabffy alone, one of the most lasting products of our discipline. In 1954, we eagerly awaited the publication of this bibliography, compiled on an initiative from Szeged, that was an outstanding achievement with its 17,590 entries. Following the death of its spiritual procreator, János Banner, the later volumes were produced untiringly by Imre Jakabffy with an exemplary diligence. The last volume, published in 1999, contains the studies and articles written between 1977–1987. The number of entries totals 8844; comparing this figure with the first volume, containing the works published during a hundred and fifty years, we find that the number of scholarly articles has swelled into a veritable torrent. The number of entries for the successive volumes is as follows: 17,590 (until 1954), 3882 (1954–1959), 5938 (1960–1966), 8395 (1967–1977), 8844 (1978–1987), giving a total of 44,639 entries. The entries for the thirteen years until the turn of the millennium will no doubt exceed ten thousand. Were that the enthusiasm and stamina of Imre Jakabffy, now into his eighty-sixth year, be passed on to his successors!

No-one is born an archaeologist – none of the students of other disciplines were born scholars. The researchers of the heroic age of archaeology were all amateurs in a certain sense and who would be bold enough to rank them – even though there are undeniable differences between Zsófia Torma, who discovered the stone tablets from Tordos and who can be regarded as one of the first women in archaeology, Endre Krecsмарik, the teacher from Gyoma who published the first finds of the Körös culture, Ferenc Móra, the acclaimed novelist and accomplished archaeologist, originally a teacher of geography and the natural sciences, and János Dombay, the self-taught archaeologist who uncovered the Neolithic settlement at Zengővárkony, originally an excise officer. They are all on a level par owing to their dedication, together with the enthusiastic teachers, priests, notaries, apothecaries and physicians, all the exceptional men who created the huge collection that is now part of the archaeological segment of our cultural heritage. In this sense, there is little difference between the enthusiastic collector, the specialist and the museum founder: Gyula Kisléghy Nagy, Bódog Milleker, Béla Darnay, László Tari, Gábor Csallány, András Jós, János Reizner, Jenő Nyáry, Elek Kada, Lajos Bella, Arnold Marosi, Andor Leszih and Ödön Kállay, a list that is far from complete. There is nothing unusual in this since this was the case throughout Europe: the Hallstatt cemetery was saved by a mine comptroller and the first researchers of the Palaeolithic in France were pious abbots. Giants, such as Flóris Rómer, Bálint Kuzsinszky and József Hampel obviously contributed more to archaeological scholarship than others. Many studies and recollections have been written about the summer courses in archaeology held in Kolozsvár for the students of this discipline before World War 1. At the time, this was the only opportunity for gaining an overall idea of the achievements and potentials of this discipline for professionals who had not mastered the basics of archaeology at a university.

Following the relocation of the Kolozsvár University to Szeged after World War 1, the Budapest and the Szeged school of archaeology made significant advances in different fields. The Budapest school proved more fertile in the realm of theoretical archaeology (reflected in the volumes written by Ferenc Tompa, Pál Patay, Ida Kutzián and András Alföldi for the *Dissertationes Pannonicae* series), while new field techniques were primarily developed by the Szeged school. The archaeologists of the latter were also more likely to promptly publish their new finds in the journal *Dolgozatok*.

A major milestone in formalized archaeological training was marked by the onset of university courses in the mid-1950s that offered a diploma in archaeology. The new generation of young archaeologists trained at Budapest brought the renewal of

* Abbreviated with the author's permission. The full text, “Régészetünk ezredfordulója” [The turn of the millennium in Hungarian archaeology] appeared in *Studia Archaeologica* 7 (2001) 17–21.

** Quote from Mihály Csokonai's poem, “To Hope”.

Hungarian archaeology. The training of archaeologists at Szeged University from the latter third of the century was definitely part of this broader process and it would appear that the foundations of a similar school have been laid down in Pécs. Although changes in legislation and in the socio-political environment also mean that amateur archaeology and the collection of finds is now forbidden – as elsewhere in Europe – it is my belief that museums learn about only a fraction of the finds actually brought to light.

Much in the same way as historical events should not necessarily be viewed from a modern perspective and judged by our own norms, it would be an equally grave mistake to judge the activity of the enthusiastic “amateurs” of the 19th century by modern standards and in the light of modern field techniques. They are worthy of our respect for they were the founding fathers who, by saving the relics of the past, laid the foundations of modern archaeology.

There have been successful and less successful archaeological projects. Modelled on similar German work, the archaeological topography of Hungary was begun in Szeged and then continued in Budapest. The survey of the Devil’s Dyke, the large Roman Age rampart system in the Great Hungarian Plain, has been completed and major advances have been made in the investigation of the Pannonian *limes* section. The past fifty years have seen major research projects, such as the investigation of the medieval royal centres at Esztergom, Buda, Visegrád and Székesfehérvár, the excavation of the Roman remains at Óbuda, Dunaújváros and Pécs, the investigation of Iron Age tumuli at Sopron, Százhalombatta and Süttő, and the uncovering of Neolithic settlements and burial grounds at Aszód, Hódmezővásárhely–Gorza, Herpály, Vésztő and Csőszhalom, not to speak of Vértesszőlős, the renowned Palaeolithic campsite, where one of the earliest hominid remains in Europe were found. It seems to me that the most successful projects were the ones directed by individuals with a special and unique aura (the excavation of the Roman settlement at Tác–Gorsium, the burials of the Langobards, the Avars and the ancient Hungarians). And even though only the first two volumes of the planned handbook of archaeology were published, this book can be regarded as the next volume of the planned series with its detailed discussion of the new advances in Hungarian archaeology, with only a hint of the debates between the different views and interpretations of a particular period.

Archaeology did not evolve into a national discipline in Hungary, and for good reason. Some of the neighbouring countries began their existence as independent states in the 20th century and searched for the legendary and heroic greatness in the past, often guided by the need for self-justification against others, including the Hungarians. As a matter of fact, Hungarian archaeology in part passed through this phase in the 19th century and this kind of self-justification no longer taints Hungarian research, even though there was a long period when natural pride in the national past was forcefully suppressed. Hungarian archaeological research can follow the example shown by the great nations of Europe: the French, the Germans, the Anglo-Saxons and the Scandinavian peoples in the research of the national past.

The maelstrom of history swept away many scholars, who had or would have been the pride of this discipline. The two world wars did not claim as many archaeologists among its victims (Ferenc László died in 1914, Árpád Bottyán and Ferenc Tompa in 1945), as did the successive waves of emigration after 1945. András Alföldi, István Foltiny, Sándor Gallus, Márta Széll and with them, no doubt, a number of gifted students departed in 1945; Géza Alföldy, Mária Alföldi, Erzsébet Molnár, Mária Lenkei, Tamás Pekáry, György Szabó, Aladár Radnóti and Erzsébet Ruttkay left in 1956. Aladár Radnóti, Géza Alföldy, Mária Alföldi and Tamás Pekáry became university professors. Their success too enhances the fame of Hungarian archaeology.

The loss of these outstanding scholars is, at the same time personal loss; and perhaps none more painful than that of András Alföldi (1895–1981), whose career illustrates the life of an exceptionally successful Hungarian scholar. He was a university professor in Debrecen at 28, and ten years later, a corresponding member of the Hungarian Academy of Sciences. Between 1930 and 1947, he lectured at the Budapest University, from 1948 to 1952 at Bern University, from 1952 to 1956 at Basel University and between 1956 and 1965 at Princeton. Many academies and scholarly associations honoured him with a membership. At 70 he retired from university lecturing, but continued to publish studies until his death, with a few of his writings appearing posthumously. Alföldi can be credited with introducing the modern, multi-faceted study of classical antiquity in Hungary. We will never know how Hungarian scholarship in this field of research would have developed, had he elected to stay in Hungary. Although Hungarian archaeology is not short of talented scholars, we must continue to enhance the good reputation of this discipline.

*Creating order in our common matters****

When did Hungarian archaeology begin? With the foundation of the Hungarian National Museum? With the Prehistoric Congress of 1876? With Flóris Rómer? Or with the publication of József Hampel’s acclaimed book? There is no good answer because these all represent one phase in a process, in which the gigantomachy from Bársonyháza with which Ottó Herman proved the presence of early man in Hungary, the Nagyszéksós treasure of a Hun king from the 5th century, enabling the separation of Hunnish finds from late Avar assemblages, the grave of “Bene knight”, the first burial from the Hungarian Conquest period found at Bene-puszta, and the early hominid skull fragments from Vértesszőlős

*** Quote from Attila József’s poem, “By the Danube” (tr. by Peter Zollman).

(*homo erectus seu sapiens palaeohungaricus*), christened Sámuel after the name day on which it was found, are all important milestones. Theories are born, refined, challenged, confirmed or refuted and then blown away by the winds of progress. Most events seem considerably more significant in their own time than a few decades later and the importance of the same event changes with time. There is no good answer to the question of which was the more important excavation: Óbuda, Intercisa or Brigetio, Istállóskő or Erd, Gorzsa or Medina, Madaras, Ménfőcsanak or Csanytelek. The list is endless and the same holds true for scholarly publications. Major monographs and syntheses could hardly have been written without a series of smaller studies and articles: the fruits of scholarship too are preceded by budding ideas that gradually ripen. It is impossible to rank them – there is no order of merit between my outstanding, highly esteemed professors, friends and colleagues, many of whom were indeed models for my own and for later generations too.

For me, László Vértés was important not only because of Vértesszőlős and because he was the first to come out with a synthesis of the Hungarian Palaeolithic, but also because in addition to being a brilliant scholar, he was also a wonderful, bohemian person with a fantastic sense of humour. Nándor Fettich, undeservedly pushed into the background when I was a student, was a superb goldsmith and an excellent musician who during World War 2 prevented the looting of the Kiev Museum and of the Hungarian National Museum. His studies in archaeology and ancient gold metallurgy remain compulsory reading and he too was an amiable, sensitive man. András Mócsy was, so to say, my fellow student: his diligence, his interest in new advances in archaeological research, his familiarity with the tiniest detail of his discipline raised him above his contemporaries. István Méri was a pioneer of modern field methods who deservedly fought his way into academe and whose gruff exterior hid a warm-hearted, helpful person. It was István Méri who taught me that a medieval peasant had a similar life and was beset by similar cares as the ones of my childhood. Without him Hungarian – and even Central European – medieval archaeology would hardly have attained its present, high level. Gyula László, archaeologist, art historian and creative artist set a lasting example with his humility, honesty and innovative spirit. He created his own school with his imaginative approach to infusing long-dead objects with life and his evocation of the life of past communities. I never heard him make a sarcastic remark about anyone who challenged his ideas. Finally, a few words about my life-long friend, István Bóna, who in my opinion was the Flóris Rómer of the 20th century and whom we can credit with the renewal of Hungarian archaeology. He was at home in all archaeological periods, although his truly significant works were written about the Bronze Age and the Migration period. Creating his own school, he lectured for almost half a century, teaching successive generations of archaeologists. His intellectual radiation will continue for decades to come.

Although the present volume is intended for the general public, I am quite certain that professionals working in archaeology will also read the book. This preface was in part written for them, in the hope that they will be more successful than we were, that they will know more than what we knew and that they will co-operate to a greater extent than we did.

Szeged–Budapest, June, 2002.

OTTÓ TROGMAYER

I. ARCHAEOLOGICAL RESEARCH IN HUNGARY



THE HISTORY OF ARCHAEOLOGICAL FIELDWORK IN HUNGARY

Gábor Vékony

Although the beginnings of modern archaeological fieldwork go back to the early 20th century, genuine planned research projects were only begun in the later 20th century. It must in all fairness be added that a few planned excavations can be quoted from earlier times, for example in the study of medieval monuments in the 1850s and 1860s (Imre Henszlman's activity in Csanád, Kalocsa, Székesfehérvár and elsewhere) and in the prehistoric studies of the 1920s and 1930s (Ottokár Kadić's cave excavations and Ferenc Tompa's settlement excavations). The circumstances of fieldwork in Hungary were no different from those in other parts of Europe and – disregarding the regions east and southeast of historical Hungary – the origins and history of Hungarian archaeology differed little from the emergence of this discipline in Western Europe. Similarly to Hungarian scholarship in general, Hungarian archaeology grew out of imperial scholarship, first of the Holy Roman Empire and, later, of the Austro-Hungarian Monarchy. National movements played an important role in the emergence of archaeology as an independent discipline, but neither should we neglect the role of ecclesiastic scholars, most importantly of the Jesuits, who played a significant – often an exclusive – role in the early years of university education. It must also be noted – even if it cannot be discussed in detail here – that a Protestant-Catholic conflict characterized scholarship at the turn of the 18th–19th centuries (as well as in the preceding and ensuing periods). This conflict most certainly influenced the early students of archaeology, a field of research that became an independent discipline by the later 19th century. Various antecedents can be named in the development of 19th century archaeology: the archaeological and numismatic collections housed in universities, the impact of the advances made in the natural sciences (especially in geology) and, finally, the 'naive' study of what were believed to be the relics of the national past, one of the results of the nationalist movements (such as the excavations of the 'Hunnish' graves at Érd and the investigations at Százhalombatta). Hungarian archaeology of the 1870s and 1880s can be described as having been relatively 'modern' even from a 20th century perspective, owing to its fruitful collaboration with the natural sciences (Fig. 1).

The history of Hungarian archaeology and archaeological fieldwork began much earlier. In 1928, Sándor Eckhart noted that Simon de Kéza, author of the *Gesta Hungarorum* (written between 1282 and 1285) can be regarded as the first Hungarian archaeologist. To which we may add that he was one of the first Hungarian historians who used archaeological data in his reconstruction of past events. The Hungarian (actually Transdanubian/Pannonian) sources of Simon de Kéza's narrative of the Huns' history were the Iron Age tumulus cemeteries at Százhalombatta and the still

visible remains of Roman towns and military forts (Brigetio/Szőny, etc). The first mention of a Pannonian inscription can also be found in his chronicle: he believed that a Hun captain called Cuve had been buried in a location marked by a stone statue. This Roman stone relic remained in its original place in the Vál valley southeast of Kajászó-szentpéter until 1928, when it was taken to Baracska. The figures of Athena, Bacchus and Juno can be seen on the three sides of the 170 cm high and 60 cm thick altar stone; the fragmentary inscription on the front records that it was erected in honour of Jupiter. A double cross was engraved onto the altar stone sometime during the Middle Ages, probably in the 13th century. This relic is also quoted in a non-Hungarian chronicle. In his *Descriptio Europae Orientalis*, written in 1308, a French Dominican monk mentioned the "huge marble stone" between Sicambria (Óbuda) and Alba Regalis (Fehérvár) although it is almost certain that the author had not personally seen this relic.

In his reconstruction of past events, Simon de Kéza also relied on various other antiquities beside various remains from the Iron Age and the Roman period. He linked the

Fig. 1. Excavation of a Roman mosaic in Szombathely, 1896



horse harness sets and the swords discovered at Mezőörs to a historical event, namely a battle fought in 1051, in which the Hungarians slaughtered Henry III's German army at this location. (As a matter of fact, the finds probably came from a Conquest period cemetery.)

Simon de Kéza's archaeologizing historiography was by no means a unique phenomenon in 13th century Hungary. Roman monuments and Iron Age mounds also appear in the *Gesta Hungarorum* of Magister P., written sometime in the 13th century. To Magister P. (the Anonymus) the ruins of Aquincum represented "*civitas Atthile regis*", King Attila's town – this was the only town he mentioned beside Veszprém and Savaria – in which Árpád and the seven leaders of the ancient Hungarians had settled and later held a feast in Attila's palace (*in palatio*). His narrative of the past differed from Kéza's: the Romans occupied Pannonia after Attila's death and they ruled it until the arrival of the Hungarians. Similar medieval historical reconstructions, based on visible archaeological monuments, were fairly common in contemporary Europe – a number of similar French and Spanish texts can be quoted. These reconstructions of the past are nonetheless part of the history of Hungarian archaeology since they represent the first efforts to incorporate the archaeological evidence into a historical narrative. It would be worthwhile to analyze the work of both chroniclers from an archaeological perspective; one study on what Simon de Kéza wrote about Savaria has already appeared. This exercise would also be interesting since Hungarian historiography sometimes still grapples with the problem of how to use the available archaeological evidence, much in the same way as Simon de Kéza in the 13th century.

The second important period in the history of Hungarian archaeology was the 15th–16th century, the age of Hungarian humanists and the late humanists. Matthias Hunyadi's reign (1458–1490) saw not only the foundation of the *Bibliotheca Corviniana* (that can, in a sense, be regarded as part of the archaeology of the period), but also the cataloguing of Roman relics in Hungary, especially of the inscribed monuments of the Roman period. As a matter of fact, the collection of Roman antiquities began under King Sigismund (1387–1437) and it seems likely that the interest in antiquities, emerging in the 13th century, remained unbroken. The interest of Italian humanists and Hungarian humanists educated in Italy in Roman monuments was a new element, similarly to the appeal of the Roman and, also, the "*romanus valachus*" world of Transylvania owing to János Hunyadi and Matthias' "*romanus*" origins. Petrus Ransanus (1420–1492) discovered Roman grave monuments in Szentendre, while Antonio Bonfini (†1502) mentioned Roman antiquities in his *Rerum ungaricarum decades*, a chronicle recounting the history of Hungary. These antiquities included inscriptions and coins, and Bonfini even went as far as to invent various inscriptions (similarly to the French Dominican monk and others, up to our days). In Matthias' age the relics of the past were not only collected, they were also catalogued. We know of at least four collec-

tions of inscriptions from this period. János Megyericséi's (Mezericius) Dacian collection arrived in Buda on July 1, 1489; the inscriptions were carefully copied by Bartholomaeus Fontius. The excavation of Tata Castle revealed that the appreciation of antiquities in Matthias' time was not restricted to Roman relics: the find context of pottery fragments of the Encrusted Pottery culture of the Bronze Age found in the wing built under Matthias suggested that they were part of a collection of antiquities.

A century later we witness the appearance of the first genuine scholarly work on archaeological finds, an epigraphic study entitled *Analecta lapidum vetustorum et nonnullarum in Dacia antiquitatum*, written by Stephanus Zamosius (István Szamosközy, ?1565–1612) on antique Dacian inscribed stones and other antiquities that was published in Padova in 1593. He continued the collection of antiquities after his return from Italy; unfortunately, his overview of the inscriptions in the Apulum (Gyulafehérvár) area from 1598 remained a manuscript. The book published in Padova is remarkable not only for its collection of stone relics from antiquity, but also for the historical data contained in it. It is regrettable that only a fragment of Szamosközy's oeuvre survived, and that the progress of "early Hungarian archaeology", begun in Matthias's time and continued in the 16th century, was interrupted for a long time. There is little to add to these early works from the period up to the 18th century, and even the works in this field that can be cited from the 18th century are very sporadic.

One of the most remarkable years of the period until the 19th century was 1726, when a late medieval–post-medieval collection was founded in the Bethlen College in Nagybánya and when Luigi Ferdinando Marsigli, an Italian count, published his *Danubius Pannonico-Mysicus*. Working as a military engineer in Hungary in the late 17th century, Marsigli prepared a detailed map of the Danube region. The first description of the remains of the Roman *limes* is to be found in his book (similarly to a number of other relics and monuments that disappeared by the 20th century). This map can hardly be neglected in the research of the Roman *castra* of Brigetio, Aquincum and Intercisa, or in the study of the ramparts in the Bácska. Sámuel Mikoviny's (1710–1750) observations and descriptions are equally valuable. The other outstanding engineer of this period provided an accurate description of the aqueduct of Brigetio.

The early achievements of modern Hungarian historiography include a number of works that have some relevance for archaeology too. József Torkos, a Lutheran priest active in Győr, described a Roman stone sarcophagus in 1748. Together with the works of the 16th century humanists, this study can be ranked among the pioneering studies on Roman epigraphy (Torkos was the first to compare the Hungarian language to the Finno-Ugrian tongues, including the Vogul language). The first 'excavations' also took place at this time. In 1777 the Jesuit university of Nagyszombat was transferred to Buda and the same year saw the creation of a separate department for the study of numismatics and antiquities

(*Antiquaria et Numismatica*), headed by Professor István Schönvisner. Schönvisner unearthed the military bath in Flórián square in 1778. He summed up his findings in a book entitled *De Ruderibus Laconici Caldariique Romani. Liber unicus* (Budae 1778). István Szilágyi (Salagius), canon of Pécs, provided an overview of the historical monuments of Pannonia at the same time.

The earlier 19th century can be characterized by an interest in “mixed antiquities”. University training was not continuous (the heads of the department usually also held the post of the director of the University Library). Studies and articles with an archaeological relevance appeared in the journal *Tudományos Gyűjtemény*, in a paper called *Sas* and in *Sokféle*, the latter edited by István Sándor. The year 1802, when Count Ferenc Széchényi founded the Hungarian National Museum (the present building was only finished in 1846), marked a definite turning point. An independent Numismatic and Antiquities Collection was created in 1814; the catalogue assembled by Ferdinánd Miller in 1825 contained a rather mixed material (*Cimelioteca Musei Nationalis Hungarici...*). Although the publication of the first Hungarian grave from the Conquest Period in 1834 is usually regarded as a major landmark in the history of Hungarian archaeology, the genuine beginning of archaeological fieldwork in the 19th century can be dated from 1846, when the Hungarian National Museum offered a post to János Luczenbacher, who regularly excavated archaeological sites and published his

Fig. 2. Flóris Rómer



Fig. 3. Arnold Ipolyi

finds (he changed his name to Érdy after one of his excavation sites). He wrote a review of the three age division of pre-history introduced in 1836 by the Danish Christian Jürgensen Thomsen in the 1847 issue of *Akadémiai Értesítő* (“Stone, Copper and Iron Age graves and antiquities”) and he also submitted an account of his fieldwork in the same volume (“Results of the excavation of the ‘Cumanian’ mounds above the Tárnok valley”). His interest in this site was based on a passage in Simon de Kéza’s 13th century chronicle – in other words, the heritage of Attila’s Huns were still believed to lie under the Early Iron Age tumuli of Százhalombatta, just as in Kéza’s time. János Érdy, however, can hardly be reproached since his excavations and publications laid the foundations of prehistoric archaeology in Hungary.

There is a general consensus that Flóris Rómer (1815–1889) can be considered the father of Hungarian archaeology (Fig. 2). The son of Ferenc Rommer, a cobbler in Pozsony (Bratislava, Slovakia), he became a Benedictine monk and was appointed professor of the natural sciences at the

Academy of Pozsony. In 1849, he was sentenced to eight years of imprisonment for participating in the 1848–49 Revolution and War of Independence (he was a sapper lieutenant). After regaining his freedom in 1854, he continued lecturing from 1857 and from 1858 he worked in Győr. His articles on Roman and other antiquities from this region appeared in *Győri Közlöny* from 1859. His first major work, *A Bakony. Természetrajzi és régészeti vázlat* [The Bakony. A geographical and archaeological sketch] appeared in 1860. This book brought him acclaim and he was elected corresponding member of the Hungarian Academy of Sciences. Even though his inaugural lecture was devoted to the geographical and natural conditions of medieval Hungary, he had already turned to history and archaeology, as shown by his papers published in *Győri Történeti és Régészeti Füzetek* from 1860 and the archaeological letters that appeared in *Vasárnapi Újság*.

The change in Rómer's interest was influenced by the foundation of the Archaeological Committee of the Academy in 1858 and the launching of the periodical *Archaeologiai Közlemények* in 1859 (the last issue appeared in 1899) that from volume II was edited by Arnold Ipolyi (Fig. 3), Rómer's former school mate and a close friend of his. His interest in the natural sciences did not wane: he participated in the annual meetings of the Hungarian Physicists and Nature Explorers. From this time on, his activity was archaeological in the sense determined by the regulation of the Archaeological Committee: "The committee should pursue two main activities: (a) the study of antiquities proper, encompassing the heritage of the Hungarian nation until the

Szatmár Peace Treaty, (b) the study of antiquities in general, insofar as it has any relevance for the past of our country and enriches our knowledge of her archaeology". In 1862 Rómer moved to Pest and took up a post as teacher and director of the main gymnasium of Pest. From 1863 he lectured on 'historical archaeology' at the university of Pest. The volume *Műrégészeti kalauz* [Archaeological Guide], published by the Archaeological Committee in 1866, contained a chapter on prehistory written by Rómer, while Imre Henszlman authored the chapter on medieval architecture. Rómer's chapter on prehistory was not restricted to prehistoric archaeology since he also included relics of the Roman Age and the Migration period in his discussion. The work is rounded off by a catalogue of Hungarian relics; what is apparent at first glance is that in contrast to Henszlman, Rómer used Hungarian data more extensively than his colleague, who placed his trust in foreign literature. It is not mere chance that Rómer's *Őskori műrégészet* [Prehistoric archaeology] became a handbook in the later 19th century, used by both amateur antiquarians and members of the freshly founded archaeological committees.

The year 1868 marked a milestone in Rómer's activity. He was appointed professor at the university and the journal *Archaeologiai Értesítő* was launched on his initiative. He edited the journal (the first few issues contained articles written almost exclusively by him). *Archaeologiai Értesítő* became, in Rómer's words, the "driving force" of Hungarian archaeology. A number of local museums and archaeological committees were founded, and the journal that had struggled with a lack of articles in its first few issues was



Fig. 4. The exhibition organized on the occasion of the Congress of Prehistory and Protohistory, 1876



Fig. 5. Jenő Zichy and Béla Pósta

Flóris Rómer, who from 1869 was also a department head in the Hungarian National Museum, played a major role in the organization of the Eighth Session of the International Congress of Prehistory and Protohistory in Hungary in 1876 (Fig. 4). The programme of the congress included a round of important archaeological sites and a visit to the recently unearthed Bronze Age settlement at Tószeg. The papers read at the congress were published in 1878. The volume can be regarded as a summary of the achievements and findings of Hungarian archaeology until then and it also represented the zenith of Rómer's archaeological activity since after his subsequent appointment as 'literary canon' in Nagyvárad, he became less active in the capital (although he continued his archaeological activity with the excavation of the Várad church in 1882–83).

The close of the 19th century was characterized by a proliferation of archaeological societies and museums all over the country (although it must be noted that the Transylvanian Museum and Museum Association was founded already in 1859 in Kolozsvár, and from 1899 courses on archaeology were also held at the university by Béla Pósta; Fig. 5). The archaeological activity of Budapest was centered more on cataloging the finds collected earlier than on actual fieldwork. This was especially true of József Hampel

(1849–1913) who succeeded Károly Torma at the university chair. From the 1880s Hampel published detailed overviews of the finds of practically all archaeological periods, from prehistory to the Migration period. The country was caught up in the fervent preparations for celebrating the millenary of the Hungarian conquest, and it was hardly accidental that the number of Conquest and Migration period grave finds increased significantly, due to the enthusiasm of the archaeological societies and the museums in the country. Planned excavations were conducted mainly in western Hungary (Lajos Bella: Sopron–Burgstall; Ágost Sótér: Gáta, etc.) and in Aquincum, where Bálint Kuzsinszky (1864–1938) investigated the Roman town between 1887 and the first third of the 20th century (Fig. 6). Kuzsinszky contributed the chapter on the Roman history of Dacia and Pannonia in volume I of *A Magyar Nemzet Története* [History of the Hungarian Nation] edited by Sándor Szilágyi in 1895. (Interestingly enough, a brief summary of the preceding period based on the works of Herodotus, Strabo and Ptolemy was written by Róbert Fröhlich. Géza Nagy wrote the chapter on the Migration period, while József Hampel's review of the archaeological heritage of the ancient Hungarians appeared in the volume *A Magyar Honfoglalás Kútfeje* [Sources of the Hungarian Conquest], published in 1900.) The close of the century was characterized by the unsystematic collection of finds and the publication of these finds. This picture is not basically modified by the cited exceptions or Lajos Márton's (1867–1934) excavations at Tószeg, begun in 1906, that can be regarded as a systematic, planned project from 1910, and Antal Hekler's excavations at Dunapentele during the same period.

These initiatives (including the investigations at Aquincum) were swept away by World War 1 (although the university of Kolozsvár continued its excavations in Galicia even during the war years). The Hungarian universities, museums and archaeological societies were closed down in the territories that were annexed to the successor states in accordance with the Trianon Peace Treaty and even the earlier rather meagre funding was cut off. Archaeological research was now practically directed from Budapest. This did have its advantages since from the end of the 1920s and in the 1930s the meagre financial budget had to be carefully apportioned. In spite of these restricted financial possibilities, the Hungarian National Museum was able to receive grants for smaller planned excavations from the Vigyázó Foundation. This was the period when, for the first time since János Érdy's excavations, the number of completely excavated prehistoric cemeteries rose significantly (Bodrogeresztúr, Pusztastvánháza, etc.). Ferenc Tompa (1893–1945) conducted excavations at Tószeg from the 1920s, first using foreign and, later, Hungarian funds. From 1931 he investigated the stratified Bronze Age settlement at Füzesabony, as well as a number of other settlements. Beginning his career at Szeged University in 1925, János Banner regularly conducted excavations in the Hódmezővásárhely area from 1929 to the mid-1940s that were funded by the town.



Fig. 6. Excavations at Aquincum, 1887–1888. Residential building and the laconicum of the Atilia Firma baths, from the east

Important burial grounds of the Migration period were also unearthed in the interwar period. These excavations were relatively well documented compared to the cemetery excavations of the 19th century that were either poorly documented or not documented at all. At the same time, the study of Roman period settlements declined (in part due to the fact that these had mostly been conducted in Transylvania, where the former Roman province of Dacia lay) and practically became restricted to the excavations at Aquincum directed by the Municipal History Museum; István Paulovics' excavations at Brigetio were also begun at this time. The ranks of well-trained professionals were swelled by luminaries such as Ferenc Tompa (who was professor of prehistory at the university from 1938), Nándor Fettich (1900–1971), Keeper of the Migration Period collection of the National Museum and András Alföldi (1895–1981), who lectured on the Roman Age and the Migration period in the department that succeeded the old university institute.

By the 1930s and 1940s, there emerged a generally accepted outline of the archaeology of Hungary, based on the findings of various excavations, with clearly defined prehis-

toric periods, a fairly good idea of the Migration period and a rather detailed history of Pannonia. András Alföldi, Nándor Fettich and Ferenc Tompa all played a prominent role in the advances made during this period. Alföldi edited the *Dissertationes Archaeologicae*, whose volumes covered the most important finds of Roman Pannonia, while Fettich was the editor of *Archaeologia Hungarica*, a series of monographs on the Neolithic, the Copper Age, the Scythian Age, the Avar period and the Conquest period, many of which contain observations that have not lost their relevance. Ferenc Tompa wrote an overview of Hungarian prehistory in a monograph published in 1934–35 and in volume I of *Budapest Története* [History of Budapest] in 1942. The same volume included chapters by András Alföldi and Lajos Nagy on the Roman period, containing many observations that are still valid today, while Gyula László (1910–1998) contributed the chapters on the Migration and the Conquest periods. Archaeological research was at the time up to the general standards of the period – unfortunately, in many cases this standard was not maintained after World War 2. It must also be noted that following the heated debates at

the turn of the 19th–20th centuries, a fairly accurate picture of the Hungarian “palaeoliths”, i.e. the stone artefacts of the Old Stone Age, emerged by the interwar period, mainly as a result of the cave excavations conducted by Ottokár Kadić, Tivadar Kormos and others. The advances in this field were so rapid that by 1935 Jenő Hillebrand was able to write a summary of the Hungarian Palaeolithic, based predominantly on cave sites (and, obviously, on Kadić’s findings). Only the Ságvár and Szeged–Öthalom campsites were known at that time. Another characteristic feature of the interwar period was the lack of settlement research, the few notable exceptions being a handful of prehistoric sites, Kálmán Szabó’s excavation of a late medieval site near Kecskemét and József Csalogovics’ investigations at Ete. As a result, the archaeology of various prehistoric periods, the Migration period and the early Middle Ages was based on the information gained from cemeteries that in many cases gave a rather distorted picture of the periods in question. As a matter of fact, Hungarian archaeological research has in many respects still failed to remedy this shortcoming.

The possibility to improve this situation was given. Disregarding the transitional period in the 1940s, archaeological research after World War 2 continued under rather unusual circumstances. Hungary became a Soviet satellite and the country’s political system adopted the Soviet model that brought significant structural changes to the scholarly disciplines, as well as to the educational system. A central institution called the National Centre of Museums and Monuments was created and vested with absolute authority in matters concerning excavations, budgets and professionals. Following the university reform, a museology course was introduced in 1948–49. As part of the planned economy, a “Five-year plan of Hungarian archaeology” was prepared for 1950–1954. This plan expressed the ideas of distinguished scholars active at the time (some of whom, such as András Alföldi, Sándor Gallus and István Foltiny, later fled the country), while the main goals outlined in it conformed wholly to the given political situation. Disregarding a few minor elements, the plan was rather poor. In some cases research projects were overplanned to the extent that made the completion of the project practically impossible (suffice it here to mention Zalavár). Even so, the plan did have some positive results, for example in Roman studies, especially regarding the investigation of the *limes*, as well as in the study of the settlements of the Árpadian Age, a research project launched on the initiative of Gyula László and István Méri (1911–1976). Compared to the pre-war period, extensive excavations were also begun in consequence of the large-scale industrial projects so typical of Soviet type economies (Intercisa, Tiszalök and, indirectly, the excavations at the Ózd–Stadion site). Hungarian archaeological research, however, could not fully exploit these opportunities. Significant advances in this period were reflected in the improvement of the general standard of university training after 1956 (and the re-establishment of an independent archaeological department), the creation of the Archaeological Institute of the Hungarian Academy of Sci-

ences in 1958 (even if it was initially envisioned as a research team), and the relative independence given to county museums from 1963. The achievements of Hungarian archaeological research in the later 20th century surpassed by far those of former periods, even though a comparison with the research standards of the 1930s and 1940s would not always yield a positive result. The *Hungarian Archaeological Topography* project can similarly be regarded as a major advance. Begun in the late 1950s, the areas surveyed as part of this project – launched largely on the initiative of János Banner, who became professor at the Budapest university after World War 2 – only make up a fragment of Hungary’s territory (Veszprém, Békés, Pest, Komárom–Esztergom and Zala counties, although even in these counties some districts have not been covered). Apart from the efforts of a few indefatigable individuals, excavations over a larger area could only be conducted before the start of large-scale construction projects. However, the archaeological information that can be gained from these excavations is only a fragment of that provided by meticulously planned excavation projects since the topsoil and the upper layers containing the majority of the archaeological information are usually removed mechanically (and destroyed in the process), meaning that although more can be learnt about the overall layout of a particular settlement owing to the larger areas that are investigated, very little survives of the actual settlement. This is one of the reasons why so little is known about the various settlements of the Avar period. Although we now have a better knowledge of the lower levels of settlements owing to excavations of this type, a more accurate picture can only be gained in cases when the archaeologist’s efforts enabled this (the Doboz and Kölked sites can be cited as good examples). In spite of István Méri’s initiatives, settlement archaeology has remained a field of research in which there is still much to be done for practically all archaeological periods. Even so, it is now possible to present a fairly accurate picture of every major period from the Palaeolithic to the Middle Ages, to which archaeological research in the later 20th century contributed many new elements. This statement remains valid in spite of the fact that this picture often contains many hues that exceed the conclusions that can be drawn from the archaeological record. To quote but one example: the number of graves from the Árpadian Age unearthed to date represents about 0.26 per cent of the people buried during that period; as regards the earlier periods (with the exception of the Conquest period), this percentage is even lower. The fact that no more than about 15 per cent of a culture can be recovered using archaeological methods is a serious caveat and most certainly calls for a reassessment of to what purpose and to what extent the archaeological record can be used. Hungarian archaeology is still too historicizing, setting itself tasks that can hardly be solved using archaeological methods, and in this sense it is a continuation of the ‘national’ archaeology of the 19th century. The introduction to *Régészeti Kézikönyv* [Handbook of Archaeology], published in 1954, begins with a statement that is hardly valid: “Archaeology is a historical discipline”.

Archaeology is suitable for recording various phenomena and for attempting the determination of the chronological position of these phenomena. Any reconstruction calls for the use of non-archaeological methods and disciplines. Accordingly, historical reconstructions can be considered not only misleading, but often downright harmful, especially if these reconstructions concern the history of a nation (and in many cases, certain elements of these reconstructions tend to suggest that they refer to a modern period, rather than the one being examined). This is obviously valid not only for Hungarian archaeology, but also for that of the neighbouring countries.

UNDERWATER ARCHAEOLOGY

Attila Gaál

THE EMERGENCE OF UNDERWATER ARCHAEOLOGY IN HUNGARY

Underwater archaeology, the youngest branch of Hungarian archaeology, has a very short history. This discipline appeared in the later 1980s and no matter how astonishing this may sound, its emergence was largely due to an accidental archaeological find, rather than a conscious professional decision. The find in question was discovered in the Bölske section of the Danube, at a site that was already known, but had never been precisely located, called “Templo mos” [Templar] by the locals and Bölske rock by watermen. Before discussing this find, a brief overview of the potentials of underwater archaeology seems in order, especially since Hungary is a country that does not have seas with good diving conditions. The largest body of still water is Lake Balaton, the rivers are murky, and visibility is usually between 0 and 50 cm, depending on depth, water temperature and various other factors.

Since Hungary has lost its former coastal areas and a great part of its rivers owing to the twists and turns in the country’s history, the shipwrecks and archaeological finds discovered beyond the borders of the Hungary will not be discussed here. The widely acclaimed attempts of Hungarian divers to find the Saint Stephen warship between 1994 and 1997 is also beyond the scope of this section, even though the Diver Archaeologist Department of the Society of Hungarian Archaeology and Art History, founded in Szekszárd in 1992, was one of the organizers of this famous expedition. It must also be borne in mind that the date of the catastrophe of this 151 m long and 28 m broad proud warship falls outside the upper time limit of archaeology, set at the beginning of the 18th century. It must also be mentioned in passing that a number of Hungarian diver archaeologists participated in underwater research projects and shipwreck explorations in Greece, Spain and the Republic of South Africa, indicating that their activity is well received.

THE CONDITIONS OF UNDERWATER ARCHAEOLOGY IN HUNGARY

The thousands of finds recovered from Hungarian waters since the start of Hungarian underwater archaeology can compensate for much lost information. What must be borne in mind, however, is that the majority of these finds was not recovered by archaeologists, but by various machines, dredgers and excavators, or they came to light accidentally. When finds were brought to light by archaeologists, their work circumstances differed from the ones to which foreign colleagues are accustomed to in seas, in the clear waters of mountain lakes and in oceans. Unfortunately, the conditions specific to Hungarian waters forced us to accept that it is near impossible to make visual observations, one of the most important tools of archaeology. Hungarian rivers, especially the Danube, have fast currents that dislocate the finds: their survey and drawing calls for special methods. Most Hungarian lakes have rather muddy waters, and Lake Balaton is no exception in spite of its relatively clear waters; the oxbows and smaller lakes often have 50–80 cm thick floating or soft mud in them. The depth of the mud was 120 cm over almost the entire width in the Tolna dead channel of the Danube, where we searched for the remains of a wall that the locals had seen half a century ago. Such conditions make excavation difficult and raise many problems that need to be solved by Hungarian underwater archaeology that is currently under reorganization owing to the decline following the initial upswing.

UNDERWATER FINDS, UNDERWATER SITES

In spite of the many finds that have been recovered from rivers, lakes, wells, marshes and mud, there is no general consensus about what should be regarded as an underwater archaeological find and which sites belong to the sphere of underwater archaeology.

The wells of the Turkish palisade fort at Szekszárd–Palánk and the Roman wells uncovered during the excavations preceding the construction of the M1 motorway near Győr, for example, became refilled with water during the excavation, and the final phase of their excavation had to be performed under water. However, the finds recovered from these wells are not underwater finds in the strict sense and can be assigned to the assemblages recovered by traditional field methods since the greater part of the work and documentation was done using traditional field methods. The number of finds uncovered during dredging operations and gravel mining runs into the thousands. Entire museums could be filled with the fossil bones, Bronze Age, Celtic, Roman Age, medieval and Ottoman period finds that came to light from the Danube between Dunaújváros and Paks. Unfortunately, most of these finds were lost to archaeological scholarship in spite of the fact that they are legally protected; in more fortunate cases, these finds are acquired by

private collectors who often have more funds at their disposal than the average museum. These collectors keep a constant patrol around the dredgers, and dispensing with the paperwork, they pay cash on spot. Most of these finds, including an intact Bronze Age helmet of the Lausitz type found at Paks in 1999 – a unique and outstanding find – are underwater finds, even if their majority fell into the water accidentally, either during a battle, while fording the river, or when their owner drowned: we will never actually know what happened. In other words, their findspot does not indicate the presence of an underwater site worthy of further investigations. In contrast, various architectural features, such as bridge remains, various buildings and forts, as well as ship cargos consisting, for example, of Roman Age iron tools, early 5th century pottery or Turkish copper vessels that are known from archival records, the archaeological literature, the press or from the recollections of the locals, should be taken seriously and given every legal protection. These locations are archaeological sites in the strict sense of the word and their identification is an urgent task. Gábor Szabó and János Attila Tóth, members of the Student Diver Group of the Diver Archaeological Department of the Archaeological Society, have done much in this respect. They systematically collected and documented the stray finds and sites that were already known or could be identified during diving sessions, compiling a register of these sites. They also listed the investigations that had been conducted using diver archaeological methods in Hungary until 1994, when they completed their manuscript. Together with the few underwater excavations, this database – that already needs to be updated – is one of the most promising achievements of Hungarian underwater archaeology.

UNDERWATER EXCAVATIONS IN HUNGARY

The first regular underwater archaeological excavation in Hungary was conducted by the Wosinsky Mór Museum between 1986 and 1996 at Bölcske with the help of scuba-divers. The importance of the early 4th century A.D. Roman fort guarding the port on right tributary of the Danube lies in the fact that its walls and ruins included secondarily used altar stones and grave altars transported here from two Roman towns, Campona/Nagytétény and, mainly, Aquincum/Óbuda. The number of inscribed stone monuments (now exhibited in the Soproni Sándor Lapidarium at Bölcske and in front of the Szekszárd museum; Fig. 7) is over forty, while the smaller finds, mostly coins, recovered from the clearing of the ruins totals some one hundred. Over fifty stamped bricks were also found. Nearly all the stones from Óbuda were altars erected by the local *duumviri* in honour of *Iuppiter Optimus Maximus Teutanus* in the first half of the 3rd century A.D. These finds constitute an important corpus for the study of the *civitas Eraviscorum*.

The archaeological work was conducted from a pontoon serving as a diving base with the help of the Dunaferr Diving Club and the village of Bölcske amid great difficulties caused by the 7–8 km/h flow velocity and often zero metre visibility. It often happened that while a diver was lowered on a security rope to replace his colleague who had worked an hour to free an altar stone, the sand at the bottom of the river bed reburied the find (Fig. 8). Apart from diving operations in November and December, neither photos, nor video films could be made, and even the shots made in the freezing water, relatively free of algae, could only be evaluated by specialists. Archaeological field methods can hardly



Fig. 7. Roman altar stones brought to light between 1986 and 1996, exhibited in the square before the Wosinsky Mór Museum in Szekszárd



Fig. 8. Diver archaeologists lift a Roman altar stone at Bölcske in 1988

be used under such circumstances: the divers could only rely on their fingers, and touching replaced eyesight. Neither could the traditional techniques of surveying and drawing be employed. The experiences gained at this site definitely indicated that underwater archaeological investigations in Hungary can only be begun after a magnetometer survey of the area, a technique that is generally employed,

Fig. 9. The lifting of stone relics near the Roman ala fort of Vetus Salina at Adony in June, 2000



and seismologic investigations along longitudinal and crosswise sections since these reveal the location and direction of the walls, the position of larger objects and their distances relative to each other and the river bank. The experiences gained at Bölcske were very helpful in the excavation of the sarcophagus remains and inscribed tombstones with relief carvings found at a depth of 7 m during gravel dredging and other river operations in a small dead channel of the Danube at Vetus Salina/Adony in the summer of 2000 (*Fig. 9*).

Other investigations conducted in various parts of the country between the two dates marked by the start of the Bölcske and Adony investigations can also be quoted. These were mainly directed at locating mostly Roman Age and, sometimes, medieval underwater sites. These included the Roman bridge at the Hajógyár Island in Óbuda and the search for a salt transporting boat with a cargo of Roman stone relics that had sunk in the Tisza at Szeged. Under the supervision of archaeologists, scuba-divers searched for Roman remains in the gravel pit of Barátföldpuszta at Lébényszentmiklós, an already known site, in the gravel pit of Máriakálnok and in the Toronyvár-dűlő at Kunsziget, while the remains of the village of Losta from the Árpáadian Age were sought on the northern side of Lake Balaton. Following the initial enthusiasm sparked by the Bölcske investigations, the help of the secretary-general of the Hungarian Diving Society was enlisted for training students of archaeology in diving and the organization of archaeological courses for divers. At the same time, a data sheet was prepared for registering underwater finds. This initial enthusiasm gradually faded, partly owing to financial reasons and partly to the indifference of both parties.

This is all the more regrettable since countless dangers threaten the underwater monuments, ranging from the decay of these sites to illegal diver activities and the dredging of river basins. The most endangered areas at present are the river banks close to the main Danube channel and the territories between dead channels, where new gravel and sand pits are constantly opened. The dredging entrepreneurs have been gradually ousted from the Danube and they moved their operations to these bank regions on the pretext of rehabilitating formerly active branches. As a result, it seems more than likely that their activity will damage a number of archaeological sites that presently lie concealed under a several metres thick gravel layer.

OPINIONS AND COUNTER-OPINIONS

Finally, a few words about certain misunderstandings that are often also voiced by professionals concerning underwater archaeological finds. One frequent misconception is that underwater archaeological finds do not necessarily have to be brought to light since they are quite safe and protected under the water, whereas bringing them to the

surface may mean certain decay. The conservation properties of water, marshland and peat are in many cases indeed wonderful, but not for every type of material. Leather, wood, bone and some textiles survive under constantly moist conditions, whereas certain metals, especially burnt iron objects, decay within a few centuries. The iron core of the latter is often replaced by a cavity lined by oxide and filled up with a putrid fluid. Beside the damage caused by the iron bottom platings of boats, a network of fine fissures can be made out on the limestone altar stones from Bölcske, caused by the constant fluctuation of the water temperature; other damages include the ones caused by human intervention, such as the use of explosives at the time of icy floods. The cylindrical handle without any traces of wear and the brand new, clean blade of a Roman trowel dropped into the boiling mortar during the construction of the fort's wall suggest that it was probably lost on the very first day of its use, while many of the bronze coins are so strongly oxidized that their identification was often problematic. Although the examples are often contradictory, it is our conviction that water is not a natural environment for archaeological objects and they must be unearthed as soon as possible and conserved more carefully than finds recovered from the ground.

The call to find the royal ships that had sunk in 1526 was voiced repeatedly, especially after finds provoking great attention came to light, such as the gold plate found at Visegrád. This idea is still periodically raised. However, it must be borne in mind that the current of the Danube is so fast even along the lower reaches of the river that it can easily transport the metal body of a sunken ship filled with water tens of kilometres away within a few hours. Even in knowledge of the fact that the river was not restricted by dams in the 17th century and, consequently, its flow was slower, this was certainly not the case in the Visegrád section of the river, where it flows between hills. Many square kilometres would have to be surveyed to find the ships, an almost impossible task given the present technical possibilities. Only the strict control of stray (and dredged up) finds, combined with careful underwater work based on these bits and pieces of information, can lead to the possible discovery of these ships.

THE FUTURE OF UNDERWATER RESEARCH

In spite of the difficulties described above, the declared intention of the Ministry of National Cultural Heritage that Hungary become a signatory of the UNESCO convention on the protection of the underwater cultural heritage that would ensure the necessary protection for archaeological finds and features not only in the seas, but also in rivers, lakes and marshlands – including the ones in Hungary – is definitely a promising sign. The ministry set up a working group in late 1999 to elaborate the Hungarian point of view. The group's task was to study the draft convention

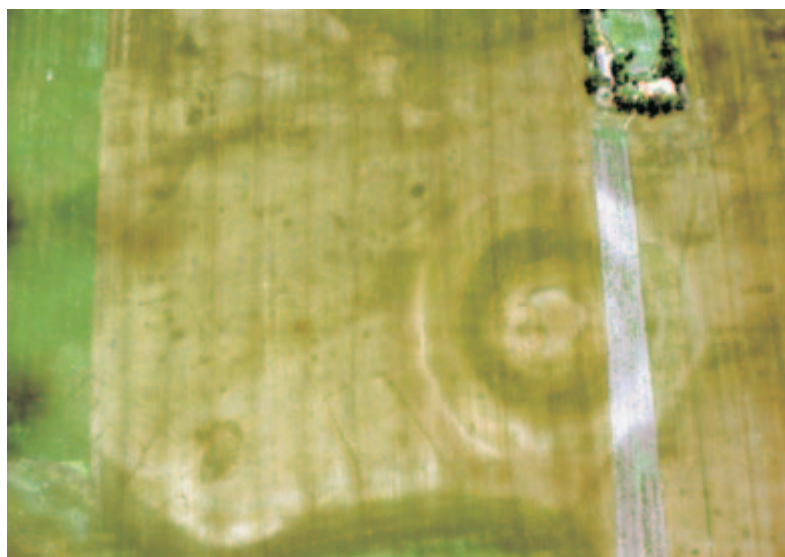
prepared by UNESCO and to make suggestions and modifications corresponding to the Hungarian conditions and needs. A similarly important task is the organization of the training of archaeologists and conservators for underwater work, as well as training divers for archaeological work. No less important is the ensuring of adequate funding for the excavation of underwater archaeological sites and, also, that underwater archaeology be moved from the periphery to a more focal place in Hungarian archaeology.

AERIAL ARCHAEOLOGY IN HUNGARY

Zsolt Visy

The invention and use of zeppelins and airplanes was one of the major advances of the late 19th century, fulfilling a many thousand years old dream of mankind. Until then, observations could be made only from mountain peaks, hills and higher elevations. The invention of flying machines meant that observations could now be made from any desired location and from any altitude. Maps of various regions and towns, formerly drawn only from imagination, could now be based on personal experiences. With the spread of photography, the number of pictures taken from higher elevations increased, and photographs made from balloons, the antecedents of real aerial photos, appeared at the end of the 19th century. As it often happens in the case of major inventions, the pioneering work in this field was done by the military. The advantages of aerial reconnaissance and the potentials of recording observations on a photo were quickly realized during World War 1. Observation from a high altitude and the accompanying photographs opened new perspectives for scientific research – the specialists of this new method soon determined the

Fig. 10. Late Neolithic or Early Copper Age enclosure and rampart at Jánosbida–Portelek



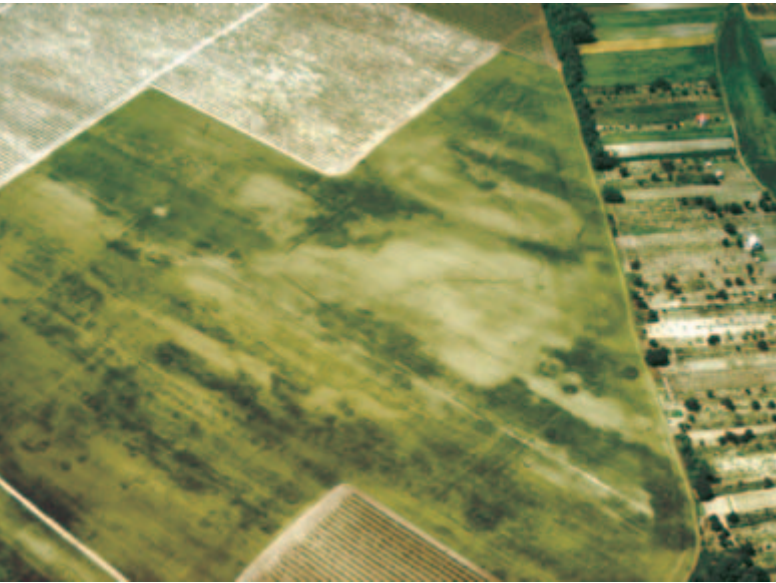


Fig. 11. *Brigetio, marching camps VI and VII at Szőny*

optimal conditions for its application and worked out when, from what altitude and at what time of day the best results could be obtained. They soon realized that many features that remained undetected on the ground became visible from the air and, also, that phenomena that appeared as random features on the ground formed a coherent pattern if viewed from above, revealing a number of points that could never have been detected on the ground. A number of partially or totally buried remains and other relics of bygone ages could be identified (Fig. 10). Aerial photography was one of the positive accomplishments of World War 1; many pilots fighting in the war were the first to observe and register archaeological relics. After returning to civil life, they began to organize the systematic aerial reconnaissance, documentation and evaluation of archaeological features.

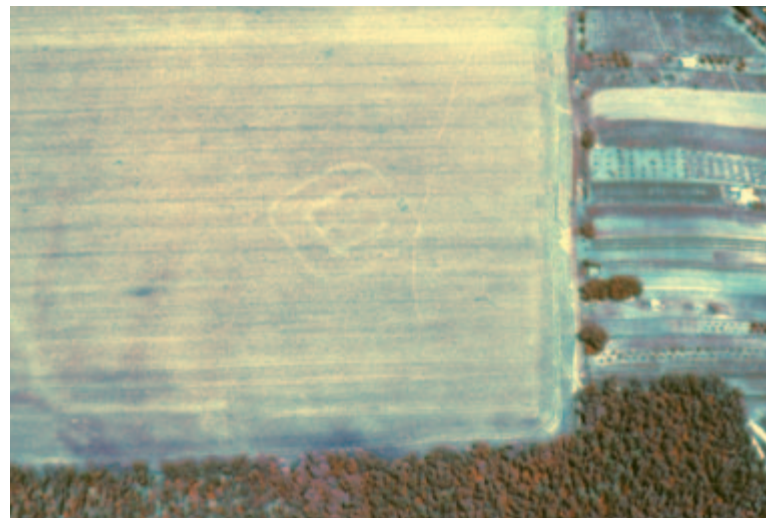
The pioneers of aerial archaeology elaborated the methods of this discipline in the 1920s and 1930s. In addition to work in Europe, they were also interested in the exploration of buried ruins in the desert areas of Africa and the Near East. The doyens of the field, Theodor Wiegand, Antoine Poidebard and, later, Osbert Guy Stanhope Crawford, were joined by Aurél Stein who began the aerial exploration of the Roman *limes* and other archaeological monuments in Iraq in 1938, at the age of 76. Aerial archaeology in Hungary began more or less simultaneously with international experiments in this field. In 1938, Lóránd Radnai published a paper in which he described the archaeological uses of aerial photography and the basic requirements of successful observation. The first aerial photos were published in *Archaeologiai Értesítő* two years later: in his discussion of these photos Radnai convincingly proved his point and demonstrated that aerial photography can be successfully applied under Hungarian conditions too.

Archaeologists soon became acquainted with this impor-

tant new research technique. A few years later Aladár Radnóti published high quality photos that could be evaluated archaeologically in his study on the Dacian *limes* along the ridge of the Meszes mountains. Wartime conditions greatly contributed to advances in archaeological aerial photography, but they also brought a number of restrictions. While planned reconnaissance flights could rarely be made, there were no objections to the archaeological analysis of the high number of excellent aerial photos made by the army. Sándor Neógrády spent long years studying these photos. He accumulated an impressive collection of aerial photos, publishing a part of his collection at the last possible moment in 1950. We can only hypothesize what else there was in his collection that never became generally accessible owing to the changes in the political climate. The all-pervasive atmosphere of suspicion characterizing the Communist system did not allow the complex mapping of Hungary's territory and aerial reconnaissance was relegated to the category of military secrets.

The political thaw in the 1970s at last made possible the application of aerial photography for purposes other than military reconnaissance, obviously with the strict observance of regulations. Aerial photography for archaeological research could at last begin, although the photographs made during this period often had little scientific value since they were not always made at the optimal time and under optimal conditions, but when the flight was permitted. It now became possible to systematically study the photos made for topographic or economic purposes on which archaeological features could be clearly made out. Most important among these was a series from the early 1940s that showed the entire Hungarian section of the Danube and other territories. A number of features that now lie concealed under buildings and factories built since, or have been destroyed by intensive cultivation, are still visible on these photos. The photos made in the 1950s and later also contained much useful

Fig. 12. *Annamatia, watchtower 9 with the limes road at Dunakömlőd*



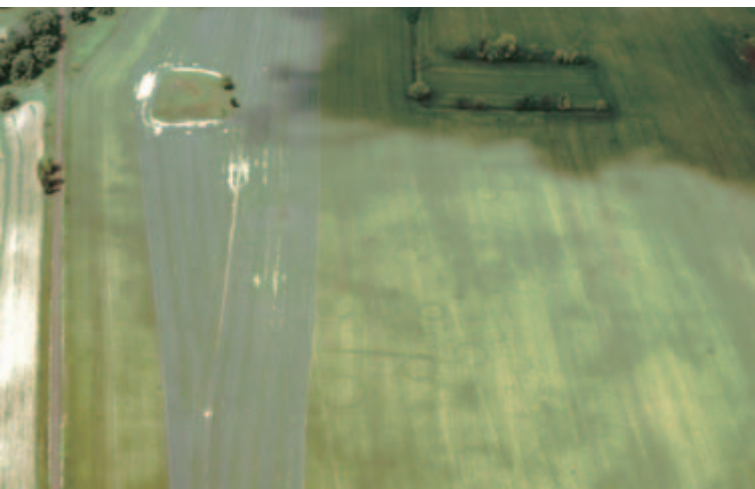


Fig. 13. Roman period tumuli at Écs

information and their study can still yield new data since the careful inspection of these photos can lead to new discoveries. The restrictions on aerial photography were gradually lifted, first by easing the strict regulations and, after the political changes, by declassifying certain maps and photograph types. The earlier strict regulation only allowed the aerial photography of already known archaeological sites, meaning that archaeological reconnaissance flights with the purpose of discovering and documenting new archaeological features

and remains were not permitted. The new regulation allows flights over larger areas and the unrestricted photography of the assumed and identified features. The current Hungarian system more or less conforms to the regulations in most European countries (*Fig. 11*).

The principle of detecting archaeological features from the air is essentially identical with the one enabling identification during fieldwork: once the soil has been disturbed, the traces of these interventions are preserved in the soil, often for long millennia in exceptionally fortunate cases. These interventions are reflected in the colour, the compactness, the composition and moisture retention of the soil. Traces of human intervention can be distinguished on aerial photos of a particular area much in the same way as the different layers in the section of a trench in an excavation. Aerial photos, however, often contain a wealth of smaller details that are not apparent in the average excavation section. Since the soil disturbed by human activity differs from its immediate environment, often the vegetation itself or the snow cover may indicate that something lies hidden in the ground. Plants usually grow higher in the more humic soil filling pits and ditches, while they remain underdeveloped over the stone and mortar in the walls of buildings (*Fig. 12*). Micro-organisms thrive in the more humic soils, often generating sufficient heat to melt a thin layer of freshly fallen snow over a former pit or the line of an ancient ditch. Of the various

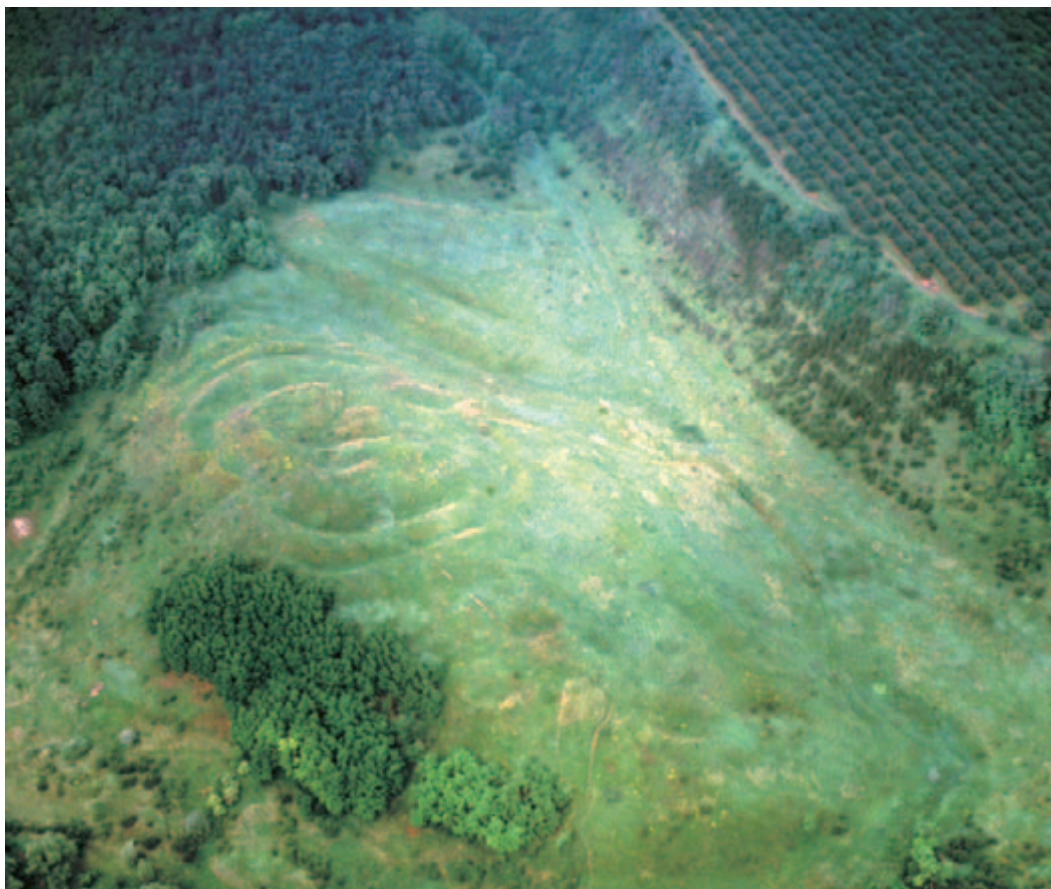


Fig. 14. Medieval earthen hillfort and ramparts at Galgabévíz–Szentandrás-part



Fig. 15. Roman fort. Sárszentágota

plants, cereals are the most suitable for indicating archaeological features buried under the soil. Divergences from the surrounding area are reflected in the colour, the phase of development and ripening and, very often, in height. These small differences are often caused by drought since the vegetation relies on the moisture and nourishment it can attain through its roots, and differences can be considerable in stony or strongly humic rich soils. Similarly to other archaeological features that have survived as surface reliefs, the slight differences in height can best be observed in the form of shadow marks cast by the rising or setting sun.

Aerial photography plays an increasingly important role in archaeology. Beside the identification of archaeological sites, these photos are invaluable for determining the extent, the structure and the basic outlay of a site. The groundplan and layout of the visible features are sometimes sufficient in themselves for determining the date of these archaeological remains (Fig. 13). In contrast to the obliquely photographed features with a strong foreshortening whose mapping is a rather complicated procedure, the mapping and identification of features photographed vertically is not particularly difficult. Computer technology has brought a breakthrough in this respect too, since a few points are generally sufficient for running a GIS modelling programme and the digitized image can be directly projected onto a map (Fig. 14).

Aerial archaeology has progressed at an unbelievable pace in Hungary during the last decade of the 20th century. Thousands of aerial photos have been made and several major projects were launched and carried out using GIS modelling. Major advances have been made in mastering the necessary techniques and applications of aerial archaeology, as well as in the creation of aerial photo databases. Aerial archaeology contributed greatly towards accelerating the pace of archaeological topography and creating a national registry of archaeological sites. Similarly, the creation of a uniform archaeological database through the co-operation of several institutions is no longer a dream that can only be achieved in the distant future (Fig. 15).

URBAN ARCHAEOLOGY: A SPECIAL FIELD OF HERITAGE PROTECTION

Paula Zsidi

The conditions of archaeological fieldwork in rural and urban areas differed significantly from the very beginning of archaeological research, although in Hungary urban archaeology in the Western European sense only made its appearance in the mid-1970s. Beside Budapest, urban archaeology is pursued in all Hungarian towns that have a historical centre and when the rescue and the conservation of the relics of the past must be considered in urban development projects (as in Pécs, Sopron, Szombathely and elsewhere).

Urban archaeology is a direct outgrowth of urban planning and construction projects. This can be especially well observed in Budapest, an excellent example being the territory of Óbuda. The excavations of the civilian settlement of Aquincum began when the town wall of this settlement was demolished as part of a construction project. In the lack of a central regulation, local regulations were passed in the 1870s and 1880s to protect the monuments discovered in Óbuda and “to prevent their destruction”. Another regulation was passed in Budapest in 1928 that stipulated not only that the finds should be handed over to the appropriate authorities, but also that the discovered monuments “be examined by the museum” even at the price of suspending the work for a week.

One major change in urban archaeology came in the mid-1970s, when earth-moving operations were mechanized on construction projects. The pace of earth-moving operations accelerated, posing a major threat to the archaeological heritage and a significant rise in the number of excavations (Fig. 16). Archaeologists had to come to terms with the fact that archaeological investigations became part of these construction projects. The same process had already occurred earlier in Western Europe and Hungarian archaeologists could thus familiarize themselves with the modern methods of urban archaeology through their international contacts and at various international workshops devoted to this subject. The protection of the historical centres of Cologne, Bonn, London and other cities served as models for the elaboration of the Hungarian practice in this field. Hungary also signed a series of European conventions and treaties on the protection of historical town centres and the protection of the archaeological heritage. The principles and norms laid down in these conventions, such as the Malta Convention signed in 1992 and ratified by Hungary in 2000, were incorporated into Act CXL of 1997 and, more emphatically, into Act LXIV of 2001.

As regards the protection of the historical town centres, the growing number of private construction projects meant an unusually acute threat from the early 1990s. Fortunately, the preparatory work based on the experiences of earlier decades and the continuously updated archaeological database, the improvement in technical equipment and the



Fig. 16. Urban archaeology: excavation on the territory of the military town of Aquincum in Óbuda in the 1980s

familiarity with experiences gained in other European towns was instrumental to surviving this period without major damages. Act CXL of 1997 provided a secure financial background for the protection of the archaeological heritage and this enabled the continuation of excavation campaigns without a major break. In order to achieve and maintain the required high standards, urban archaeology also calls for the activity of highly qualified professionals with experience in this field and the structural reform of the institutions involved in urban archaeology.

THE NATURE OF URBAN ARCHAEOLOGY

There are several features specific to urban archaeology that distinguish this discipline from planned excavations and from the usual fieldwork preceding large-scale green-field investment projects in areas that are not built up. For example, the start of the excavation campaign and its duration is determined by the pace of the construction work. The excavation itself cannot be meticulously planned and the investigations are rarely conducted on sites that would otherwise have been chosen for addressing specific problems of a given archaeological period. There is need for constant liaison with the appropriate construction authorities and the regional chief architects; at the same time, the taxation and labour legislation that applies in these cases is not always unambiguous. The gravest problem, however, is the conservation, cataloguing and storage of the immense number of finds brought to light during the excavations.

Beside the protection of the archaeological heritage, the needs of archaeological scholarship must also be considered. The schedule of these construction projects, most of which are usually unrelated to each other, is rarely determined by

the needs of the discipline. The findings of the excavations associated with construction projects can only be set into their genuine context and become useful historical sources if they are fitted into a database containing the relevant data. Topographic research projects of different historical periods play an important role in urban archaeology since they provide a coherent framework into which the seemingly unrelated bits and pieces of information can be fitted. The Budapest History Museum has so-called regional supervisors co-ordinating the topographic research projects, whose main task is to ensure that the needs of the discipline are taken into consideration. These regional supervisors keep track of the excavations in their area, directing and co-ordinating the work of the archaeologists in the case of simultaneously conducted excavations.

Urban archaeology often resembles a huge jig-saw puzzle. An important new breakthrough is in many cases only possible after fitting together tiny details, obtained from many years of patient work. The seemingly unrelated bits and pieces of information are recorded and mapped, and only later do they form a coherent picture and become a useful historical source. The different parts of a prehistoric settlement or cemetery, or parts of a Roman period or medieval building are often discovered separately, and only after many years or even decades can they be fitted into the overall picture. An excavation usually means the very last, unrepeatability opportunity to recover and document the information of an archaeological site. In the case of relics and monuments that will be destroyed, the objective is their complete excavation as best as possible. Archaeometric methods, such as archaeozoology, archaeobotany, dendrochronology, archaeomagnetic surveys, etc., can be successfully applied in these cases, as shown by the experiences of more recent years.



Fig. 17. Eastern gate of the legionary fortress of Aquincum, a reconstructed monument in an urban environment

URBAN EXCAVATIONS AND URBAN PLANNING

The continuous contact between institutions responsible for urban planning and the protection of the archaeological heritage is vital. According to the current legislation, the archaeological importance of a given area must be taken into consideration during the initial phase of urban planning projects and the preparation of the overall plans. This also means that ‘unexpected rescue excavations’ and the interruption of the construction work can be avoided – even if in many cases these are not really unexpected, they can be a source of irritation for both investors and archaeologists. Trial excavations, combined with geophysical surveys and, in a few exceptional cases, aerial photos should precede the start of a construction project since these can be of aid in determining the archaeological features of a larger territory before it is built up. In Budapest, for example, the good contact between most of the district self-governments and the Budapest History Museum ensured that the formerly unknown areas of Aquincum, the seat of the Roman province of Pannonia, were identified at Budaújlak, the Filatoria dam and in the Csúcshegy area (Budapest III, Óbuda). A continuous monitoring is obviously necessary to regularly

check and document the actual condition of archaeologically important areas. At present, only the outstandingly important archaeological areas are included in this survey.

Modern European heritage protection and the European practice of urban archaeology can hardly be conceived without a presentation of the findings of the excavations to the scholarly community, the general public and, also, the investors (*Fig. 17*). Suffice it here to quote *Aquincumi Füzetek*, published at regular intervals since 1995, containing reports about the recent results of the investigations at Aquincum, the Roman predecessor of Budapest. The publication of the excavation findings is not only an academic question, but also an ethical one. József Korek once remarked that “research cannot be a goal in itself – research is only valuable if it serves the public.”

THE PROTECTION OF THE ARCHAEOLOGICAL HERITAGE IN HUNGARY

Mihály Nagy

The concept of archaeological heritage is relatively new in Hungary: its first mention in an official document can be

Fig. 18. Baron Gyula Forster



found in the so-called Cultural Act of 1997. In common usage the word 'find' denotes objects recovered from the earth, water, etc., that constitute a source material for archaeology. This expression, however, is not precise since in certain cases 'find' only referred to movable objects (this sense of the word is also common in a few other European countries). In contrast, the word 'heritage' covers both the movable and the immovable relics and, what is even more important in terms of source value, their relation to each other. Commenting on a draft bill on movable relics, Baron Gyula Forster (Fig. 18), the one-time chairman of the National Committee of Monuments, defined 'finds' as archaeological objects, as well as organic and inorganic remains with a scientific value. Similarly to treasure troves, these could be considered ownerless (*res nullius*) in the legal sense.

A distinction is drawn between movable and immovable relics and monuments in legal parlance. The former also included archaeological finds in certain periods, but in Forster's concept only artworks and artistic creations of the applied arts were assigned to this category. Earlier efforts tended to concentrate on objects that could be placed in collections, rather than on the site from which they had been recovered (although we now know that the position and context of a find is at least as important as the find itself). One consequence of this approach was that the immovable archaeological relics brought to light during earth-moving operations came under the same consideration as the hidden sections of an extant building: they were not regarded as ownerless goods, but as part of the immovable property that concealed them.

BEGINNINGS

Although there is evidence for the collection of archaeological finds from the close of the 15th century, the institutional protection of the Hungarian archaeological heritage can only be dated from the mid-19th century.

Disregarding a few exceptions, only the objects wrought of precious metal were considered valuable from among the archaeological finds recovered from the earth in the Middle Ages. The changes in the determination of who had ownership rights to the finds must also be briefly mentioned in a historical overview of the protection of the archaeological heritage, especially since the restrictions on ownership rights often hindered the legal protection of archaeological finds.

Forster argued that "the primary method of acquiring ownership rights is appropriation, one variant of this being finding or discovery. This also applies to treasure troves, the common sense principle being that ownerless goods pass into the ownership of the first acquirer. However, this is in contradiction to the indirect mode of appropriation, namely the principle according to which any accretion passes into the possession of the owner of the original property – and since treasure troves are regarded as an accretion, the right of ac-

quisition lies with the owner of the land." Since the finder of a treasure trove is not necessarily the owner of the land, both can – at least theoretically – lay claim to the treasure. Hidden objects, whose ownership could not be established, fell under the same consideration as the goods of inestate persons, in other words, they reverted to the royal treasury. The ownership rights to a treasure trove had to be established with respect to the interests of these three parties.

The earliest discussion of ownership rights in relation to a treasure trove in Hungary can be found in a charter issued in 1229, recording that the finders of a treasure trove were summoned by the Bishop of Várad since – neglecting their duty – they failed to report the treasure trove and had thus robbed the king. Other instances of the discovery of treasure troves are also known from the Middle Ages and the post-medieval period. Although the details of these discoveries were not always recorded, what clearly emerges is that the owner of the land and, in some cases, the king himself laid claim to these treasure troves or a part of them.

A royal decree issued in 1776 opened a new era in the legislation concerning treasure troves in Hungary. This decree was in effect the adoption of Austrian legislative practice. According to the decree, one-third of the treasure trove went to the Treasury, one-third to the owner of the land and one-third to the finder. This only applied to bullions of outstanding value; however, since a royal decree from 1777 stated that the Treasury did not lay claim to one-third of treasure troves whose value was less than 150 forints, treasure troves falling in this category would be equally divided between the finder and the owner of the land. At the same time, the consideration of the academic value of these finds is reflected by the fact that a few coins from one of these treasure troves were reserved for the Royal and Imperial Coin Collection, and the finder and the owner of the land were recompensed from the Treasury of the Hungarian Chamber. The practice of dividing treasure troves into three parts remained a common practice in Hungary until 1949, even though the claim of the Treasury to its one-third remained legally unfounded since the royal decrees had never been promulgated by Hungarian Parliament.

A decree of the Royal Chancellery issued in 1798 stipulated that ancient coins with a value of less than 150 forints and even hoards that were worthless had to be reported. The idea behind the extension of the concept of treasure trove in this manner was to ensure the acquisition of antiquities that had an academic value for the imperial collections.

THE IMPORTANCE OF THE FOUNDATION OF THE HUNGARIAN NATIONAL MUSEUM

November 25, 1802, is regarded as an important milestone in the struggle for the creation of an independent national culture. On that day Count Ferenc Széchenyi (Fig. 19) announced his decision to donate his private



Fig. 19. Portrait of Count Ferenc Széchenyi

collection to the nation. This collection, whose curatorship was entrusted to the Palatine József in the foundation deed, became the basis of the collections in the Hungarian National Museum and the major public collections in other museums that later grew out of the museum. The Széchenyi collection also included an assortment of archaeological finds; the collection of antiquities was continued after the foundation of the museum. When the Sistaróc (Șiștarovăț, Romania) find was handed over to the Chamber in 1813, the Palatine announced the royal decision that the National Museum and the University of Pest had the right to make their own selection of the coins rejected by Vienna (the finder and the owner of the land were recompensed by the museum and the university). This was the first instance that two Hungarian public collections could make a selection of articles from a find assemblage discovered in Hungary.

1846 was remarkable for two outstanding events. At the congress of the Hungarian Physicists and Nature Explorers held in Kassa, Imre Henszlman called attention to the importance of the protection of Hungarian antiquities. The same year the cataloguing of archaeological finds, similar to the present practice, was introduced in the Hungarian National Museum. Articles recovered from a particular site were regarded as parts of the same find assemblage; the description of the finds, accompanied by their drawing and exact measurements, enabled the unambiguous identification of the finds in question.

THE ROLE OF THE HUNGARIAN ACADEMY OF SCIENCES

At the beginning of the next year, the Hungarian Academy of Sciences announced the need for the protection of monuments, a most urgent task since ancient monuments often fell prey to various construction projects or sheer indifference. The main purpose was to “kindle an awareness of history, to shed light on ancient Hungarian culture and to upraise national pride”. The circle of monuments in need of protection was also defined: the relics of the national past (up to the Szatmár Peace Treaty) that were reflections of ancient national culture and glory. These relics included buildings, carvings, casts, tumuli, paintings, engravings, weapons, furniture, vessels and jewellery. Although the protection of these relics was envisioned within the legal framework defined by the academy’s statutes, an appeal to the patriotism of Hungarian citizens was also made.

The announcement did not go unheeded as shown by the fact that as head of the National Defence Committee during the 1848–49 Revolution and War of Independence, Lajos Kossuth issued a decree on November 30, 1848, stipulating that the antiquities found during the construction of military defences be sent to the Hungarian National Museum together with a description of their findspot and

Fig. 20. Section of the royal basilica at Székesfehérvár from János Érdy’s excavations in 1848. Contemporary drawing by János Varsányi



the depth at which they had been found; a second report was to be sent to the secretary of the Hungarian Academy of Sciences. The archaeological finds sent to the museum found on the territory of Contra Aquincum during the construction of the Pest defenceworks indicate that Kossuth's orders were observed. The first systematic archaeological excavations can be dated from the same time. János Erdy, Keeper of the Antiquities Collection of the Hungarian National Museum, unearthed the grave of Béla III and his wife, Anna of Antioch, among the ruins of the royal basilica in Székesfehérvár in December, 1848 (Fig. 20).

After the crushing of War of Independence, Francis Joseph I issued an imperial decree on December 31, 1850, for the creation of a committee (the so-called *Centralkommission*) to seek out major architectural monuments and to organize their preservation. The authority of this committee extended over the entire territory of the Monarchy, including Hungary, and remained in effect until November, 1866.

A proposal was submitted to the general assembly of the Hungarian Academy of Sciences in January, 1858, for the creation of an Archaeological Committee within the Historical Department. Similarly to the appeal of 1847, the expression 'monuments' denoted "relics of antiquarian value" originating from the period before the Szatmár Peace Treaty. It was also decided that the Committee would publish its own journal, *Archaeologiai Közlemények*, the first archaeological periodical in Hungary.

One of the concessions made by Austrian absolutism during one of its periodic crises was the proclamation of a constitution known as the October Diploma – granting the provinces of the empire greater autonomy in their internal affairs – on October 20, 1860, by the Emperor Francis Joseph I. Even though the pre-1848 government bodies were restored in Hungary, Hungarian Parliament ultimately refused to recognize the legality of the October Diploma in 1861. (This date also marked the end of the activity of the *Centralkommission* in Hungary.) In 1861 the *Consilium* requested that the Hungarian Academy of Sciences create a Hungarian committee similar to the *Centralkommission*. The Academy, however, favoured the establishment of a permanent committee, whose members would include a representative of the government, for the simple reason that the Academy had no wish to become a government organization through a committee of this kind. The debates over this issue went on for some four years without reaching a final decision. During this time, the archaeological finds and treasure troves were taken to Vienna until 1867; Hungarian collections could make their selection from among the finds only after the imperial collection had taken its pick. On the initiatives of the Minister of Transport, the finds brought to light during the construction of railways and canals were reported to the appropriate authorities who, depending on the location of the construction, notified the Hungarian or the Transylvanian National Museum.

LEGISLATION

Imre Henszlmann's draft bill from 1869 proposed the creation of a National Archaeological Inspectorate that would be responsible for movable antiquities and of a National Archaeological Committee that would act as a counselling body to the minister. This draft bill represented a major advance regarding the principle of provenance. Although the Hungarian National Museum still enjoyed absolute primacy in the selection of finds for its collections, the country museums could now also keep some of the finds. The debate over the bill continued for many years, while the archaeological societies active in the Hungarian counties demanded that at least some of the finds discovered in their area of activity be given to their collections (Fig. 21).

In the meantime, article 366 of the Penal Code (Act V of 1878) regulated the negligence of reporting a treasure trove and illicit treasure hunting. The relevant article of the law defined 'treasure' as an antiquity with an inherent or an archaeological value, whose lawful owner could not be determined. This piece of legislation was designed to ensure the museums' right of selecting and preserving the finds, as well as punishing any losses inflicted on the Treasury. Viewed from the perspective of the history of archaeological heritage protection, the concept of treasure was – in the sense used by the Penal Code – extended to every archaeological find.

The Upper House debated the draft bill submitted by Henszlmann on April 30, 1881. Arnold Ipolyi submitted an

Fig. 21. Imre Henszlmann



amendment in which he proposed that the force of the bill also be extended to movable antiquities. Forster noted that “Minister Trefort, however, found it unnecessary to amend the text because, together with the Minister of Finance, he intended to introduce a separate bill on movable antiquities ... [and] there was a fear that the inclusion of movable antiquities would fuel apprehensions that restrictions would be imposed on private property owing to the nature of the matter, and that even a favourable solution for immovable relics could be postponed for a long time.”

Act XXXIX on the preservation and maintenance of monuments was finally passed by both Houses of Parliament on May 24, 1881, more than a decade after the draft bill had been submitted. The protection of movable and immovable monuments was separated. Buildings and relics with a historical value lying in the ground (what would today be called the immovable elements of the archaeological heritage) were also included among the monuments as defined by the law; it was also stipulated that the owner or the user of the land must report the discovery of these monuments to the local authorities. The ministry would then decide whether or not the monument should be protected.

Forster noted that one weak point of the act was that it “restricted the concept of monuments to immovable goods, architectural monuments and their elements, a mistaken approach since this implied that only immovable objects and their constituent parts were to be regarded as monuments; it regrettably also projected the idea that even if a movable relic were to qualify as a monument from an academic or artistic point of view, or according to a general consensus, it would not be a monument according to the law.”

There was an attempt at the turn of the century to pass a piece of legislation that treated the various parts of the cultural heritage as an integral unit. In 1898, Gyula Forster was asked to work out a draft bill in which movable and immovable antiquities (the latter including also palaeozoological and anthropological relics) were treated together. József Hampel, Keeper of the Department of Coins and Antiquities of the Hungarian National Museum, was also asked for his comments. Hampel endorsed the idea of extending maximally the concept of archaeological find (“Every man-made product created before the period to which living memory extends is an antiquity”), and, for the sake of scholarship, he suggested that these be brought under the force of the law. Forster was concerned about the negative effects of the limitation of private ownership. In contrast to Hampel, his approach was more practical. His main intention was that historically and artistically important objects remain in the country, and he suggested that a separate fund be created in the state budget for purchasing the finds. (In his scheme the owner of the land and the finder divided the purchase price of the archaeological find between them.) He was also aware of the fact that the law would only be executable if Church goods were also included in the inventory since this would ensure the state’s right of preemption.

In 1912, the National Council of Museums and Libraries submitted a bill on movable antiquities; however, “Act XI on the regulation of the activity of museums, libraries and archives” was only passed in 1929. Article 44 of this act annulled article 366 of the 1878 Penal Code. Instead, article 18 stipulated the right of the Minister of Religion and Public Education to place a ban on excavating an area that concealed or had concealed archaeological, historical, anthropological, geological or palaeontological relics. Only the institution appointed by the Council of Hungarian National Collections was permitted to investigate these areas. The law also stipulated that stray finds and assemblages brought to light in the course of excavations not supervised by professionals had to be reported to the Hungarian National Museum either directly or through the local authorities. The finder of the archaeological relics and the owner of the land were to be recompensed up to a maximum of two-thirds of the value of the finds and this amount was to be divided equally between them.

This law remained in force until November, 1949, when it was replaced by Law-decree 13 on Museums and Monuments. For the first time, the protection of movable and immovable monuments was treated in the same law. This law also stipulated that accidentally discovered immovable or movable relics be reported to the National Centre of Museums and Monuments, either directly or through the local authorities. The Centre would then advise the Minister of Religion and Public Education on which monuments and areas of archaeological or historical significance should be protected by law. One new element in this law was that all immovable museal objects recovered from the ground were vested in the state treasury. Instead of the former recompensing for the finds, the Centre could offer a financial reward to the finder and the owner of the land. Monuments were again treated separately after the Minister of Housing and Public Construction created the National Inspectorate of Monuments and the Municipal Council of Budapest founded the Municipal Inspectorate of Monuments.

Law-decree 9 of 1963 (amended in 1975) on the protection of objects of museal value again regulated the protection of the archaeological heritage and declared that “all relics and monuments with a museal value lying in or recovered from the ground, from water or elsewhere are vested in the state”. This law-decree also stipulated that objects of museal value found accidentally had to be reported to the local council. One new provision in this respect was that instead of the national centre, the territorially competent (“designated”) museum had to be notified, which, after checking the site, determined whether the earth-moving operation that brought the find to light could be continued or not. The other tasks and duties of the former national centre were in part transferred to the Hungarian National Museum and in part to the Excavation Committee. As regards archaeological finds, the law-decree only held out the promise of a reward for the finder; the owner of the land was not mentioned.

THE PROTECTION OF THE IMMOVABLE HERITAGE AT PRESENT

In 1992, the Minister of Environmental Protection and Regional Development created the National Agency for the Protection of Monuments (OMvH) to perform the necessary tasks concerning monument protection and determined the tasks and duties of the Agency in the protection of monuments and the supervision of construction projects, as well as the tasks and duties of the Directorate of Monument Inspection.

Hungarian Parliament enacted the present law on cultural heritage protection in 1997 (Act LIV on monument protection and Act CXL on the protection of cultural goods and museum institutions, on public library service and public education). The latter stipulates that the minister performs certain tasks through the Directorate of Cultural Heritage under his supervision. Certain tasks of the ministry (the registration of protected areas in the land registries), of the Hungarian National Museum (proposals for the protection of sites, inventories) and of the Excavation Committee (excavation licences) were transferred to the Directorate of Cultural Heritage, founded in 1998. The Directorate is an administrative authority, although in the case of areas with an archaeological significance, the authoritative rights are practised by the county museums.

The institutional framework for the protection of the immovable cultural heritage (archaeology and monument protection) was fundamentally transformed in 1998, when responsibility for the protection of the national cultural heritage was transferred to the Ministry of National Cultural Heritage. As parts of these structural changes, a Department of Monuments was organized within the ministry that incorporated the Department of Archaeological Monuments Protection and the Department of Built Monuments Protection. The main tasks of the ministry include the creation and maintenance of a database, regular funding, the creation of a network for the maintenance of monuments and a high level public education.

Although Acts LIV and CXL of 1997 were enacted after a careful preparatory work, the experiences gained in this field since their enactment indicate that further amendments to these laws are necessary. Following the creation of the Ministry of National Cultural Heritage in the summer of 1998, a few minor amendments were proposed. It soon became obvious that these could hardly lead to a modern regulation and a new draft bill for the protection of the archaeological heritage was drawn up in early 2000. Act LXIV of 2001 on the protection of the cultural

heritage that set heritage protection in a broader framework was passed by Parliament on June 19. The new bill incorporated many new elements, such as the inventory, the principle of sustainable usage, the general protection of all known archaeological sites and the various categories of protection in the case of archaeological sites placed under protection by ministerial decree. The act created the Agency of Cultural Heritage Protection by merging the National Agency for the Protection of Monuments and the Directorate of Cultural Heritage; the new office started its activity on October 8, 2001. The new agency has nine regional offices.

INTERNATIONAL PRACTICE

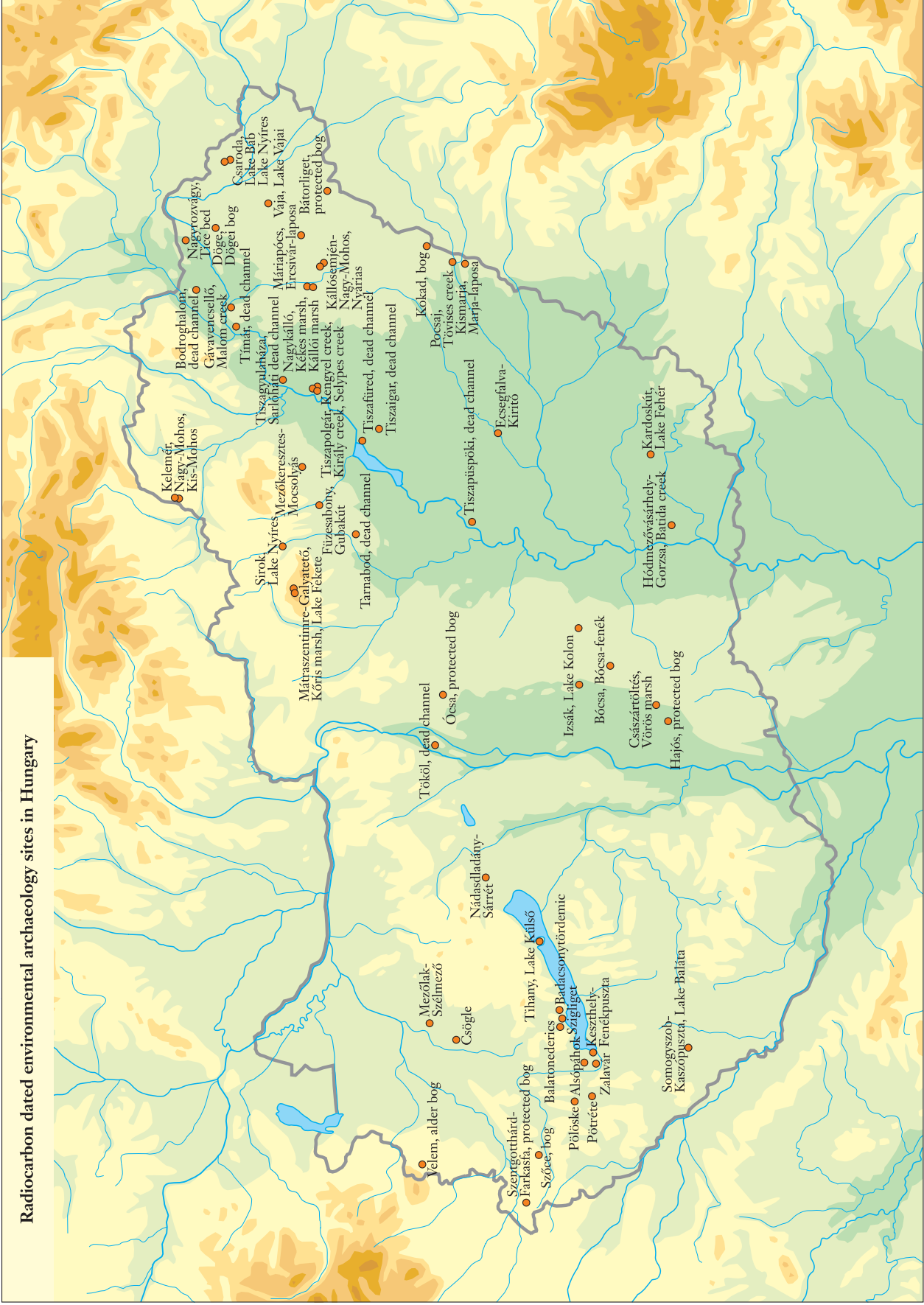
Hungary signed the international conventions after a significant delay in the past (for example the World Heritage Convention of 1972 was ratified and promulgated in 1985, the Malta Convention of 1992 on the protection of archaeological heritage in 2000). European integration calls for a legal harmonization in this field also, and thus every effort must be made for the adoption of international conventions on heritage protection in Hungary, as well as of the European practice in the reorganization of the institutional system entrusted with heritage protection.

Two related tendencies can be observed in the developed European countries. On the one hand, there is a gradual increase in the number of the protected areas that can be classified as one of three categories (national, regional or local). The regulations concerning protection are less rigorous when moving from the national to the local level and this categorization also affects the distribution of central funds. On the other hand, parallel to the rise in the number of the monuments and their classification, there is a tendency to involve regional and local governments in heritage protection by relegating certain tasks to these authorities. In spite of a definite tendency towards decentralization, a certain degree of centralization is nonetheless maintained – for example in the case of national monuments – with the necessary tasks performed by the government through a de-concentrated organization.

The updating of the planned inventory of protected monuments and archaeological sites in Hungary will no doubt lead to an increase in the number of protected areas. A modernized institutional system will no doubt be able to cope with the growing number of tasks. The creation of this network and the legislative background will be one of the main tasks in the new millennium.

II. MAN AND HIS ENVIRONMENT



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ENVIRONMENTAL ARCHAEOLOGY: THE BIRTH OF A NEW DISCIPLINE

Erzsébet Jerem

Palaeoecology, the study of ancient environments using a variety of analytical procedures, has become one of the most dynamic disciplines helping archaeology.

The anthropocentric perspective of archaeology, the growing interest in economic history and the need for accurately dating events not known from historical sources have led to the application of various analytical procedures. There is a growing awareness of the fact that prehistoric peoples and their development were an integral part of a dynamic ecosystem, characterized by perpetual change. A better understanding of human prehistory is therefore impossible without the study of their environment.

The first major steps in employing scientific methods in archaeology were taken during the early 1960s. Palynology, the study of pollen samples emerged first. The main goal of this discipline was to create vegetation profiles from ancient pollen samples retrieved from peat bogs, spanning as long a period as possible. In addition to pioneering studies in this field in Ireland, Sweden, Denmark and Norway, research of this type was also carried out in Hungary. Profiles created from samples collected at different sites revealed a number of similarities and parallelisms that indicated a synchronism, reflected in the distribution of certain tree species, as well as in the early occurrences of cereal pollen indicating a human agency at the beginning of the Neolithic. The need to compare similar phenomena in regions lying far from each other increased the demand for a reliable means of absolute dating. Traditional typochronological systems in archaeology did not fit seamlessly with known radiocarbon dates, obtained by the measurement of the ^{14}C isotope content of organic archaeological finds, such as charcoal and bone. New scientific methods were sought to provide finer absolute dates that could be better correlated with existing systems. Dendrochronological studies, based on the chronological interpretation of tree-ring sequences, became one of the fastest growing disciplines at the time. The results of dendrochronology have become instrumental in re-calibrating radiocarbon dates. There was an emphasis on creating long dendrochronological sequences, as well as on harmonizing the dates obtained by different laboratories during the early phase of this research. The time frontiers of dendrochronology were gradually expanded. The longest dendrochronological sequence first reached back to 5289 B.C. Later advances in this field provided continuous dendrochronological dates as early as 7224 B.C. A methodological breakthrough came in the late 1970s, when steady work by Gordon W. Pearson reduced the error margins of ^{14}C dating from ± 80 years to ± 20 years. By 1985, a complete ^{14}C calibration curve was prepared on the basis of dendrochronological results from Ireland. Minze Stuiver arrived at very similar results in the United States. These two major sets of dendrochronological

logical dates have been synchronized using ancient oak samples from Germany. This resulted in the system known as the Stuiver/Pearson high-precision ^{14}C dating, best known by the Stuiver/Pearson calibration curve. Refinement achieved by this research has increased the dendrochronological time scale to almost 9000 BC. The ongoing improvement and expansion of these results has recently been enhanced by so-called AMS (accelerator mass spectrometry) ^{14}C dating that, owing to the small samples needed, has multiplied the pool of archaeological material available for study. As a result of this development, accurate dates for the Late Bronze Age and Iron Age, both problematic periods in this respect, have been obtained. In the case of reliable samples, even dating to the year became possible. Owing to the concerted research efforts during the past thirty years, the accurate dating of environmental and cultural changes is now possible, enabling the study of the interaction between the two fundamental factors that determined human history.

As a spin-off of tree-ring analyses, there emerged a new discipline, dendroclimatology, the study of tree-rings with the aim of reconstructing the palaeoclimate, based on the observation that differences in the formation of tree-rings were influenced by minute changes in the environment. It came as a major revelation that the absolute dates of the tightest tree-ring sequence, based on oak from peat bogs in Ireland and elsewhere, coincided with ice core data from Iceland that indicated an unambiguous deterioration of climate. This discovery led to next step, the correlation of these sequences with known events, such as the volcanic eruptions registered in the Aegean during the Bronze Age (e. g. the one leading to the destruction of Thera).

Research of this type continues to yield new results. Tephrochronological studies, based on the dating of solid matter ejected during volcanic activity, showed that such material originating from eruptions in Greenland occurred in various peat cores in Europe and in loess samples from the Carpathian Basin. This enabled the correlation of the results of palynological research between various regions and also helped in the holistic integration of multidisciplinary observations. This is a prime example of how the methods of environmental archaeology and archaeometry complement each other, thereby helping to test hypotheses of ever increasing complexity.

METHODS OF ENVIRONMENTAL ARCHAEOLOGY

Palaeoecology is an integrating discipline whose focus varies between time periods and regions. Therefore its methodology always has to be chosen flexibly, according to the problem to be tackled. All handbooks on environmental archaeology emphasize the importance of a many-sided, multidisciplinary approach. Consequently, it is of prime importance that disciplines and methods be chosen appropriately both during survey work and sampling during exca-



Fig. 1. The regulated Kapos and Koppány rivers, from the northwest. The oxbows of the Kapos river enclosing archaeological sites can be clearly seen



Fig. 2. Aerial photograph of the surroundings of the Endrőd-Paphalom site, showing the former river bed and floodplains

uations. During the evaluation of the evidence – for example palaeoclimatic reconstruction – one is inevitably dependent on the use of proxy data. Co-ordinating such information makes the work of archaeologists more difficult. On the other hand, it expands the range of disciplines that contribute to the synthesis of results.

In addition to keeping track of spatial and chronological co-ordinates, the choice of the appropriate scale and proportions is also of crucial importance. Mega-scales of astronomic sizes are of little concern to archaeologists. Processes on the so-called macro- and mega-scale, however, offer information on the interaction between five basic spheres (atmo-, geo-, crio-, lito- and hydrosphere) whose changes

determine ecozones. Processes on a micro-scale can be evaluated against this background.

Following deductive reasoning that proceeds from the general to the individual, data for reliable environmental reconstruction can be acquired only through sampling archaeological sites whose location is clearly recognized within the overall landscape. Comparisons between regional and local sets of information are of similarly great importance since they are instrumental in elucidating ancient human impact and forms of environmental exploitation. Isolated, on-site observations are insufficient for landscape reconstruction. It is for this reason that the results of off-site sampling should also be integrated into archaeological research.

Among the methods used in practical work, geomorphological analyses are of increasing importance. This discipline describes structural changes in the surface, including those that pre-date the life of archaeological sites, those that had been coeval with ancient occupation and any developments that have taken place until recent excavations. Disciplinary boundaries between geology, sedimentology and paedology are often blurred.

Palaeohydrographic research is aimed at the reconstruction of ancient water systems, the formation of river networks and studying changes in the hydrosphere. This is of particular importance in the Carpathian Basin since 19th century river regulations have changed the entire landscape dramatically. Interpreting the archaeological settlement network is possible only with the careful consideration of ancient river networks and floodplains (Figs 1–2, 4). In low-lying, easily inundated areas, even small differences in elevation may make a major difference, as shown by the remains of human occupation on small loess humps, low terraces, accumulations of alluvial sediment and other types of mounds (Fig. 3). Oscillations in the levels of major lakes (Lake Balaton, Neusiedlersee, Lake Velence) also reflect climatic changes, some of which can be traced in the historical record.

Fig. 3. Detail of the 3D map of the Békés County Microregion Project, showing the relationship between ancient riverbeds, loess ridges and archaeological sites



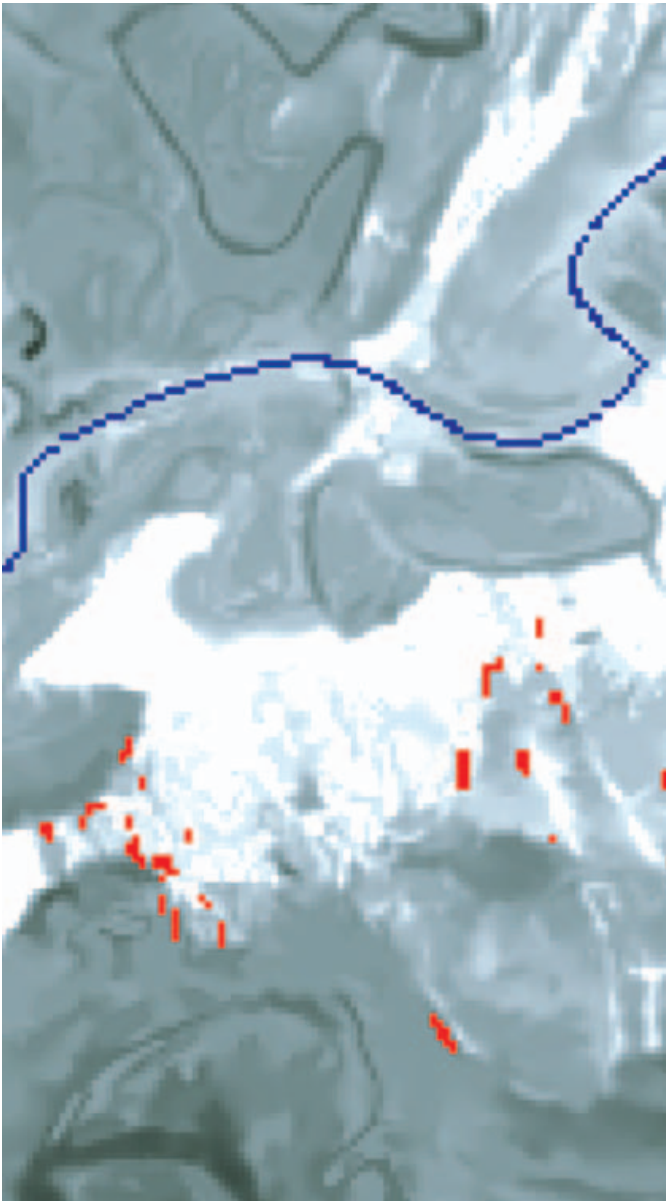


Fig. 4. Map of the Upper Tisza Project, showing the location of Middle Neolithic sites along the edge of the floodplains of the Tisza river, reconstructed using computer simulation

The significance of archaeopaedology is similarly increasing, as physical and geological methods make the precise registration of natural, as well as anthropogenic soil developments possible. Buried and alluvial soils are of special importance in terms of landscape reconstruction and related archaeological enquiry. Advances in the relative and absolute dating of the archaeological stratigraphy has led to the emergence of complex soil studies. The findings of the latter complement information on climatic changes and their impact on soil formation. They also indicate radical shifts in climate that often had dramatic historical consequences.

Reconstructing ancient vegetation can be carried out using both macro- (seeds and fruits) and micro-botanical (pol-



Fig. 5. Series of screens used in the water-sieving of archaeobotanical samples at Gôr-Kápolnadomb

lens, spora, phytoliths) finds. These can be studied in a variety of samples (e.g. carbonized seeds, plant imprints, wattle and daub remains, charcoal), and from different aspects. Macrobotanical remains are also used in absolute dating. Archaeobotanical studies shed light on ancient land cultivation and human nutrition, that is, past ways of life. Indirectly, they may also characterize the climate. The results of archaeobotanical research have modified earlier findings. The replacement of coniferous forests by deciduous woodland was re-dated and new information was obtained regarding the changes in species composition. Anthropogenic effects represented by burnt layers, traces of deforestation and the first occurrences of various weed species could also be identified. In addition, numerous new discoveries were

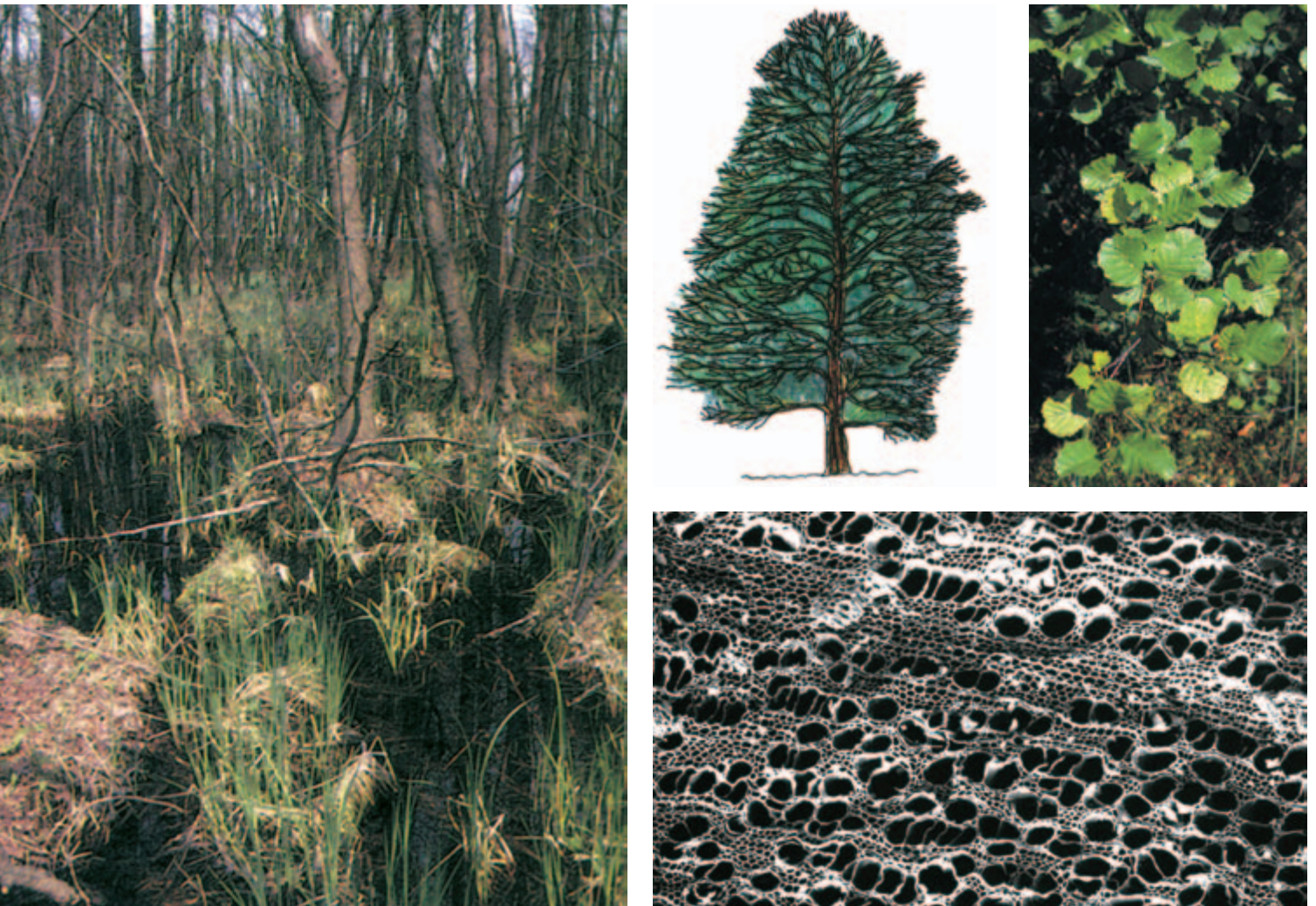


Fig. 6. Scanning electron microscope picture of alder (*Alnus glutinosa/incana*), from a charcoal sample collected at Sopron–Krautacker, here shown with the outline of the tree and its leaf

made regarding the history of cereal, vegetable and fruit cultivation (Figs 5–6).

Owing to the environmental tolerance of animals that evolved throughout the millennia, faunal reaction to climatic and other ecological changes tends to be delayed to various degrees. Environmental data most characteristic to a site are provided by taxa of limited spatial ranges, such as small vertebrates, molluscs and insects. These animals are good indicators of climate. Diachronic changes in the qualitative and quantitative composition of molluscan and small vertebrate finds are instrumental in interpreting ancient environments since many of these species evolved during the Early Holocene, and are still present in the fauna of present-day Hungary.

The comparison and synthetic evaluation of data obtained through various analyses are aided by a number of computer programme, including the archaeological applications of geographical information systems (GIS). This enables not only the visual presentation of multidisciplinary analyses, but is also an excellent tool for formulating models and hypothesis testing.

ENVIRONMENTAL ARCHAEOLOGY IN HUNGARY

Owing to the nature of the find assemblages recovered during their investigations, Palaeolithic archaeologists were the first to introduce large-scale sampling and, in addition to palaeontological studies, to water-sieve samples from cave sediments in order to retrieve of micro-finds. A handful of articles pointed out the importance of collecting seeds, land snails and bones from fish, as well as other small vertebrates. Articles discussing practical methods of sampling and sieving have likewise been published.

From the late 1970s and early 1980s, systematic sampling became a common procedure during major excavations at tell sites, as well as at hillforts and single-layer settlements in Hungary. Of the comprehensive palaeoecological studies concentrated on individual sites, outstanding work was done by Erzsébet Jerem and her research team in the Sopron region. Planned excavations and related scientific analyses made the reconstruction of the ancient landscape possible

(Fig. 7). Parallel research soon started at numerous prehistoric and medieval settlements, including excavations by Nándor Kalicz at Herpály, Pál Raczký at Ócsöd and Polgár, Marietta Csányi and Judit Tárnoki at Túrkeve, Gábor Ilon at Gó, and András Pálóczi-Horváth at Szentkirály and Visegrád.

A university textbook published by the Research Team of Ancient Hungarian History provided an up-to-date summary of data regarding landscape and environment in the Carpathian Basin at the time of the Hungarian Conquest. Sándor Somogyi wrote a summary of the environmental conditions in the Carpathian Basin before the Hungarian Conquest for Volume I of the prestigious ten volume series entitled *The History of Hungary*. Since then, a new overview has been written by György Györffy, Pál Sümegi and Bálint Zólyomi. The importance of environmental studies has also been recognized by medievalists. Starting with the early 1990s, a series of palaeoecological lectures were organized by the Department of Hungarian Medieval and Post-medieval Archaeology and the Department of Cultural History of the Eötvös Loránd University in Budapest. Subsequently, an entire volume of such studies was published in an effort to popularize the palaeoecological aspects of archaeology. This publication, among others, contained studies on the role of environmental archaeology, as well as on the influence of climatic changes on historical events. Since then, József Laszlovszky of the Department of Hungarian Medieval and Post-medieval Archaeology of the Eötvös Loránd University has carried out similar projects in co-operation with Austrian, Hungarian and British experts.

The most significant development of the past decade

was the systematic study of sedimentary basins and the recovery of radiocarbon dated strata from palaeoecological borings. These serve as important reference series. A team led by Pál Sümegi has reconstructed both ecological and historical events on the basis of the multidisciplinary (geostratigraphic, geochemical, palynological, anthracotomical and zoological, including mollusca and micromammals) analysis of stratigraphic cores, often spanning several millennia. New, radiocarbon dated pollen profiles from a variety of locations in the Balaton–Tapolca Basin, the Alpine foreland, the Kerka valley, the Danube valley and Tököl revealed not only natural changes in the vegetation, but anthropogenic effects as well. One of the sad conclusions of this research is that the current forest cover of the Carpathian Basin is no more than the 16–17 per cent of the woodland that was first cleared during the Neolithic. Recent archaeological surveys have paid increasing attention to reconstructing the ancient landscape. The same attitude developed in field surveys, as well as in microregional research. Familiarity with geological, paedological and palaeohydrological conditions is of fundamental importance in compiling information on settlement history. Today, many large-scale rescue excavations related to motorway constructions or conducted at nearby sites include up-to-date research in environmental archaeology. Samples are regularly collected for the purpose of palaeoclimatic reconstruction. A new challenge is posed by the proper evaluation of these data and their integration with global observations. In spite of the proliferation of various types of data, they cannot be extrapolated for other situations when variability in time and space is disre-



Fig. 7. Gallery wood, part of the landscape reconstruction at Sopron–Krautacker

garded. Differences in smaller regional units, as well as the divergence in the impact of the climate, result in a mosaic patterning that does not allow generalizations.

In Hungary, diachronic research into the interaction between people and their environment has not been carried out in specialized institutions or university departments. However, studies of this type have been conducted on countless individual initiatives and co-operative projects between institutions. The importance of environmental archaeology would be best acknowledged by presenting and teaching these methods to both students and practising archaeologists. This aim is served, among others, by the “Százhalombatta Educational Days” and a series of palaeo-ecological lectures in the curriculum of the Department of Prehistoric and Ancient History at the University of Miskolc. Future research can hardly be imagined without fitting the latest theoretical and practical advances in environmental archaeology into both education and everyday research work.

THE FUTURE OF ENVIRONMENTAL ARCHAEOLOGY – RECONSTRUCTING AND PROTECTING THE LANDSCAPE

Aside from the multi-faceted application of scientific methods, emphasis has also been given to the regional study of natural resources and the ancient subsistence strategies based on them. Environmental models are formulated, which are of help in interpreting the distribution and internal connections of archaeological cultures. Reconstructing the landscape also contributes to establishing environmental priorities during the reconstruction of archaeological monuments. Experiments carried out in archaeological parks are aimed at the presentation and protection of the ancient flora and fauna.

Current climatological research into global warming not only warns us about future dangers, but also offers retrospective conclusions, useful in the interpretation of past events. Studying local and global catastrophes offers similar information to environmental archaeologists. The ultimate aim is to develop an anthropocentric attitude to archaeology. In addition to studying human impact on the natural environment, the determining role of the environment in the development of culture should also be properly understood.

The next section, a short description of dating methods, will be followed by an overview of how the natural environment has changed through millennia and the role of human impact on this process. These chapters will help tracing the emergence of a food producing economy, and how this process can be better understood with the help of archaeobotany and archaeozoology. Finally, a brief study on physical anthropology will discuss how biological and biochemical methods are used in reconstructing the development of humans. These methods are of great importance in the archaeological analysis of cemeteries as well.

DATING METHODS

Eszter Bánffy

RELATIVE CHRONOLOGY

Two questions are of primary concern to archaeologists and, in fact, to anyone interested in the past. The first of these is, how did people live in the ancient past? The second, when did various events take place? Answering this latter question is radically different in the case of Antiquity and medieval civilizations that left written records and in the case of societies that did not, such as the peoples inhabiting the Carpathian Basin before the late Celtic period. At first, researchers of such early periods could at best guess when events had taken place. The single means of making new advances in chronological studies was the typological analysis of artefacts. Typochronological studies were first carried out on prehistoric chipped stone tools at the beginning of the 20th century. Later, ground stone axes were similarly studied, and from the Copper Age onwards the typology of metal objects was developed. The vast quantities of ceramic finds from the Neolithic and later periods could also be put to the service of typochronological studies.

This method is based on the observation that the manufacture and decoration of objects is stylistically rather rigid and homogeneous in a given community. Consequently, such artefacts are diagnostic in identifying that community. On the other hand, with the passing of time, styles showed a slow and gradual change. Human groups that lived at the same time, but in distant areas, often used similar objects, reflecting a common “*Zeitgeist*”. We also know that some objects covered long distances through trade. Such imports also indicate synchronicity between the groups that used them. Analyzing such data, sequences of certain groups of artefacts can be developed, even if no on-site stratigraphic observation is available for determining the period when the object had been used.

This sequence, that is, the age of individual artefacts and associated archaeological phenomena relative to each other is called relative chronology, a method that was refined to a rather high degree already in the early days of archaeological research. In contrast, the absolute ages of archaeological cultures, artefacts and artefactual assemblages could only be estimated. The earlier the period studied, the greater the chance of making mistakes. Naturally, the risk of errors is highest when studying cultures with no written record. In the case of Antiquity and the Middle Ages, written sources remain an important basis of reference in dating, even if historians point out that some classical authors were ill-informed or consciously misrepresented certain events and peoples of their age.

Archaeologists use two important terms in relative chronology. “*Terminus post quem*” indicates a period *after* a certain point in time, while “*terminus ante quem*” refers to a time *before* which events took place.

The first of these two concepts is clearly illustrated by

the example of a Roman hoard that includes coins minted by various emperors. Such coins, similarly to their medieval counterparts, can usually be dated to the year of emission. Logically, it may be concluded that the hoard itself cannot be earlier than the latest coin it contains: it defines the earliest time after which the hoard was assembled. This *terminus post quem* dating, however, does not answer the question when, following the emission of the latest coin, the hoard was actually buried. It may have happened in the year of emission, but also many years later.

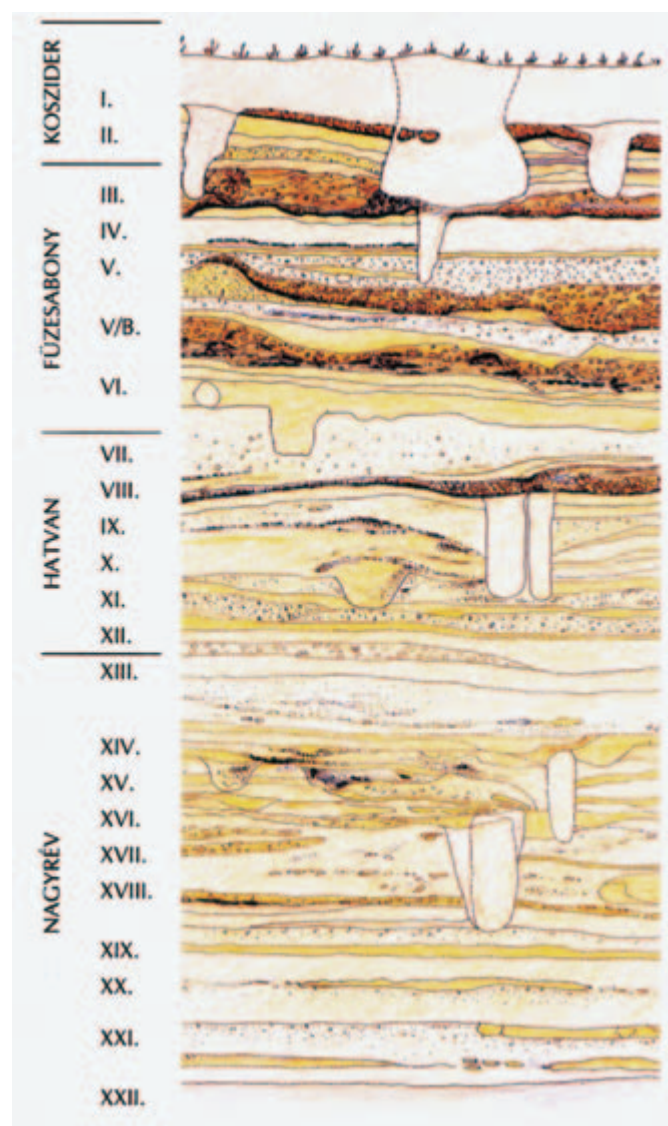
The opposite of this conclusion may be drawn from another example. A skeleton found in a pit below the sealed floor surface of a house must have been buried prior to the creation of the floor. In the case of this *terminus ante quem* dating, more precise information can be obtained only by on-site observation. It is possible that the person had been sacrificed and buried right before the construction of the

house, at the time when the foundations had been made. It is also possible, however, that a 15th century late medieval house was erected above a 5th century Sarmatian grave. In this case, the burial is not only a thousand years older, but is in no way related to the medieval building.

Methods of relative chronology can be further refined by comparing artefact types found in association with imported objects in geographically distant areas. This form of cross-dating is of help in linking synchronous cultures in different regions. It is very much, however, like tying two floating boats to each other with neither of them being anchored.

The meticulous study and classification of minute typological details for the purpose of fine-tuning relative chronologies of cultures and peoples was the achievement of German archaeological research. Countries within the German-Austrian sphere of cultural influence soon followed suit. The relative chronology of the Bronze Age in the Great

Fig. 8. Profile section of the Tószeg-Laposhalom tell settlement showing the sequence of the occupation layers



Hungarian Plain was developed by Ferenc Tompa, by comparing finds from the tell site of Tószeg–Laposhalom, inhabited for at least five centuries (Fig. 8).

Until the early 1960s, the absolute age of prehistoric cultures in Europe could only be estimated by comparing the results of the German school of relative chronology with the written record of the earliest known civilizations in Mesopotamia and Egypt. It must be repeatedly emphasized that the farther we go back in time, the more uncertain the results of dating. In spite of this, there was a consensus that, for example, the Copper Age Baden culture in Hungary should be dated to approximately 2000 B.C., and that the Neolithic ended around the mid-4th millennium B.C. Subsequently, this dating system became known as the historical or so-called short chronology. There was another scholarly consensus among prehistorians, namely that innovation and achievements spread from the Aegean toward Central and North-West Europe through the river valleys in the Balkans, and especially that of the Danube. This meant that cultural formations representing a certain degree of development can be assigned increasingly later dates, proceeding in a northern and western direction across the map of Europe.

RADIOCARBON DATING

Archaeological research received unexpected help in dating from nuclear physics. The method was based on the study of carbon, an element universally present in living organisms. Carbon has three principal isotopes that occur naturally, one of these being ^{14}C , a radioactive isotope. Hence the term radiocarbon dating. This isotope is present in the atmosphere and is incorporated in the bodies of plants, animals and humans alike. Although its concentration is low and it breaks down slowly, its uptake is constant during the life-cycle of living organisms. At the time of death, however, the uptake of ^{14}C isotopes stops, and an irreversible decline of its concentration begins in the lifeless body. The steady rate and speed of ^{14}C decomposition was measured by nuclear physicists: the amount of ^{14}C decreases to its half in approximately 5500 years. The method based on this principle is clever and simple: the ratio of ^{14}C isotopes is calculated in a piece of charcoal, seed or bone, and the absolute age of the object is obtained.

Although physicists had first published their own results shortly after World War 2, it took a while before its application to archaeological dating was developed. The first archaeological measurements were made in the technologically developed and better financed countries of the world, which were less rich in prehistoric finds. The first European radiocarbon dates published in the British journal *Antiquity*, however, stunned prehistorians in the Carpathian Basin and South-East Europe, who first reacted sceptically. Many of them, especially followers of the German typo-chronological school, rejected radiocarbon dating for a long time. Dates for the periods prior to 1400 B.C. turned out to be

significantly earlier than the ones in the historical chronologies. Proceeding back in time, this gap increased. Radiocarbon dates suggested, for example, that agricultural production and the Neolithic in Hungary began 1500 years earlier than formerly believed.

A heated debate unfolded concerning the cornerstones of prehistoric research in Europe that went beyond the problems of chronology. Radiocarbon dates indicated a chronological fault line across the southern part of the Carpathian Basin. North of this line, none of the former typo-chronological dates seemed to be valid. Those who accepted the new, early radiocarbon dates for Europe, faced an immense problem in interpreting ancient history. If, for example, the Late Neolithic and Copper Age (with its significant copper and gold manufacturing) were so much earlier, how could they be of Aegean/Balkan extraction? A similarly heated debate arose concerning clay tablets brought to light at Alsótárlaka (Tărtăria, Transylvania) decorated with incised lines recalling the pictograms used in Mesopotamia. Supporters of the historical chronology preferred seeing a direct connection here that supported the widely accepted, traditional dating of the Middle Neolithic in the Carpathian Basin, as opposed to the radiocarbon date that was 1.5 millennia earlier. Others saw the incised lines on these tablets as an independent, local development, a form of “proto-writing” that could be linked to the later, Early Bronze Age layer of the settlement. Some simply considered the clay tablets to be fakes. The entire “*ex oriente lux*” (“Light comes from the East”) paradigm seemed to be fundamentally discredited. Was it possible that basic innovations, such as metallurgy and writing, were not brought and disseminated by immigrants from the East, but were invented locally? Moreover, could such innovations be not only totally independent, but also occur earlier than in their previously hypothesized place of origins?

The unending debate was further fuelled by the introduction of calibrated radiocarbon dates. It was reasonably expected that these would decrease the time gap between historical and radiocarbon chronologies. As a matter of fact, calibrated dates gave even earlier dates, resulting in a deep rift between the adherents of the traditional and calibrated radiocarbon dates. In Hungary, there was an attempt to develop a “moderate” chronology, based on uncalibrated radiocarbon dates, regarded a bit later than stated, in order to strike a balance between historical and radiocarbon chronologies.

Finally, the debate was brought to an end with the results of another discipline, external to archaeology. During the past few decades, excavations have brought to light an increasing number of wood remains in Europe. Overlaps between the annual ring sequences of these finds made the application of dendrochronological dating possible not only in North America, but also in regions located in the proximity of Hungary. Precise tree-ring sequences became available, for example, from the eastern and southern slopes of the Alps, as well as from the shores of Lake Constance. The error margins of these so-called dendro dates were no longer 80–100

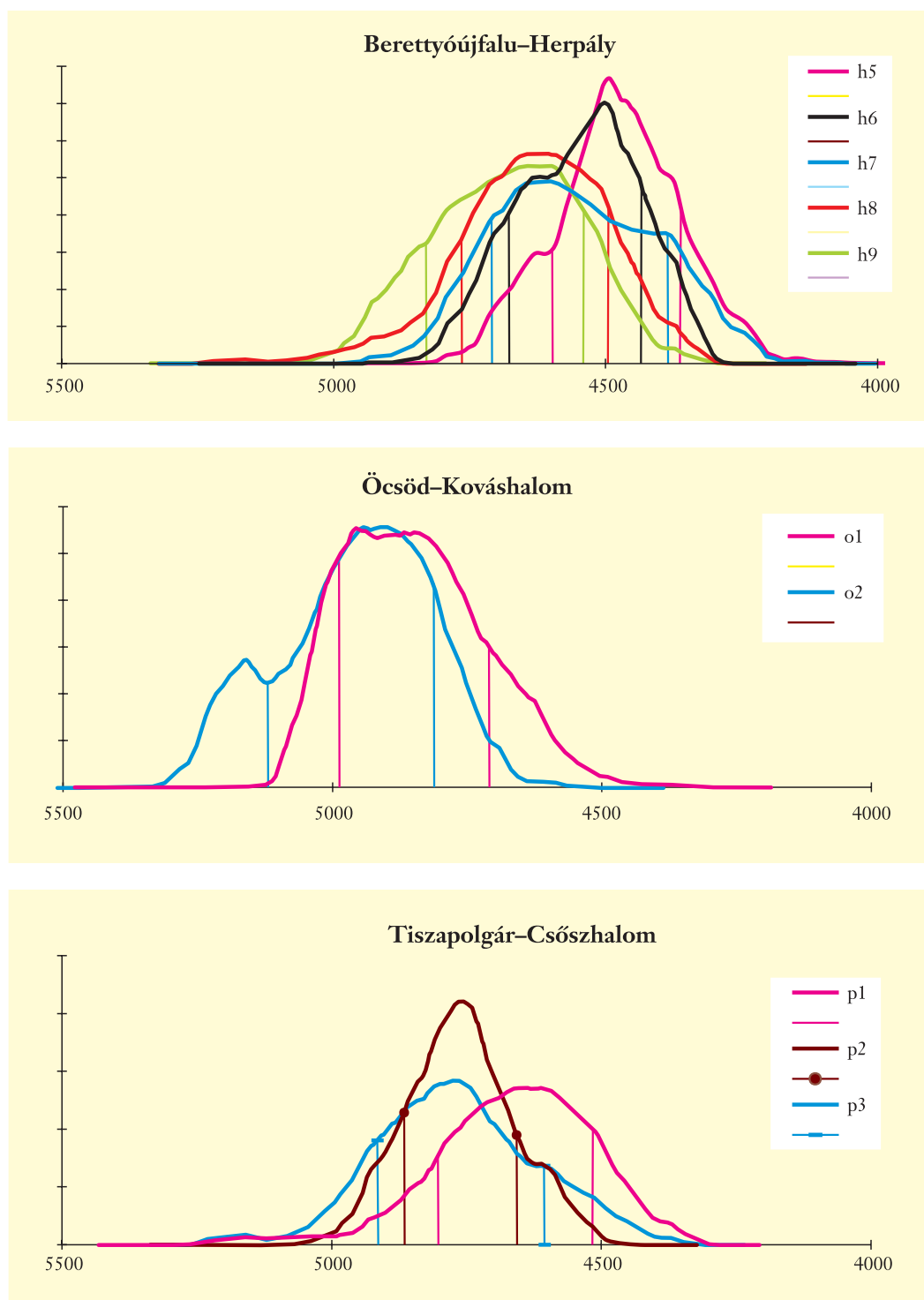


Fig. 9. A comparison of calibrated radiocarbon dates for Neolithic tell settlements

years, for a precision of only a few calendar years could be achieved. Comparisons between ^{14}C dates and those based on tree rings revealed that radiocarbon chronologies were indeed valid and that the calibrated, early dates were correct.

In Hungary, the most outstanding scholar in radiocarbon dating was Ede Hertelendi, a nuclear physicist working in Debrecen. His unselfish work, motivated by his love for archaeology, was fundamental in outlining the absolute chronologies of the Neolithic and Copper Age in Hungary. Fol-

lowing his untimely death in 1999, his students continue to fill the chronological gaps in Hungarian prehistory with new radiocarbon dates. By now, the debate has been largely resolved by fitting the absolute dates for almost every period and culture into the framework of a new chronological system. While this system supports the fundamental ideas put forward by the great pioneers of Hungarian archaeology in the first half of the 20th century, it has in many ways also modified our view of European and Hungarian prehistory (Fig. 9).

OTHER DATING METHODS

Similarly to radiocarbon measurements, the dating method based on thermoluminescence (TL; heat induced light emission) is based on the decomposition of radioactive materials. The two methods, however, differ from each other in two respects. One is methodological since in TL dating it is not the quantity of emitted, but that of the absorbed light that is measured. The other difference is of more practical importance to archaeologists: while radiocarbon measurements can be carried out exclusively on organic materials, TL dating can be made on pottery associated with a closed assemblage of artefacts. From the Neolithic onwards, tens of thousands of such sherds are available from any ancient settlement. Precise TL dating is a rather time-consuming process. In order to obtain the most reliable results, a so-called dosimeter (a capsule filled with radiation-sensitive substance) must be placed in the ground at the site. After a year, the natural background radiation at the site can be identified. This measurement is used as a reference in evaluating TL values obtained from the analysis of sherds. Fragments of ancient pottery, once already fired during prehistory, are heated to a high temperature in the laboratory. As a result, electrons trapped in the piece of pottery during its long history, are released and lose energy in the form of light emission. Light measurements are presented in the form of graphs whose shape shows how many years it took for the pottery to absorb radiation, that is the absolute age of the find.

Even stray finds with no known provenance are worth studying using the TL method. In this case, however, contextual information on radiation in the surrounding soil is missing. This makes the results much less reliable. This method is most frequently used in unveiling fakes since even its low precision is perfectly fit for deciding whether an artefact is only a few years old or had been made millennia ago.

Dating methods based on potassium/argon and, more recently, argon/argon determinations, also use the principle of radioactive decomposition. However, they can be put to use in dating earlier periods. Volcanic rock samples, older than 100,000 years, can be best analyzed using this method of limited importance in archaeology. Lower Palaeolithic finds, related to human origins, however, can be profitably studied employing such methods. Recently, it has also been discovered that the argon/argon dating method can be utilized beyond the finds associated with early hominids and that it provides reliable results for later periods as well. A few years ago, researchers in California studying volcanic rock samples from Pompeii demonstrated that the dates established using this method almost perfectly corresponded to the year of the catastrophe as recorded in the writings of Pliny the Younger for the destruction of Pompeii.

Last but not least, there is a method based on slight diachronic changes in the magnetic fields of the Earth and their directions. The study of iron objects and especially of iron particles in fired clay structures (burnt daub walls,

kilns, etc.) shows the direction of prevailing Earth magnetism at the time of use. Deviations from today's magnetic fields make it possible to calculate the age of the feature. The Earth's magnetic poles last switched completely some 780,000 years ago, a phenomenon that was of help in the magnetic dating of samples collected in the environment of early hominid sites in East Africa.

Should dating be carried out entirely by natural scientists, or should we insist on using on our own, archaeological methods? Naturally, archaeologists should keep track of new advances. If possible, one should try to apply two or possibly more absolute dating methods. These results, however, cannot be treated independently of the find material and other archaeological observations, but should be evaluated together with a critical appraisal of possible contradictions in order to create a reliable reconstruction of prehistory.

DENDROCHRONOLOGY AND ANCIENT FOREST COVER

András Grynaeus

Dendrochronology is a sub-discipline in archaeology, a special dating method that determines the age of wood remains brought to light during excavations. In very fortunate cases, the wood remains can be dated with an accuracy of within the quarter of a year. This field of research is typically interdisciplinary; most specialists in dendrochronology are (arboreal) biologists, foresters or academics involved with forestry research. Numerous archaeologists and ancient monuments experts are also involved in this type of research, especially in Europe. Those who benefit from the results of dendrochronological studies also belong to all three research areas, although experts of other disciplines, such as historians and ecologists, have also expressed an interest in this young discipline, as has been shown by research both in Hungary and abroad. This can be explained by the fact that the by-products of dendrochronological research offer information on many areas that can rarely be studied by other means.

THE PRINCIPLES OF DATING

Let us begin with a brief overview of this multidisciplinary method, lying somewhere on the border of biology, forestry research and archaeology.

Under temperate climates (and, in fact, in any area where the weather displays a strong seasonality) the annual ring produced by the cambium (the thin layer of dividing cells) can be clearly distinguished in the cross-section of the tree trunk.

By counting the annual rings, the age of the tree at the time of felling can be established. It must be emphasized, however, that this means the "age at death" of the tree and that it cannot be regarded an absolute age expressed in calendar years. There are trees that, by their specific genetics,

produce broad rings (e.g. poplar), while the rings in other species tend to be narrow (e.g. oak).

The thickness of consecutive annual rings is unequal and shows no periodical changes since tree ring thickness not only varies by species, but also by habitat and the density of vegetation. Furthermore, tree growth is also influenced by external factors, such as precipitation, temperature, worm damage, etc. These latter show annual variability. Tree-ring formation is also affected by extraterrestrial factors, such as solar activity that tends to influence growth in various tree species differentially, depending on their specific sensitivity. For example, the growth of silver fir (*Abies alba* Mill.) is largely influenced by this extraterrestrial factor, while oak seem to be insensitive to it. When a series of at least 30 annual rings is available for study, one may confidently say that a similar sequence could hardly have occurred in any other period of the species' life and it can therefore be regarded as an individual phenomenon from a historical point of view. This is one of the cornerstones of dendrochronology, called the historical principle.

The thickness of the tree-rings of two different trees growing within the same time period are similar if the two are of the same species and grow in each other's proximity, owing to the essentially identical environmental influences. Thus, if the thickness of the annual ring sequence is more or less similar in two samples of unknown age, it means that these trees come from the same period. This is the second basic principle of dendrochronology: the principle of synchronicity.

When remains of both an old and a young tree are available for parallel study (for example the section of a freshly felled tree and a beam from an old house), there may be an overlap in the annual ring pattern of both trees, meaning that the older tree was still alive at the time when the young tree

was already growing in its proximity. In light of this overlapping life-cycle, the ring sequences of the two trees may be joined, thereby making the precisely datable time period longer. This recognition led to establishing the third principle, called the principle of overlaps. Using this technique, overlaps are of indispensable help in constructing very long tree-ring sequences. The resulting chronological data and graphic representation is valid for the given tree species in the studied region and may stretch far back into the past.

DATING IN PRACTICE

When a piece of wood of unknown felling time is found, all we have to do is identify the section of the already existing chronological sequence, where the pattern of tree-rings matches those seen in the archaeological find. If a correspondence can be found between each and every annual ring in the fragment and the matching segment of the chronological reference material, the find can be dated.

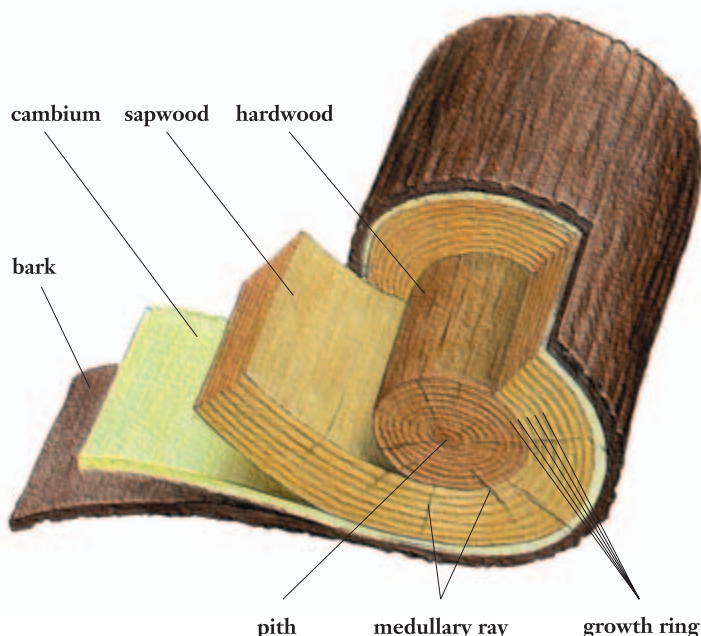
In comparison with other dating methods, such as radio-carbon measurements, the advantage of dendrochronology is that with a little bit of luck, dates can be narrowed down to an accuracy of within a quarter of a year. In most cases, it is possible to distinguish in a single ring the tissue formed during early growth in the vegetation period (spring or early bands) and the one that grew subsequently (fall or late bands). Shortly after this discovery, the archaeological application of dendrochronology started. In Europe, too, archaeological dating has been one of the main goals of dendrochronological research.

There are, however, certain limitations to the dendrochronological method: only wood remains from the same species can be compared to existing sequences. In addition, regional studies are necessary, although the sizes of study areas may vary. In southern Germany, for example, oak forests react to environmental influences in a similar way within a radius of approximately 1000 km, while in northern Germany a new chronological sequence must be established beyond a distance of 100 km. For building a reliable dendrochronological sequence, individual wood segments of at least 30 rings are required.

Practical work starts with sampling, followed by the measurement and computerized processing of data. Evaluation is carried out by comparisons, dating being the most important of all steps. Tree bark not only protects the plant, but also covers the cambium, the layer of cells responsible for growth. It also plays a vital role in transporting water to the tree's crown. The living part of the tree is called sapwood or phloem, a tissue that transports synthesized food substances to all parts of the plant. During the fall, the phloem becomes a starch deposit. The other layer, the hardwood or xylem, plays no direct part in plant physiology. This tissue provides mechanical support, forming the wood matter of trees from the hard substances accumulated in it.

These physiological details are of importance in terms of

Fig. 10. Sections of wood used in dendrochronological sampling



dating since the thickness of the phloem remains constant for the same species in a given region: the dividing cells create new rings every year, while the inner layers of the phloem are transformed into xylem, their pores being filled in with wood matter. During the year the tree grows thicker, but the number of annual rings remains unchanged.

If the thickness of the phloem is known, the time of the possibly earliest felling can be determined quite accurately (within an error margin of 1–2 years; *Fig. 10*).

ARCHAEOLOGICAL EXAMPLES

Regional limitations to this method have given rise to two new ideas, stimulated by recent dendrochronological studies. These clearly illustrate the potentials of the method. There were several excavations on the territory of Aquincum, the capital of Roman Pannonia. Wells whose shaft had been lined with wooden barrels were uncovered at several sites (Aquincum–Gas Factory, Bogdáni Road, Sujtás Street). The same technique was observed in wells excavated at Ménfőcsanak, a village near Győr. The excavators, Andrea Vaday and her colleagues, dated the construction of these wells to the time of the Marcomannic Wars, hypothesizing that the Roman soldiers, mobilized against the Marcomannic invaders, made these barrel-lined wells in a hurry. Dendrochronological studies were carried out to support or refute this hypothesis.

It became clear that the raw material of the barrels used for lining the wells originated from coniferous trees, namely silver fir (*Abies alba* Mill.). Branded stamps could be made out on some of the barrels thus utilized. Even though most of these inscriptions were fragmentary, they indicated that these barrels and their contents originated from Gaul. Fortunately, recent excavations in Austria have brought to light

a section of the *Via Claudia Augusta*, a road whose wooden structure was made from silver fir. This enabled not only the dating of the road, but also yielded a complete dendrochronological sequence for our region. With the help of Kurt Nicolussi, a scholar in Innsbruck (Austria), this sequence could be used for evaluating the data from Hungary.

The dates thus obtained confirmed Andrea Vaday's hypothesis and her dating, and they also proved that the barrels originated from Gaul, from the upper reaches of the Rhine River. However, further research is necessary to determine the contents of these barrels.

While barrel-lined wells were common during the Roman Age, this technique was rarely used during the Middle Ages in Hungary. One known exception is the well discovered during the rescue excavations at Muhi, a medieval market town.

Similarly to other wells in the Muhi settlement, this feature was first observed as a large, round pit on the soil surface. At a depth of approximately 4 m, the square outline of the well could be recognized, with the four sides measuring approximately 1.5 m (*Fig. 11*). Near the bottom, the well became rounded again, although with a significantly smaller diameter. It would appear that a bottomless barrel was built into the lowest section of the well. Although the lower section of nineteen staves survived, only five of them were well preserved and large enough for the purposes of dendrochronological analysis. An X shaped, branded or incised sign could be made out on the best preserved piece of wood. Its interpretation, however, needs further research.

At this point, dendrochronological research became intertwined with studies in economic history. Written data, especially entries in customs records, concerning the importation of herring to Hungary have been known for a long time. Economic historians, however, had difficulty



Fig. 11. Rectangular timber frame of a well uncovered in the medieval market town of Muhi

interpreting this information. The extent of these shipments is known from the research of Győző Ember. He found that fish was the third most significant commodity imported to Hungary during the 16th century.

The barrel found in Muhi can, with great probability, be identified as a herring barrel since its raw material originates from the Baltic, somewhere near the present border between Germany and Poland. Naturally, this result raises numerous other questions: why was fish imported on this scale when, according to coeval sources, Hungary was unusually rich in fish? How was fish trade organized? And why was the empty barrel used this way in Muhi, when the construction of such wells was not a common practice in medieval Hungary?

Research has also shown that the Great Hungarian Plain and the Northern Mountain Range formed a special zone. Oak-based dendrochronology is continuous in this area, reaching back to 1590. In addition, an almost 300 years long dendrochronological sequence could be compiled for Roman Age Pannonia (Transdanubia in western Hungary) using data from abroad that reached the precision of single calendar years. The basis of further research is provided by several, so-called 'floating' sequences that still need to be linked to calendar years. The most important of these include an Avar period sequence in the Small Hungarian Plain, a sequence from the Ottoman period in western Transdanubia, as well as medieval ones from Buda, Fehérvár and from the market town of Muhi.

FORESTRY: A HISTORICAL PERSPECTIVE

The dendrochronological study of wood remains recovered from archaeological sites raises several questions that fall within the scope of forestry research. They concern the largely unknown history of forestry. Although a few pioneering studies have been published (such as the collection of charters by Károly Tagányi, as well as works by Pál Csőre and Eszter Magyar), numerous questions remain unanswered, partly owing to the still unexploited potentials of archaeology and dendrochronology.

The most important problems in the history of forestry that could be solved using tree ring analysis in a historical perspective can be summed up as follows.

During the excavation of the medieval parish church in Szécsény, the nature of medieval forest management became of major interest. Were trees cut individually, to open up dense woodland, or were entire sections of forest felled at once? Timber from a well excavated at this site originated from tree trunks that had all started growing at the same time. This may be explained by two possibilities. Either the trees were planted at the same time, or a barren, deforested area was re-planted. Written sources are ambiguous in this respect since there is evidence for both individual cutting and mass deforestation. This latter is illustrated by the 1426 edict of King Sigismund, issued for György Ilssai, bailiff of Zólyom county, referring to techniques of full deforestation. It is likely, however, that these two meth-

ods of tree felling coexisted and are therefore hard to separate in retrospect. The question of whether forestry techniques depended on the tree species exploited and whether the location of the forest within the country influenced the techniques preferred remains unanswered.

Similarly, we know almost nothing about the 'mundane', everyday exploitation of woodlands. During excavations in Nagyecsed, a section of the timber-covered road that once led to the Ecsed fort was discovered. The timber was very well preserved, with some trunks bearing marks of forest grazing. Similarly to the question of forest thinning in the case of Szécsény, the surviving medieval written sources make little mention of this form of exploitation.

FUTURE RESEARCH DIRECTIONS

Our knowledge of medieval wood use is rather limited. In recent years, however, new information became available concerning the construction of wells from excavations carried out in combination with dendrochronological research. The market town of Muhi offered especially valuable information concerning the techniques used in well construction. A piece of medieval timber found at Budapest–Színház Street called attention to the fact that there is still much to be studied as regards of wood cutting and carving tools. New results in this field can be expected if this problem is approached using the innovative, refined methods developed for the study of material culture.

PALAEOENVIRONMENTAL HISTORY OF HUNGARY

Pál Sümegei, Róbert Kertész & Edina Rudner

THE MOSAIC PATTERNING OF THE ENVIRONMENT

Hungary is located within the Carpathian Basin that covers an area of almost 300,000 km². The geology and palaeontology of the Quaternary formations indicate that this area was characterized by an immense variability during the past 2–2.5 million years owing to the mosaic patterning of the environment on the macro-, mezo- and micro-level since the Ice Age. Mosaic patterning on the macro-level can be attributed to the interface of three major climatic zones: the continental, extending in an east to west direction, the Atlantic from west to east and the sub-Mediterranean from south to north, with a sub-Carpathian/Carpathian climate in the mountainous region. The influence of these climatic zones was modified by regional and local topography and hydrography (mountains, hills, sand dunes, river valleys, groundwater table), as a result of which the vegetation of the Carpathian Basin too shows a mosaic patterning.

The interfaces between climatic and vegetation zones, and the variability of the rock matrixes is reflected in the mosaic patterning of the soil. The species composition and distribution of land snails is a good indication of the diversity of the one-time organic and inorganic environmental factors. The boundaries between smaller regions were blurred, with a variety of sub-regions along the boundaries. These climatic zones and climatic influences were not constant, but cyclical in Hungary. Similarly to the diachronic structure of the environment, a temporal patterning characterized the climatic changes. As a result of the cyclical climatic changes, the plant and animal associations typical for a particular environment expanded, shrunk or even disappeared from the Carpathian Basin. A spatial fluctuation, corresponding to the diachronic cycles, can be noted among the animal and plant species that adapted to the different environmental conditions, leading to the development of dynamically changing palaeobiogeographic regions in the interior of the Carpathian Basin, as well as in the mountains ringing it. The mosaic patterning of the climatic, vegetational, pedological and faunal environments and larger zones shifted in accordance with the climatic changes. The one-time mosaic patterning of the Carpathian Basin can be reconstructed and modelled from the later transformations. We can also seek an answer to the question of how palaeoclimatic and palaeoenvironmental conditions affected early human communities.

REINDEER HUNTERS OF THE LATE ICE AGE

One good example of how palaeoclimatic conditions shaped the life of early human communities can be quoted from the Upper Palaeolithic. The subsistence of the Gravettian communities of the late Ice Age was based on reindeer hunting. Owing to the cyclical changes in the environment, the reindeer herds migrated to different regions and the Gravettian hunters, whose subsistence was based on hunting, fishing and gathering, followed these herds. The geoarchaeological

evidence indicates that the periods with a milder climate, characterized by more precipitation and a lush vegetation, had a major impact on the life of these hunters, who migrated to the Carpathian Basin in successive waves during the warmer periods.

One major wave of these Gravettian hunters appeared in the Carpathian Basin about 18,000–16,000 years ago. A mixed taiga forest of coniferous and deciduous trees, with patches of open vegetation, spread over the Carpathian Basin, especially in the piedmont regions and in the southern areas. Malacological studies have revealed that in the northern and eastern regions of the Carpathian Basin, the most characteristic land snail species of the birch and coniferous taiga forests expanding along the river valleys was the Carpathian snail, while the typical snail species of the mixed deciduous taiga forests in the south was the door snail (Fig. 12), indicating that the woodland vegetation of the period developed from two types of forest refugia: the Carpathian and Balkanic woodland types.

This environment, dominated by the taiga, but retaining its mosaic patterning of climatic, vegetational, paedological and faunal elements in the border areas, was the prime destination of reindeer herds – and of the Gravettian hunters following them in the Upper Würm period. Reindeer hunting is most efficient if practised at the time when the animals congregate into huge herds during their migration. This migration is seasonal: during the summer, reindeer graze on the tundra, moving to the taiga belt for the winter. The herds migrated between the two zones during spring and fall. The harsh winters on the tundra triggered the fall migration to the taiga, where food resources were still available. The tundra zone lay in the areas beyond the Carpathians and along its outer northern and western fringes 18,000–16,000 year ago, while the taiga, steppe-taiga and taiga-steppe zone developed in the interior of the Carpathian Basin. Reindeer herds migrated seasonally between these two major regions. The Gravettian hunters followed the migrating herds in winter; the remains of their seasonal

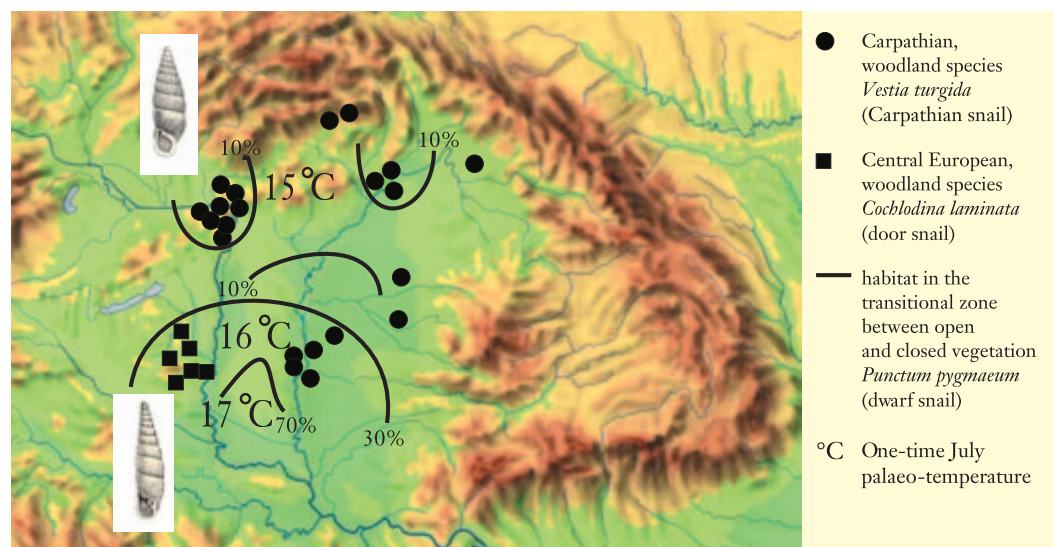


Fig. 12. Distribution of woodland snail species and taiga woods in the Carpathian Basin 18,000–16,000 years ago

camps have been found in these areas throughout the Carpathian Basin.

The rich diversity of the flora and fauna indicate the emergence of a border zone between the taiga and the steppe vegetation, as well as the appearance of two overlapping forest types, a Carpathian and a Balkanic one, in the Carpathian Basin during the late Pleistocene warming. The reconstruction of the late Würm landscape in the Carpathian Basin was in part based on the northern piedmont of the Altai Mountains in southern Siberia, where the hydrology, topography and climate created a similar mosaic patterning in the Eurasian landscape. The geoarchaeological record indicates that the borderzone between the cold steppan and the tundra vegetation lay in the Carpathian Basin during the periodic advances of the ice sheet (corresponding to the global cooling of the climate), this being a result of the varying extent of the mosaic patterning of the environment. In areas characterized by a more favourable microclimate, Boreal forest refugia developed along the inner edges of the Carpathians, the Alps and the Dinaric Alps.

MESOLITHIC HUNTER-GATHERERS

As a result of gradually rising temperatures, part of a global warming, the permafrost layer melted and the vegetation of the Carpathian Basin was transformed at the end of the Ice Age. Boreal coniferous forests gradually spread over the region, although the continental steppe survived in drier regions. The earlier mosaic patterning remained a characteristic feature of the region. This is clearly reflected in the dominance of larch in the Northern Mountain Range, and that of spruce and pine in the eastern half of the Carpathian Basin (Fig. 13), while common pine and birch formed the overwhelming majority of woods in the south. The growth of burnt ash layers in the sediment basins indicates that spontaneous taiga fires played an important role in shaping the vegetation of the late Ice Age coniferous forests. The expansion of coniferous forests also accelerated the formation of leached podzolic soils, especially in Transdanubia, the Carpathians, and the sub-Carpathian areas, where precipitation was higher. Parallel to this development, the psychrophilous Mollusca species retreated from the inner areas of the Carpathian Basin.

The most significant environmental change occurred during the Pleistocene–Holocene transition, at the turn of a glacial/interglacial cycle. Taiga forests withdrew from the inner areas of the Carpathian Basin, to be replaced by deciduous species (oak, linden, elm and ash). Changes in vegetation brought about changes in the soil as well: brown forest soils were formed in forested areas, salinated and black *chernozem* soils in the steppe areas. The changes in vegetation and environment were not simultaneous in the Carpathian Basin: compared to the central area, the advance of deciduous forests occurred almost a millennium later in the mountainous regions (Fig. 14). Concurrently with the changes in the vege-

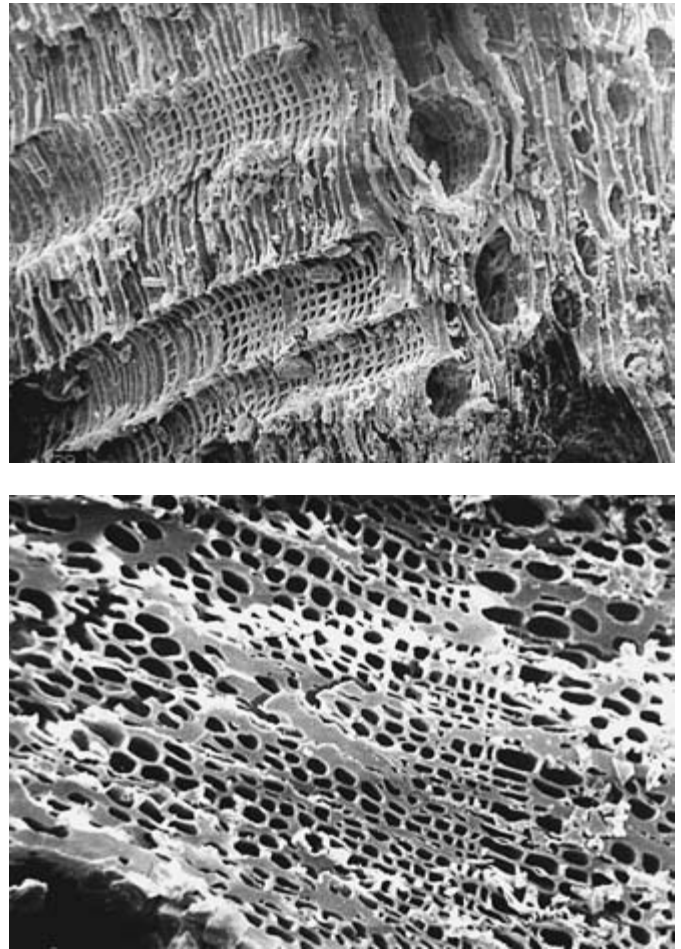


Fig. 13. Scanning electron microscope pictures of the two typical taiga-forming tree species in the Carpathian Basin: common pine (*Pinus sylvestris*) and common spruce (*Picea abies*)

tation and soil types, land snail species thriving in colder habitats disappeared, to be replaced by Holocene snail species. The available evidence indicates that climatic and environmental conditions resembling the current ones evolved roughly 11,000–9,000 years ago.

What was the impact of these changes on the hunter communities of the Carpathian Basin? The most important among these was that the local and regional environment was completely transformed. The open taiga/steppe vegetation of the Epipalaeolithic was replaced by a closed, mixed (coniferous and deciduous) taiga at the beginning of the Mesolithic, which in turn was succeeded by deciduous forests in the later Mesolithic as a result of global warming. The environmental changes caused by the climatic change transformed the species composition of this region and this affected the lives of the hunter communities too since most of their prey animals preferred taiga habitats, and they thus either migrated from the region or became extinct. This profound change led to a crisis among the hunter communities: the descendants of the late Glacial communities were faced with a difficult choice. Some were unable to adapt to the relatively rapid and radical change of the environment and

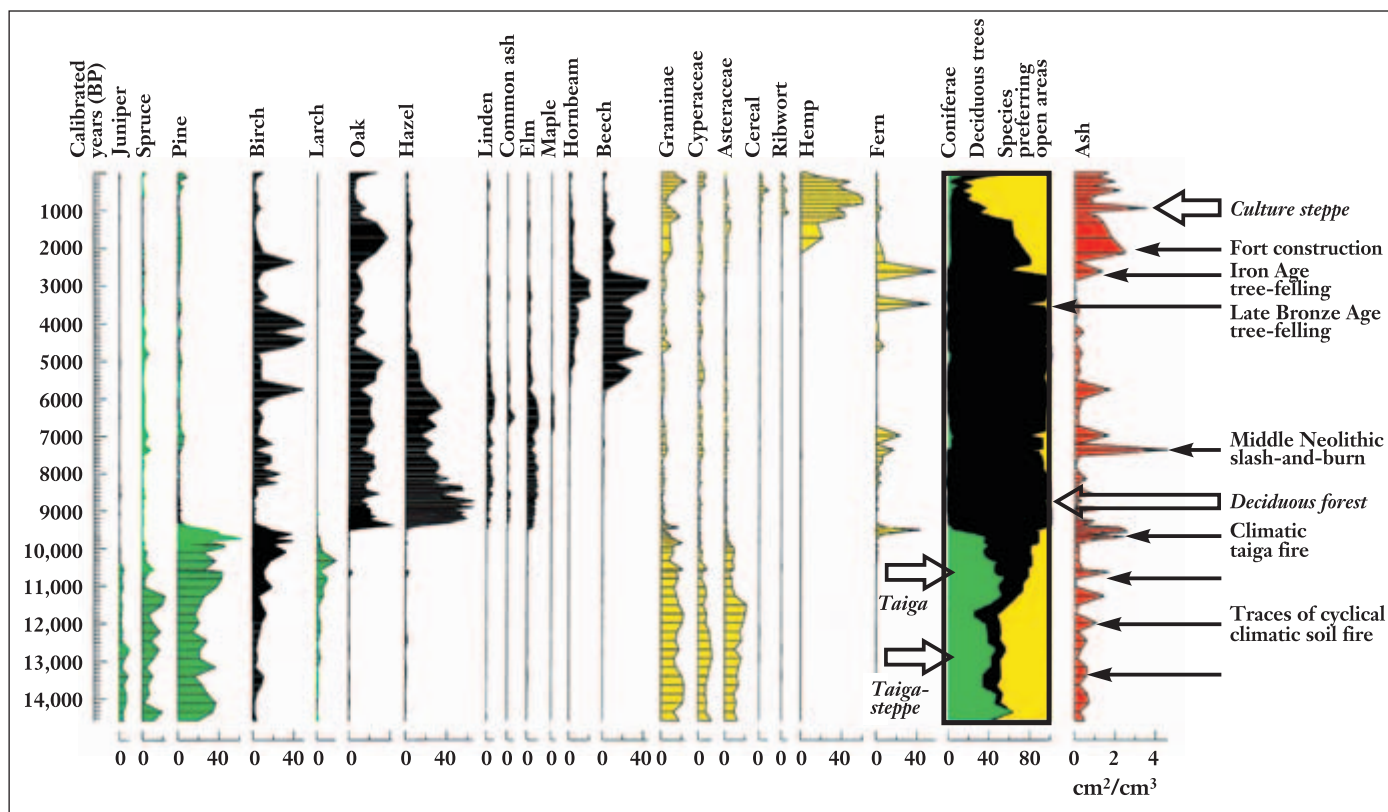


Fig. 14. The late Quaternary vegetation of the Carpathian Basin (Kelemér, Kis-Mohos)

chose to follow the reindeer herds to northern Europe, from where the ice sheet had gradually retreated. Others chose to stay, adapting to the new environment. It would appear that the rich diversity of the environment in the Carpathian Basin played an important role in that the indigenous Mesolithic population played an active role in the Neolithization of the region, in the course of which human communities began to actively manipulate the environment.

One of the most important human manipulations of the environment in the late Mesolithic was the conscious effort to create a mosaic patterning in the woodland in order to encourage the growth and spread of hazel. This would suggest that the late Mesolithic hunter-fisher-gatherer groups of the Carpathian Basin had become open to adopting food production, in part due to their own experiences in the active manipulation of the environment. This is also confirmed by the late Mesolithic cyclical decline of elm and ash in the pollen profiles, an indication of the selective collection of the foliage of these trees for fodder. The pollen profiles based on cores taken from Kelemér–Nagy-Mohos, Tiszapolgár–Selypes-ér and Szeged–Batida-ér reflect this process. In addition to the archaeological evidence, the pollen profiles and the increase of land snails preferring open habitats even in closed forest environments too indicate that the shift to a Neolithic food producing economy was preceded by a transitional phase of Neolithization.

River valleys played a decisive role in the migration of human communities and in the shift to sedentism. A knowledge

of the development of, and the changes in, the drainage network is therefore essential to tracing these processes. Major changes can be linked to tectonic movements since river courses shifted following subsidences in areas that became deep basins and uplifts associated with mountain building. Morphological and chronological studies indicate that the major features of the modern drainage network and the alluvial valley systems in Hungary were formed some 30,000–20,000 years ago, with only smaller shifts in the river channels on the alluvial plains during the past 10,000 years.

EARLY FOOD PRODUCING COMMUNITIES IN THE NEOLITHIC

The first groups engaged in food production, the Early Neolithic Körös–Starčevo communities arrived to the Carpathian Basin from the Balkans around 6500–6000 calBC. Their settlements have been identified in southern Transdanubia and the southern part of the Great Hungarian Plain, as well as in Transylvania and on the eastern and northeastern fringes of the Great Hungarian Plain. The traces of human impact on the environment associated with food production can only be demonstrated a millennium later in the northern parts of the Carpathian Basin. In this region, the first communities with a Neolithic lifestyle were the early Linear Pottery groups who had severed their ties with the Balkans.

The geoarchaeological record indicates that the northern boundary of the Körös–Starčevo distribution was determined by the so-called Central European–Balkan agroecological barrier (Fig. 15). The indigenous late Mesolithic groups and the Early Neolithic communities arriving from the Balkans lived in close proximity to each other along this barrier. Owing to the minimal geographic distance between them, an intensive information flow no doubt took place between these two complexes, each of which had a distinct cultural tradition and subsistence strategy, as well as a different technology and social organization. The late Mesolithic hunter-gatherer groups adopted various economic and technological innovations from the immigrants, reflected in the shift to sedentism and a subsistence based on food production. At the same time, they also preserved many of their traditions, giving rise to a new cultural and economic complex in the northern part of the Carpathian Basin. South of the barrier, the indigenous Mesolithic population was absorbed by the Balkanic immigrants of the Early Neolithic.

The newly arrived Early Neolithic communities too had to adapt to a new environment. Distributed in the Great Hungarian Plain, the Körös communities settled almost without exception near water. A regional study of the Körös sites revealed that the settlements of these communities, whose subsistence was based on crop cultivation and animal husbandry, complemented by hunting and gathering, can be divided into two major types. The first type was usually located on the Holocene alluvial plains, directly by the active river channels, while the other type on ridges covered with Pleistocene loess rising above the river branches, free from periodical flooding. In this

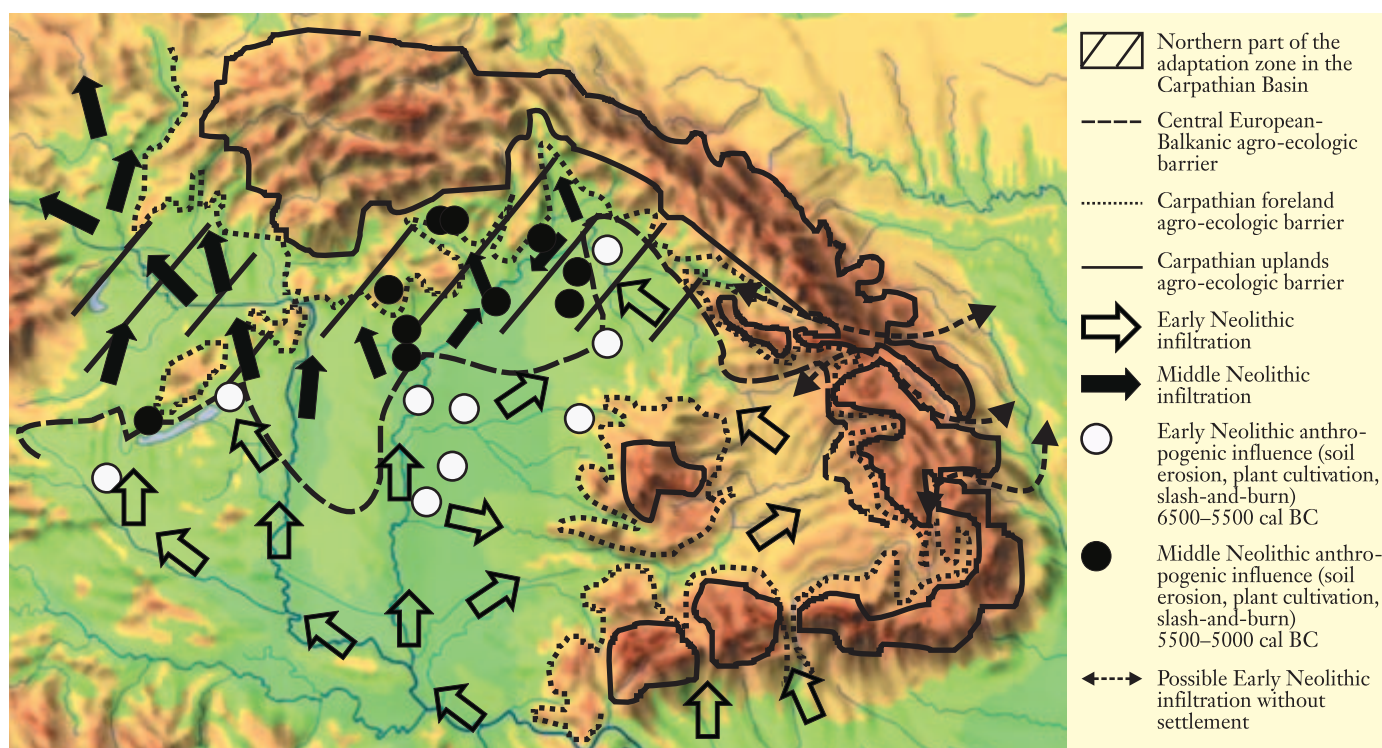
latter case one cannot speak of the formation of hydromorphic soils since the water regime, grain size, the matrix and the structure of the dominant soil are related to chernozems.

An examination of the predominantly loess-covered elevations in relation to Early Neolithic settlement and subsistence patterns allows the construction of a model illustrating the impact of the regional and micro-level mosaic patterning of the environment on settlement strategies. It would appear that the communities whose settlements lay in areas covered with gallery woods, where the clayey soil was unsuited to cultivation, were primarily engaged in hunting, fishing and gathering, while groups settling on elevations covered with loessy deposits and chernozem had a subsistence predominantly based on crop cultivation and animal husbandry. This difference in settlement strategies allows two important conclusions.

(1) The Balkanic immigrants began the adaptation to the new environment, leading to the relocation of the settlements from alluvial to loessy environments, during the Early Neolithic. In the Great Hungarian Plain, this adaptation was facilitated by the presence of loess-covered elevations rising above the Holocene alluvial plains since these formed a transition between the alluvial plains and the drier loessy areas, stimulating the broadening of food producing techniques.

(2) The mosaic patterning of alluvial environments influenced the emergence of a settlement hierarchy with central places and satellite sites by the Late Neolithic; the roots of this development can be traced to the functionally different settlements of the Early Neolithic. The development of

Fig. 15. The Neolithization of the Carpathian Basin



these central settlements into stratified tell settlements, inhabited for many generations, can be regarded as the perhaps most important socio-economic process during the Neolithic. The mosaic patterning of the environment undoubtedly stimulated this process: the fertile soils of the Pleistocene elevations rising above the alluvial plain encouraged the permanent settlement of larger communities. Obviously, socio-economic factors too influenced the emergence of tell settlements, but the natural environment also had an impact on the appearance of these central places. It is not mere chance that in the Carpathian Basin, tell cultures with their manifold cultural ties to the Balkanic civilizations only emerged in areas with a sub-Mediterranean climate and an alluvial environment with a mosaic patterning. It seems likely that the diversity of the environment influenced the emergence of a settlement hierarchy. A similar adaptation to the environment can be demonstrated for the Bronze Age tell cultures.

CONSEQUENCES OF THE MOSAIC PATTERNING OF THE ENVIRONMENT

The geoarchaeological record indicates that the mosaic patterning of the environment and its rich diversity of vegetation, fauna and soil types had a powerful impact on both local and immigrant communities. The hunted and domesticated animal species, the cultivated and the gathered plants playing an important role in subsistence strategies did not thrive throughout the Carpathian Basin at any given moment. Arriving from various regions, immigrant groups usually occupied those areas of the Carpathian Basin that were best suited to their economic strategies and that provided a favourable habitat for the plant and animal species that formed the basis of their subsistence. It is perhaps not mere chance that the Carpathian Basin was never brought under the rule of a single population during prehistory. The constant environmental changes influenced the subsistence potentials of various communities, calling for their continuous adaptation. The co-existence of populations with different socio-economic traditions resulted in the emergence of cultural ecotones during their shared history. It would appear that the constant environmental pressure stimulating changes in both the natural and social environments is one of the reasons why the material culture of the groups migrating to the Carpathian Basin changed after their settlement in this area.

The vegetational, faunal and soil diversity of Hungary were exploited and ultimately destroyed or homogenized by various cultures in different ways. The destruction of the natural environment through its manipulation began in the late Mesolithic and became increasingly intensive during successive historical periods. The first large-scale modification of the natural environment took place during the shift to the Neolithic, when open areas for settlement, agriculture and pasturing were opened by forest burning.

This practice is reflected by the burnt ash remains originating from deciduous woodlands that were not prone to spontaneous forest fires observed in core samples taken from lake and marshland sediments in various parts of Hungary. The next major cultural impact was the creation of the Bronze Age network of hillforts. During the Iron Age, the mass appearance of iron tools led to the large-scale transformation of vegetation, resulting in the unprecedented deterioration of soils; environmental conditions that may have been considered natural ceased to exist in the Carpathian Basin. The extent of deforestation during the Celtic period was surpassed only by the destruction of forests accompanying the establishment of the medieval settlement network. The most powerful civilizational shock to the natural environment was the river regulation of the 19th century. The artificial transformation of the hydrological conditions led to collapse of the ecosystem that had developed at the beginning of the Holocene. The dominance of cultivated areas has led to the gradual obliteration of the mosaic patterning rooted in the former climatic, topographic and hydrographic diversity of the Carpathian Basin and to the gradual appearance of a homogeneous cultural landscape, the expansion of which can be deservedly called a 'cultural desert'.

HUNTED ANIMALS

István Vörös

THE ARCHAEOLOGICAL SIGNIFICANCE OF HUNTING

Hunting is one of the oldest human activities that provided ancient communities with animal products such as meat, furs, skins and hides, as well as other raw materials used in tool making. Until the emergence of Neolithic economies based on food production through cultivation and animal husbandry, hunting was the most important mode of food procurement beside gathering and fishing.

The choice of the game to be hunted was determined by the needs of individuals and communities. The methods and techniques of hunting depended on an intimate knowledge of animal behaviour, as well as socio-economic development and organization that differed from culture to culture. The quantitative results of hunting, namely the number of animals killed, reflect the natural species composition of the fauna thus exploited. This close relationship can be clearly seen in prehistoric animal bone assemblages.

The hunting strategies of the prehistoric communities of the Upper Pleistocene (c. 100,000 years) and the Holocene (the past 12,000 years) are relatively well known. The bone remains of wild animals are useful for reconstructing faunal history and for a better knowledge of the appearance and extinction of various animal species.

HOLOCENE MAMMALS IN HUNGARY

The fauna of modern-day Hungary is part of the Central Danubian district of the Euro-Turanian faunal region. Of the approximately 32,000 species known in this area, 540 are vertebrates. The number of wild mammals, including indigenous, immigrant, imported and occasionally encountered species, is 98.

The study of the history of the mammalian fauna during the past 12,000 years was made possible by the identification of animal remains recovered from palaeontological and archaeological excavations. To date, 110 mammalian species have been recorded: 98 of these are wild animals, 11 are domesticates. Finally, humans as mammals should also be included in the list (cp. the *Appendix*).

Of the 98 wild mammals, ten are immigrants or were imported by people. Three occurred periodically during prehistoric times. Eight wild animal species are extinct, while the re-appearance of five others may be expected (*Fig. 17*). The immigrant species are either rodents of great vitality or fur animals that escaped from farms. Of the extinct mammals, five disappeared only from Hungary: the re-appearance of brown bear may be expected, and beavers have been re-settled. Three species (aurochs, European wild horse and European wild ass) have become extinct altogether.

HUNTED ANIMALS

Humans hunted animals in their environments according to their needs and possibilities. Wild animal remains recovered during excavations characterize the fauna in the site's immediate environment, and they also reflect the strategies and ef-

iciency of hunting. The method and strategy of hunting were chosen in accordance with the targeted animal product (meat, fur). Large herbivores provided meat, as well as major sheets of hide. Small and large carnivores, as well as hares and even some rodents, were also killed for their pelt. The manufacture of tools and implements from the bones of hunted animals was especially important during prehistory. The antlers of stags and roe bucks, another important raw material in tool making, could be procured without hunting, by gathering shed antler during the spring.



Fig. 16. Upper tooth of an Upper Pleistocene mammoth. Bugyi-Kavicsbánya

Hunting at the end of the Pleistocene

Sixteen large mammals, potentially hunted, are known from the settlements and their environments once inhabited by Neanderthals and modern humans. The remains of only seven species (cave lion, cave hyena, wild boar, roe deer, red deer, wild horse, ancient bison) have been found from the entire time span of the Upper Pleistocene. Fallow deer, aurochs and wild ass appeared in early warm periods, followed by musk ox during the last major cold spell. The frequencies of the other large mammals reflect their sensitivity to environmental and climatic changes. These species withdrew from the Carpathian Basin at different times.

The four most commonly found large mammals are

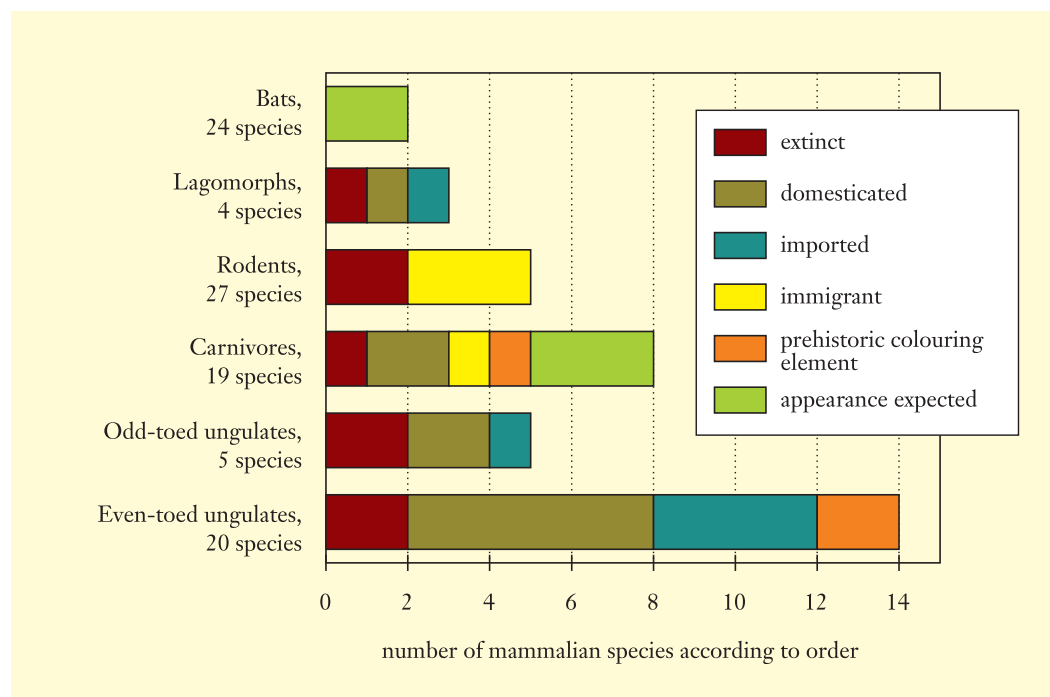


Fig. 17. Dynamics in the occurrence of mammalian species by orders in Hungary



Fig. 18. "Trophy" of an Upper Pleistocene red deer, found in the Tisza River at Csongrád



Fig. 19. Shed antler of an Upper Pleistocene moose from the Tisza

bison, wild horse, red deer and mammoth. With the exception of deer, the ten most common mammals of this period preferred open, plainland habitats.

Mammoth finds are the best known Pleistocene animal remains (Fig. 16). The most spectacular 'trophies' of red deer (Fig. 18) and moose (Fig. 19) were recovered from the bed of the Tisza River.



Fig. 20. Mesolithic aurochs skull. Kecel-Rózsaberek



Fig. 21. Iron Age bison skull. Kálmánréti zsomboly in the Bükk Mountains

Animal species from Holocene sites

According to our present knowledge, none of the large Pleistocene mammals survived in the Carpathian Basin until the new, Holocene warm period. Previously characteristic arctic species moved north-northeast, while steppean species migrated in an eastern direction.

The mammalian fauna of the Carpathian Basin was replaced by immigrants from the south, the southeast and the east during the Mesolithic period (1st climatic optimum) of the early Holocene. Red deer, roe deer and wild boar returned to the region. Newly occurring species included aurochs (Fig. 20), bison (Fig. 21), East European wild horse and wild ass (Fig. 22).

During the Late Neolithic (2nd climatic optimum) wild horse and wild ass withdrew from this region, while maral deer and Persian lion briefly appeared (Fig. 23). The latter disappeared from the fauna of Hungary by the Copper Age. Mesopotamian fallow deer and moose made a brief appearance during the Middle Copper Age.

Aurochs became the most significant large game animal in the Holocene fauna of Hungary. The Carpathian Basin offered an optimal habitat for this animal. It occurred in greatest numbers during the Late Neolithic, when it was also hunted most intensively. This is well illustrated by a first neck vertebra (atlas), in which a flintstone arrowhead was embedded near the articular surface (Fig. 24).

Large mammals of the Holocene fauna reached the Carpathian Basin in two successive waves, first during the Mesolithic, then during the Late Neolithic. Holocene extinctions can no longer be explained by climatic changes: human activity is responsible for the disappearance of certain wild animal species. During the Roman Age, the

Fig. 22. Bones from the hind leg (metatarsus and phalanges) of a Mesolithic European wild ass. Kecel-Tőzegtelep





Fig. 23. Facial skull of a Copper Age Persian lion. Gyöngyöshalász–Encspusztá, Boleráz group of the Baden culture

first wild animals were also imported: fallow deer were brought to populate game parks.

The most frequently hunted Holocene game animals can be reconstructed from the bone remains collected at 286 archaeological sites. Eleven of the twenty-four hunted species can be sub-divided as follows: meat purpose game (red deer, wild boar, roe deer and aurochs), game for meat and fur (brown hare), fur animals (red fox, beaver, wild cat, wolf,



Fig. 24. The first cervical vertebra (atlas) of a Late Neolithic aurochs; a flintstone arrowhead was embedded in the lower part of the articular surface. Polgár–Csőszhalom

brown bear and badger). The remaining species include immigrants, as well as rare game hunted either for meat or for fur.

Of the twenty-four hunted mammalian species, thirteen preferred forested, bushy habitats. Five species belong to open parkland and steppe environments. Cosmopolitan animals, as well as inhabitants of riverbanks and mountains, are each represented by two species.

Following the first appearance of domestic animals during the Neolithic, the proportion of wild animal remains in the find material from Holocene sites in Hungary gradually decreased. In contrast to the Mesolithic, when wild animals accounted for 100 per cent of the procured meat, this proportion declined to no more than a few percent by the Roman Age. Meat-purpose hunting was replaced by animal keeping and the extensive agricultural cultivation destroyed the habitat of large game. Hunting became a luxury or was limited to the elimination of vermin. Proportions between wild animal species also shifted (Fig. 25). Of the large game species known in the Carpathian Basin, red deer, wild boar, roe deer, forest carnivores (such as the cosmopolitan red fox and wolf) and brown hare have been continuously present. Aurochs was radically diminished after the Roman Age and disappeared completely by the 10th century A.D. Brown bear, always a rare species, was completely missing from Mesolithic assemblages. No beaver remains are known from the early Middle Ages. Bison, another rare mammal, is missing from Copper and Bronze Age sites, as well as from the Roman Age. European wild horse and wild ass occur only at the beginning of the Holocene, during the Mesolithic and Neolithic.

HUNTING BOOTY AS ARCHAEOLOGICAL FINDS

The nature of the animal bone sample from prey items at an archaeological site depends on two major factors. In addition to the previously discussed natural frequency of species in the fauna, the aims of hunting also determine to what extent species are represented. In the case of meat-purpose large game, the animals were often dismembered at the kill site, and only bones attached to major parts of meat were taken back to the settlement. 'Meaty' parts of the skeleton occur rarely on Roman Age and medieval settlements, or may even be completely missing. Game was sometimes

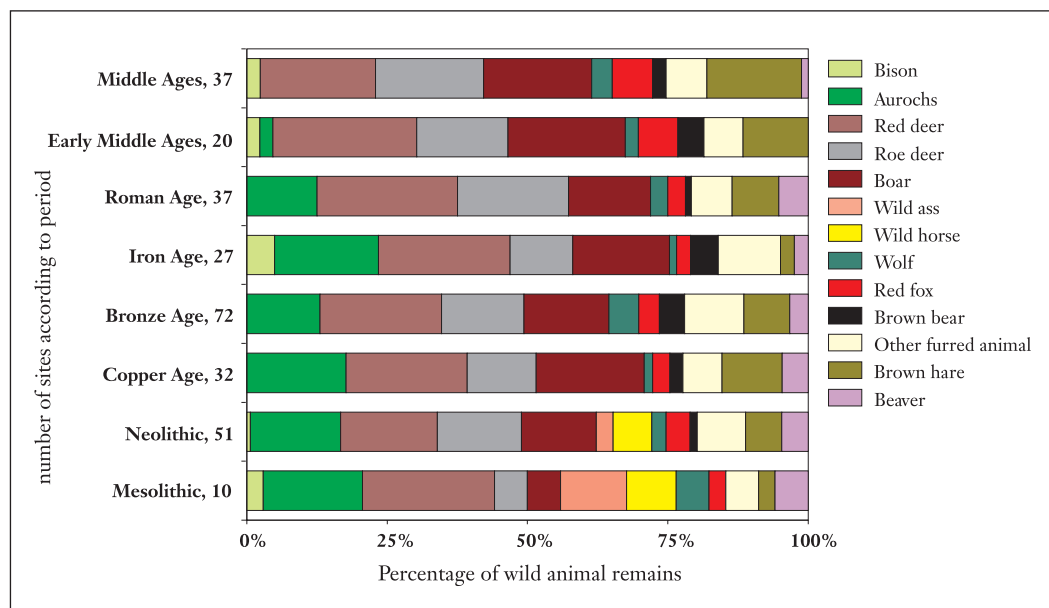


Fig. 25. Diachronic changes in the proportion of hunted mammals on the basis of finds from 286 Holocene sites

consumed at the kill site, leaving no archaeological evidence at the settlement. By this time, prehistoric subsistence hunting was largely replaced by hunting for pleasure that played no role in communal food procurement.

HUNTING IN THE POST-MEDIEVAL PERIOD

Owing to a drastic environmental change, a consequence of both politico-economic and climatic events during the post-medieval period, large game habitats shrunk and the number of large mammals declined. The majority of large game either lived in forest estates or game parks. Fallow deer and bison are typical examples.

THE ARCHAEOLOGY OF DOMESTIC ANIMALS

László Bartosiewicz

WHY STUDY THE REMAINS OF DOMESTIC ANIMALS?

Most excavations yield immense quantities of animal bone: meat has always been important in nutrition. Archaeozoology is aimed at the evaluation of ancient environments, economy, food habits and the history of animal/human relationships on the basis of these finds. While the remains of animals that have not been typically exploited by humans (molluscs, rodents) serve as important ecological indicators, environments are characterized only indirectly by the hunters' prey: the remains of game mirror a fauna that had already been selected by hunting tradition. The environmental evaluation of bones from domestic animals is even more complicated. Animal stocks could be herded over long distances, often far away from the natural habitat of the ani-

mals' wild ancestors. In addition, domesticates have continuously changed, reflecting not only tradition, but also changing needs and even fashion. The remains of ancient domestic animals carry accumulated cultural effects and as such are important sources of archaeological information.

THE FIRST DOMESTIC ANIMALS

Domestication was only possible in areas where the wild form of the animal in question lived. Such wild animals could be found in a variety of geographical regions and were domesticated at different times.

The earliest domestic animal remains from Hungary are inseparable from the prehistory of the Iron Gates region, the point where the Danube leaves the Carpathian Basin in the direction of the Balkans. The first known bones of domestic dogs in this broader region were found at the Mesolithic site of Vlasac. Radiocarbon dates suggest that they were approximately 9,300 years old. These animals may have been 'volunteers' in chasing game during the hunt and, being strongly territorial, alerted the site's occupants when the settlement was approached by strangers.

THE BEGINNINGS OF ANIMAL KEEPING IN THE CARPATHIAN BASIN

Domestic animals of Near Eastern origins reached the Carpathian Basin across the Balkans, passing through the Iron Gates. They were brought by Neolithic communities of the so-called Körös culture, who reached the area of present-day Hungary some 8,000 years ago. Food refuse from that period usually contains numerous bones of both sheep and goat. It is important to know that these two domesticates had no ancestors in Europe, in other words, they indeed spread by diffusion from the Near East. A number of other domesticates, on the other hand, may also have been domesticated

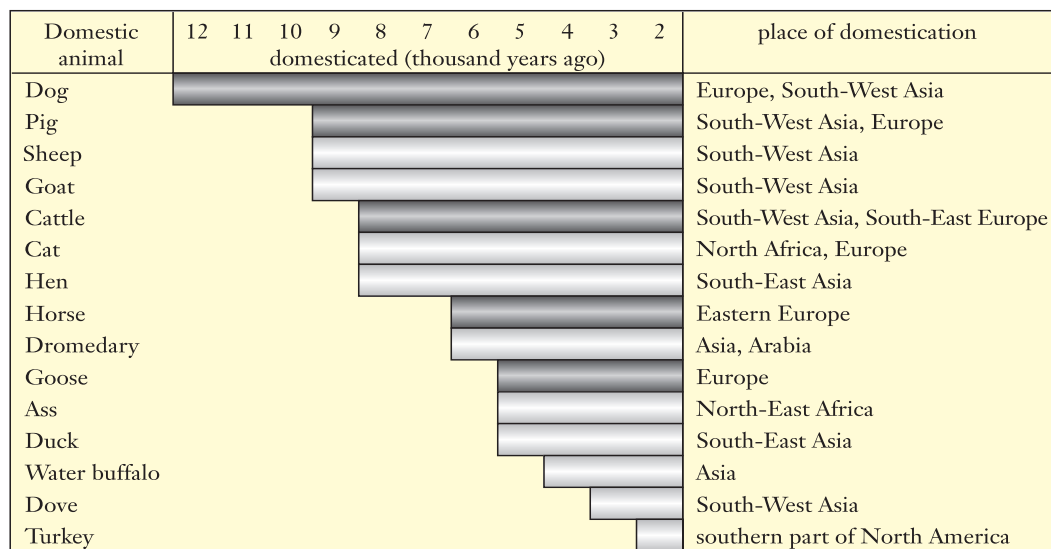


Fig. 26. The times and places of domestication of the most important domestic animals. Dark shading indicates species that could be domesticated locally in the Carpathian Basin

locally in the Carpathian Basin (aurochs – domestic cattle, wild boar – domestic pig). It is unclear to what extent they arrived from the Near East as part of the “Neolithic package” or were domesticated locally. It seems that aurochs were indeed domesticated in the Carpathian Basin during the Late Neolithic (some 6,700 to 6,200 years ago). Until recently, domestic pigs were frequently crossed with wild boars to improve meat quality, a practice that clearly illustrates the possibility of local domestication. Distinguishing between the bones of wild animals and their respective domestic forms is fundamental for reconstructing ancient lifeways. Studies in this field indicate that animal keeping had radically changed the life of peoples who inhabited the Carpathian Basin by the Bronze Age. Subsistence hunting gradually disappeared.

WHAT CAN WE LEARN FROM ANIMAL BONES?

As a result of ancient butchering, the majority of animal bones are found in the form of dispersed fragments. In contrast to ancient grave finds, studied by physical anthropologists, animal skeletons are rarely found in an articulated position

(Fig. 27). When complete skeletons come to light, however, they offer an unusually rich body of zoological information. The age and sex of the individual can be precisely identified, and even the stature of the animals may be estimated from various long bones. The wild ancestors of most domestic animals were larger than their tame forms since human interaction diminished the forces of natural selection and not only the strongest animals had an opportunity to breed. Smaller and more docile individuals could be domesticated more easily, but their offspring were similarly small. Domestic animals in the Carpathian Basin were remarkably small during the Iron Age preceding the Roman occupation in the 1st century AD. Although it seems that some domesticates of large stature were imported or bred by the Romans, the stature of animals again declined during the Árpadian Age.

Finds of complete skeletons are most characteristic of animal species that played no particular role in the diet since there was a tendency to bury them without dismemberment. Dog burials, for example, may be considered ritual deposits, especially when several animals were killed simultaneously and tossed into the same pit (Fig. 28). This treatment would hardly have been characteristic of a single, beloved pet. Roman period dog burials also reveal a multitude of sizes and forms that may be considered breeds; other domesticates showed a similarly great variability. This morphological richness is usually interpreted as resulting from the crossing between animals imported from Italy and local species and by intensive livestock trading between the imperial centre in Italy, Pannonia and the Barbaricum in the plainland east of the Danube.

EQUESTRIAN BURIALS

Horse has always played a special role in the cultures that occupied Hungary. Intact horse skulls are frequently found



Fig. 27. The complete skeleton of a young cattle from a Late Neolithic pit. Csabdi-Télizöldes, Lengyel culture



Fig. 28. Dog skeletons in a refuse pit of a Sarmatian settlement. Gyoma, site 133



Fig. 29. Horse skull from a Sarmatian settlement. Gyoma, site 133

from the Iron Age, as well as from the period between the Migration period and the Middle Ages (Fig. 29), as are complete horse skeletons. The display of severed horse skulls is usually interpreted as a protection against the evil eye. The Avars, who occupied the Carpathian Basin between the 6th to 9th centuries A.D., sometimes buried entire horses with their deceased, as a companion for the netherworld. It is unclear, however, whether these skeletal remains represent the most favoured, personal horse or just an 'ordinary' sacrificial animal. Sometimes there is a striking resemblance between the easily identifiable sex, health status and relative age of these horses and of their masters. Single horse burials (without a human companion) are sometimes also found in Migration period and Avar cemeteries. The joint occurrence of skulls and foot bones from horses in Conquest period graves are interpreted as the remains of horse hides that were placed into the graves.

BONE WORKING

Tools and decorative objects have been made from the bones of both wild and domestic animals in all periods. Although most simple bone tools were replaced by their metal counterparts following the emergence of metallurgy, ornaments and fine decorative objects made from bone, antler and teeth have lost none of their attraction. Owing to the wide geographical distribution of such special artefacts, however, the environmental or zoogeographical interpretation of high quality bone carvings is practically impossible.

Few bone artefacts illustrate the complex interaction between environment and culture as well as skates and runners made from horse metapodia (Fig. 30). This bone implement, present in the artefactual heritage of several peoples who migrated to the Carpathian Basin from an eastern direction during the Migration period (Sarmatians, Avars and ancient Hungarians), reflects how the environment



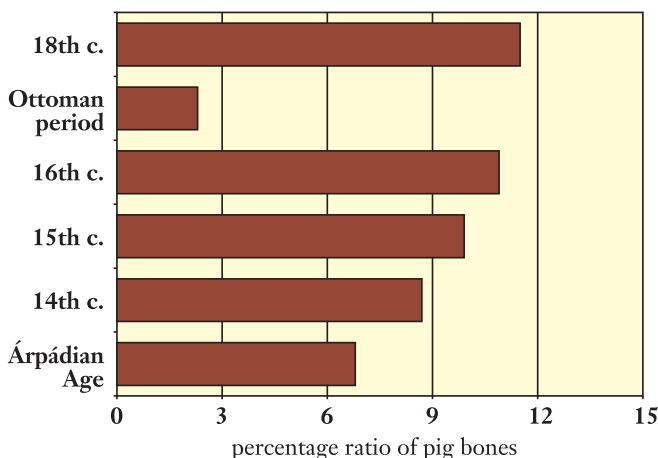
Fig. 30. Sarmatian bone skates made from the metacarpal bones of horse. Gyoma, site 133

shaped cultural tradition on the eastern European steppe. The rivers, streams and smaller brooks froze during the harsh continental winters, creating a 'demand' for these objects. The raw material of these skates was readily available since horse keeping was of fundamental importance on the wide steppe. In the Great Hungarian Plain, lying on the western fringes of the Eurasian steppe belt, this artefact was fairly widespread. The robust, straight horse bones were roughly carved into a boat shape. Many of these skates had no holes or other structural elements indicating the mode of attachment. Such skates were probably used as runners, similarly to modern skate boards.

RECONSTRUCTING NUTRITIONAL HISTORY

Spectacular, complete animal skeletons and carved pieces of bone are found relatively rarely. Most conclusions in

Fig. 31. The decline of pork consumption in the city of Vác during the Ottoman period as shown by the percentage of pig bones in the animal bone sample



archaeozoology, therefore, are drawn from the species composition of masses of bone deposited as food refuse at settlements. Although individual fragments do not reveal much information about the animals themselves, they bear traces of pre-depositional modifications, for example by butchering and dog gnawing. This type of damage leaves traces that reveal much about the culture of a given period. During excavation, the contexts of the accumulation must be precisely observed, together with the possible natural damage and losses to the bones after their deposition. The success of any archaeozoological analysis also depends on the excavation site, the time available for the investigation and the excavation techniques.

One of the aims of this discipline is the documentation of cultural influences in meat consumption. In the medieval town of Vác, for example, pork was widely consumed, in part as a traditional staple for settlers of German extraction who inhabited the town. A sharp decline in pork consumption, however, occurred after Ottoman Turkish forces occupied the city (Fig. 31). Observations of this type can usually be made from the meticulous study of thousands of bone fragments since they must be supported by the statistically relevant evidence. This is why the large-scale excavations (preceding motorway constructions and urban development projects) of the past decade are of great significance. At the same time, most of these investigations are pressed for time and this does not favour the recovery of small finds, such as fish bone. This sometimes makes the historical reconstruction of meat diets difficult. Still, the impressive quantities of animal bones brought to light during these excavations often furnish evidence for proving or refuting long held hypotheses and beliefs on a statistically significant basis.

ANIMAL BREEDS

Breeds developing within domestic animal species offer evidence for conscious or accidental human interference in the selection of these animals. Since domesticates change as a function of human influence, they have a potential for revealing information on shifts in economy and culture. Breed, however, is a relatively modern concept that seems to have gained importance only with the emergence of a market economy.

Although it is impossible to detail the various changes that took place among domesticates within this short chapter, diachronic variability in the stature of cattle (as estimated from bone length) has been clearly established. The same tendency is evident in most domestic animal species. Size oscillations partly coincide with major climatic changes, but they are also related to the historically determined level of animal husbandry. Even before the emergence of well defined, modern breeds, stature often changed alongside qualitative traits, such as horn formation and colour.



Fig. 32. “Racka” type, twisted horn core of a ewe. Vác-Széchenyi Street, Middle Ages

Nowadays, special attention is paid to ‘native’ breeds in Hungary. However, the world famous, long-horned Hungarian Grey cattle seems to be a breed only about 300 years old; in contrast to the image projected by Árpád Feszty’s monumental work depicting the ancient Hungarians’ conquest of the Carpathian Basin, it could hardly have arrived to Hungary at that time. The only reliable osteological evidence of these animals, the osseous core of their majestic horns, has never been found on medieval sites – it first occurs in the late 17th century. The situation is somewhat better with another ‘native’ Hungarian breed, Racka (*Zackel*) sheep. Although the exact origins of this breed remain similarly unknown, one of the characteristically twisted horn cores came to light from a late medieval pit in the town of Vác (Fig. 32).

REMAINS OF AN EXOTIC ANIMAL

The tedious work of reconstructing the mosaic of history is sometimes enlivened by the recovery of unusual animal bone finds. One such example is the occurrence of camel bones in the Carpathian Basin, a by all means exotic species in this region, whose presence can be best explained by military incursions from southerly regions. Sporadic occurrences of camel bones can be associated with the Syrian legions stationed in Hungary during the Roman Age. Throughout the 17th century, dromedaries played an important role in shipping Ottoman Turkish artillery supplies into present-day Hungary. In spite of this, camel bones occur but rarely even in the Turkish occupied areas of the Carpathian Basin (Fig. 33). This can most likely be attributed to the fact that camel meat was rarely eaten and, therefore, it was not typically included in kitchen refuse. Most remains of this animal must have been abandoned off site, in areas where archaeological excavations rarely take place, such as battlefields and roads (the name of the dromedary comes from the Greek *dromos*, ‘road’). Although horses were incomparably more frequent than camels, their bones are relatively scarce on medieval settlements owing to the Catholic church’s ban on horse meat consumption throughout Europe.

Fig. 33. Bones from the left hock joint of a young dromedary from the Ottoman period



NEW PERSPECTIVES IN THE ARCHAEOLOGICAL RESEARCH OF DOMESTIC ANIMALS

Only a few examples were quoted in the above to illustrate what kinds of domestic animal remains can be expected during excavations. A full survey of the spectacular increase in the number of analytical methods used in archaeozoology is similarly beyond the scope of this section.

One of the new directions is the reconstruction of ancient diets based on the laboratory analysis of animal bones. In addition to the chemical analyses of animal bones, the proportion of certain carbon and nitrogen isotopes in human bones is often an indication of ancient food intake. Animals occupying various levels in the food chain show differing isotope measurements that can also be traced in the human metabolic system.

Identifications using DNA, an indispensable tool in modern forensic medicine, was first tested on animal remains during the early 1980s (the skin of an extinct wild ass, pig bones from the food supplies of Henry VIII's sunken flagship, the *Mary Rose*).

The interpretation of archaeozoological results has also been aided by theoretical advances in archaeology (palaeo-ecological models, ethnographic parallels). The study of animal remains has attained paramount significance in the multidisciplinary evaluation of the find assemblages recovered from archaeological excavations.

THE ARCHAEOLOGY OF CULTIVATED PLANTS

Ferenc Gyulai

In addition to various artefacts and animal bones, smaller or larger quantities of plant remains, especially seeds and fruit remains (macrofossilia) can usually also be expected during settlement excavations. Whether these remains are actually recovered depends on excavation method and professional attention. Even a single seed can provide information on the nature of plant cultivation and the environment of the community in question. Plant remains not only contribute to the reconstruction of ancient lifeways, they are also instrumental in verifying coeval written and visual sources.

Archaeobotany, the study of plant remains from archaeological sites, is concerned with the reconstruction of vegetation history and ancient crop cultivation on the basis of plant products. It studies relationships between humans and the vegetation and the economy. In addition to the identification of remains from cultivated plants, archaeobotany traces the emergence of cultigens from wild plant species, as well as the distribution of plant cultivation and agriculture. This discipline is also concerned with the study of plant representations from various periods, the changes of aban-

doned domestic plants in the wild, as well as the evidence on plants gathered by other disciplines.

Archaeobotany is a sub-discipline of botany that uses all its elements, including morphology, taxonomy, anatomy and geobotany. At the same time, it serves as a bridge between the natural and social sciences, with strong links to archaeology.

The distribution of cultivated plants led to changes in the natural environment. These changes can be detected using a variety of research methods. Soil conditions in Hungary favour the preservation of cereal grain and weed remains. These are found in sufficient quantities to permit meaningful conclusions. A familiarity with the environmental requirements of the cultivation of cereals is helpful in reconstructing the history of plant cultivation. Botanical research also includes the study of ancient natural vegetation associations (*palaeo-biocoenosis*). There has also been an increase in efforts to reconstruct environmental conditions.

Archaeobotanical studies in Hungary began in 1876, when Imre Deininger analyzed the plant remains from the Aggtelek Cave. Systematic research, however, started only in the 1960s. Analyses by Borbála P. Hartyányi, Miklós Füzes (Frech'), István Skoflek and Géza Facsar made archaeobotany an accepted, independent discipline in Hungary and elevated it to internationally acknowledged standards.

Seed and fruit remains brought to light in the course of excavations may be divided into 'real' or direct and 'virtual' or indirect finds. Direct macrobotanical finds include the surviving organs or fragments of ancient plants whose external morphological features or tissue structure have been preserved. Such finds are well suited for comparative studies. These finds can best be retrieved with water-sieving, washing soil samples through a series of fine sieves. The spatial distribution of macrobotanical finds is uneven on archaeological sites. They usually occur in particular settlement features.

Indirect botanical finds are seeds and fruit remains that were embedded in some durable matrix, but were dissolved, burnt or suffered microbial decay. Consequently, only their negative imprints are preserved. A common feature of these indirect finds is that their preservation is the result of human activity. As regards their form, we can distinguish imprints, negatives and infills. Imprints are characterized by a two-dimensional appearance (left by leaves, for example), negatives are usually three-dimensional (seeds and fruits), while infills are formed when some mineral matter, such as soil salts, is petrified in the imprint or negative left by decayed macrobotanical remains.

Fig. 34. Ear types of chaffed wheat: einkorn, spelt and emmer



Direct and indirect macrobotanical finds are usually found together. The careful examination of pottery sherds and burnt daub fragments from the clay plastering of buildings often reveals many indirect finds. Breaking up such fragments into smaller pieces increases the efficiency of recovery.

Most macrobotanical finds are direct, occurring in the form of seeds and fruit remains. Some were deposited on purpose (hoarding, settlement refuse, cleaning after fires, ritual ceremonies such as funerals), while others were buried by accident. Natural factors (wind, water and burrowing animals) may also transport plant remains into deeper layers of the soil. Of the buried plant parts, seeds and fruits are relatively resistant to decay and they usually survive under favourable soil and weather conditions. This includes turfification, conservation by heavy metal ions, and encapsulation in plastering. Extremely dry conditions (for example in burial chambers) or cold ones (such as glacier ice) also favour the survival of plant remains. The most common form of preservation, however, is carbonization. Under the climatic conditions of Hungary, archaeobotanical materials are most commonly preserved either by charring or humification (the accumulation of humic materials and turfification). In highly mineralized soils (dry deposits in settlement layers, storage and refuse pits, post holes and graves), under aerobic conditions, organic material may be partly or completely destroyed. Only carbonized plant remains survive, making the concentration of finds low.

When plant remains are covered continuously by water after deposition, seeds and fruits survive completely since microbial decay is prevented by anaerobic conditions. All sorts of organic materials survive in great detail under such water-logged conditions, for example in lacustrine pile dwellings, wells, cisterns, moats and ditches, cloacae and cess pits. Culture bearing layers in these features are rich in plant remains, usually yielding a high number of finds.

Archaeobotanical work begins with sampling. The gathering of soil samples is followed by water-sieving. In the laboratory, sorted and cleaned seeds and fruit remains are identified on the basis of their morphological features using a stereo-binocular microscope. Although this work is facilitated by the use of reference books, it is always important to compare archaeological finds to modern-day reference specimens. In some cases, model experiments must be carried out since some morphological traits may be variably lost or deformed with the advancement of time, depending on the degree of preservation.

Seed and fruit finds are especially important in cases when there is no reliable archaeological, written or iconographic evidence concerning the cultivation of the plant in question. This is especially true for the agriculture of prehistoric cultures in the Carpathian Basin (Fig. 34).

The plant cultivation of the Late Copper Age Baden communities, for example, is known exclusively from the analyses of archaeobotanical remains, conducted in recent years. These studies have revealed that the subsistence strategies of the Neolithic survived and that the Copper



Fig. 35. Einkorn (*Triticum monococcum*) was a basic bread cereal for prehistoric cultures in the Carpathian Basin; recultivation experiment at the Biobistory Farm in Szarvasgede

Age settlers continued the earlier patterns of plant cultivation and animal husbandry, although the latter became dominant at the expense of agriculture, possibly in consequence of the wetter and cooler climate.

Macrobotanical remains can also be used in solving problems of stratigraphy. The archaeobotanical analysis of stratified Middle Bronze Age tell settlements in the Danube Valley enabled the refinement of our picture of Middle Bronze Age agriculture (Fig. 35).

As a result of more recent archaeobotanical research, we now have a better understanding of the lifeways led by the ancient Hungarians of the Conquest period. The subsistence of the ancient Hungarians can be described as seminomadic, allowing for mobile pastoralism, as well as limited agriculture and crop cultivation. Although animal bone assemblages from the Hungarian Conquest period are dominated by cattle and sheep bones, indicating a mobile lifestyle, this does not contradict the fact that the ancient Hungarians were familiar with crop cultivation and cultigens

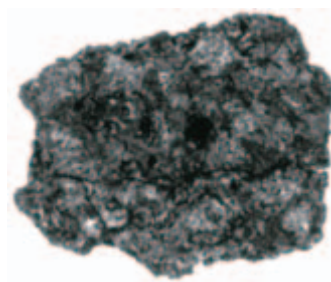


Fig. 36. Bread remains from the floor of a Middle Bronze Age house. Túrkeve-Terehalom

when they arrived to the Carpathian Basin from their eastern homeland. The leading élite of Hungarian society probably continued their Turkic, mobile pastoralist way of life, while the commoners adopted sedentism and practised agriculture. The most important archaeobotanical assemblage from the Conquest period was brought to light during the excavations directed by Miklós Takács at the Lébény-Bille-domb site near Győr. Chaffed wheat species, characteristic of prehistoric times, had been abandoned and common naked wheat and six-row barley were cultivated instead (Fig. 36). Millet was an important grain for making gruels.

Plant remains from the Great Hungarian Plain support the hypothesis of limited nomadism in the period following the Hungarian Conquest. Finds from Transdanubia and northern Hungary indicate a sedentary way of life and more advanced plant cultivation. Acting as both a historical and phytogeographical barrier, the Danube also divided the Carpathian Basin into two agricultural regions. One of these was the Great Hungarian Plain, where archaic species, such as einkorn, were also cultivated, the other was Transdanubia, where plant cultivation retained a few elements of Roman Age agriculture, practised in the former province of Pannonia.

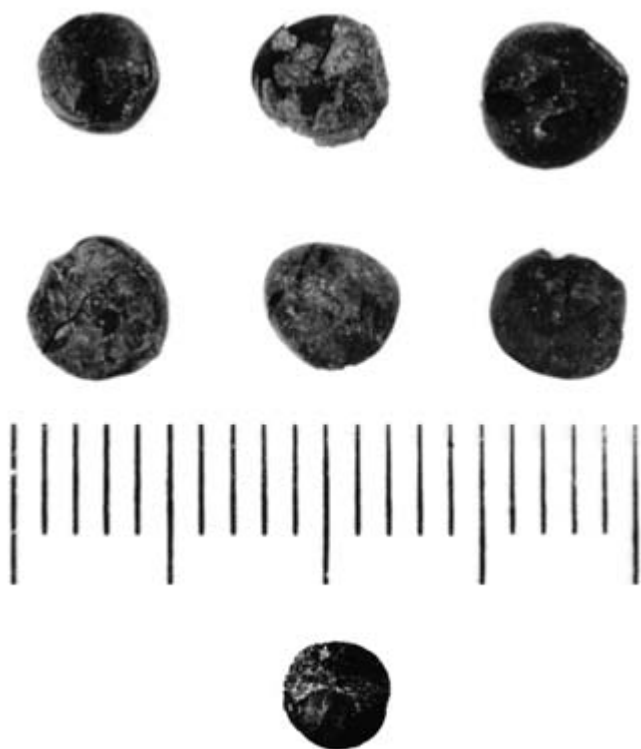
Although there has been a proliferation of studies on the history of agriculture, most of these are rather superficial; very few are based on the study of archaeobotanical remains. Over a century of archaeobotanical research has made it clear

that the Carpathian Basin was one of the oldest cultural landscapes in Europe (Fig. 37). Agriculture in this area has a history of 8000 years. Vegetables have been cultivated for five millennia, while fruits were first grown some two thousand years ago. Immigrant populations in various periods presumably imported their own crops, whose cultivation continued in the new environment. The majority of cereals arrived with Neolithic populations, while a major portion of domestic legumes were introduced by the Middle Bronze Age tell cultures. Most cultivated fruits, as well as grape, were coeval with the Roman conquest. Subsequently, this range of cultigens was further enriched by Eurasian imports during the Hungarian Conquest period and, ultimately, with western European crops and agricultural know-how under the influence of Christianity. Old and new traditions blended in the Carpathian Basin. Plant cultivation, however, was practiced at the expense of the natural vegetation. Interaction between the two was determined by climatic changes and the subsistence strategies of the various populations living in the Carpathian Basin. Past environments are more directly characterized by plant remains than by archaeozoological finds. The study of ancient animal keeping, including the impact of long-distance livestock trade, can best be studied in parallel with environmental reconstruction and archaeobotanical studies.

Thanks to interdisciplinary co-operation between archaeologists and archaeobotanists, and especially large-scale excavations with an environmental focus conducted in recent years, an increasing body of information is available concerning the agricultural practices of the ancient populations who inhabited the Carpathian Basin in various periods. Recently, plant remains from the Early Neolithic Alföld Linear Pottery culture have been brought to light at the Füzesabony–Gubakút site in the Great Hungarian Plain. Macrobotanical samples have also been systematically collected for years at the Late Neolithic tell settlement of Tiszapolgár–Csőszhalom, and a rich archaeobotanical assemblage was created during the past few years. The existence of previously unknown Copper Age agriculture could be verified from the analysis of the soil samples from various sites, such as Ikrény, Kompolt, Óbuda and Csepel Island. Evidence for the plant cultivation of the Early Bronze Age Bell Beaker culture is no longer known only from sites outside the Carpathian Basin since plant remains from the settlements of this culture have been brought to light on Csepel Island. The first, and to date only, Scythian archaeobotanical find in the Carpathian Basin was discovered at Rákoskeresztúr–Újmajor. A similarly unique Sarmatian plant assemblage, rich in a variety of cereal grains, was found at the site of Kiskundorozsma–Nagyszék.

The late Migration period fortress at Zalavár yielded the to date richest assemblage of carbonized macrobotanical finds. The analysis of seed and fruit remains from the Conquest period contributed to a better knowledge of the plant cultivation practices of the ancient Hungarians. Statistically significant quantities of seed remains are available for study from both the Hungarian Conquest period (Lébény–Bille-

Fig. 37. Sedentary communities were successful at cultivating legumes, such as pea (*Pisum sativum*; from the Late Bronze Age site of Balatonmagyaród–Hidvégpuszta) and lentil (*Lens culinaris* subsp. *microperma*; from the late Migration period settlement of Fonyód-Bélatelep)



domb) and the early Árpadian Age (Edelény–Borsod earthen fort, Gyomaendrőd). Finally, wells excavated in most recent years should be mentioned as well. These preserved an incredible range of seeds and fruit remains. An especially rich Late Bronze Age assemblage was recovered from Mosonmagyaróvár–Németdűlő and Dunakeszi–Székesdűlő. Late medieval wells and cisterns, excavated at Lászlófalva–Szentkirály, Szécsény and at various points of Buda Castle, have also yielded water-logged plant assemblages of unusual richness. These macrobotanical finds have been instrumental in reconstructing the vegetation history and the climate of the periods concerned.

THE HUMAN POPULATION

Ildikó Pap

HISTORICAL ANTHROPOLOGY

Historical anthropology is aimed at the reconstruction of ancient populations, studying their variability in both time and space. The natural history of humans is also influenced by the unique cultural and social life of our species. Although anthropological finds contribute the most significant

body of information concerning the long millennia of prehistory from which there are no written records, this discipline is also instrumental in elucidating historical processes in later periods.

What did the inhabitants of the Carpathian Basin look like thousands of years ago? Can we reconstruct their faces and physical makeup? What did the ancient Hungarians look like? These are the questions most commonly asked by our contemporaries. Even if bone finds are difficult to interpret, human remains recovered from secure archaeological contexts provide valuable information. Anthropological research has enabled us to reconstruct the peoples whose life and culture have been investigated by archaeologists, and whose skeletons have survived in their burials.

BURIALS – EXCAVATIONS

The tradition of the conscious burial of the dead was the result of a long cultural process. This custom appears to be rooted in the Middle Palaeolithic. At first, the deceased were buried on settlements, in houses or the temporarily unoccupied part of the settlement. Cemeteries separate from settlements were first established toward the Late Neolithic. Two basic types of burials may be distinguished: inhumations and cremations. These two types of ancient human remains, bones and ashes, are brought to light during the course of archaeological excavations.

The first step in the analysis of human bone remains is their precise recovery during excavations, including the careful documentation of their relation to each other. Although the majority of inhumation graves contain only a single individual in the ancient civilizations of Europe, some human bones are found in groups, often disarticulated and mixed up (Fig. 38)

Cremation graves contain clusters of burnt human bone. Should incineration have been almost perfect, the burnt human remains end up being very fragmented. In the past, such finds were not even saved by the excavators. During fieldwork, however, it is very important to find each and every fragment and map its position. This helps in establishing whether the body had been cremated *in situ* or whether the ashes were found in a secondary position. Careful observation may even reveal the method of cremation.

HOW DOES HISTORICAL ANTHROPOLOGY CONTRIBUTE TO HISTORICAL STUDIES?

Methods of historical anthropology enable the identification of the sex of the deceased, as well as estimating his/her age, stature, body weight and physiognomy. Several details of



Fig. 38. The grouping of skeletal remains by individuals is one of the basic tasks in historical anthropology. The churchyard of Gyula-Törökzug, from the 14–17th century

nutrition and other aspects of past lifeways may be identified. The study of human remains contributes to the reconstruction of ancient life. Statistical analyses of skeletal measurements help distinguishing between ancient human groups, allowing historical conclusions concerning the directions of their migrations, as well as the formation of human communities.

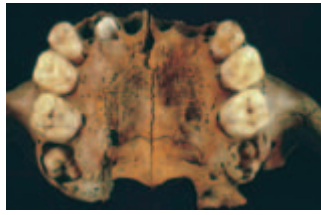


Fig. 39. The eruption sequence of teeth is instrumental in estimating the age at death

One of the first steps in the identification of bones is separating human bones from animal ones since human skeletal remains are often found mixed with animal bones at archaeological sites. It is also possible that environmental factors, such as weather, modify the appearance of archaeological bone. During the individual's life, disease may modify or lead to the disappearance of characteristic anatomical features of the skeleton. Therefore, it is of paramount importance to identify the human origins of such poorly preserved remains.

It is of similarly great interest, whether the deceased was a man or a woman? Sex is one of the fundamental characteristics of any human, influencing the growth and development of the skeletal bones. Sexual maturity results in the development of sex-dependent skeletal features, including the size and shape of bones. These include the gracility or robusticity of bones, as well as the more or less pronounced surfaces of muscle attachment. Such traits help identifying the sex of the deceased on the basis of skeletal remains. Identifying sexual characteristics, however, is possible only on adult skeletons since such traits develop during adolescence, but are entirely missing in infants.

With the advancement of age, growth, development and, in the end, senescence leave marked features on both the bones and dental structure. On the basis of these phenomena, the biological age of the individual may be estimated. This age, however, does not necessarily correspond to the 'calendar age', measured in years: the speed of the ageing process may vary from individual to individual (*Fig. 39*).

The estimation of body dimensions is based on the tightly determined correlation between the length of bones and the individual's height. Stature can thus be calculated relatively precisely, in spite of differences in ethnic origins, sexual affiliation or general physical makeup.

HISTORICAL DEMOGRAPHY

Historical demography is aimed at estimating the size and composition of past human populations. It provides information on the life span of humans, by studying life expectancy for example, as well as the probable age at death.

According to the data accumulated by historical

demographical research, life expectancy was very short and infant mortality was extremely high for long millennia. In 8000 BC, when some ten million people inhabited the Earth, life expectancy at birth may have been no more than twenty years. By the 10th–12th centuries A.D., life expectancy at birth in Hungary rose to thirty years. Those who lived until fifteen, had a good chance to survive for another thirty years. Men and women born around 1900 had a life expectancy of almost 40 years, and reaching the age of 20 increased their chances for another forty years.

HEALTH AND DISEASE IN THE PAST

Everybody is interested in the health conditions of their forefathers. It would be interesting to know what diseases they suffered from, whether they were healthier or not than modern humans. These questions can be answered by palaeopathological research. Not all human diseases can be recognized on skeletal remains since not all conditions affect bone tissue. With the improvement of modern analytical methods, however, increasing numbers of ancient diseases can be diagnosed, and sometimes even therapy can be recognized.

Epidemics have always played a decisive role in human history. Although not all contagious diseases leave symptoms on the skeleton, some of them may cause quite characteristics anomalies on human bone (*Fig. 40*). DNA studies

Fig. 40. Traces of osteomyelitis

Fig. 41. Typical deformations caused by syphilis on a child's skull. Lászlófalva–Szentkirály, 16–17th century



carried out within the framework of paleoepidemiological research, aimed at the study of such contagious diseases, helped identifying bone tuberculosis, syphilis (Fig. 41), leprosy, as well as the remains of microbes that caused these diseases. Recent palaeoepidemiological investigations thus yielded impressive results in the DNA analysis of tuberculosis and leprosy, the study of early modern age mummies, the identification of occupational disorders and osteoporosis. The description of stress indicators in the human skeleton has also been successful. Recently, microbiological and DNA studies have been carried out on the early modern age mummies found in the crypt of the White Friars' Church in Vác, while general physical anthropological studies have been successfully combined with in-depth palaeopathological analyses in the case of graves recovered from within and around the Basilica in the ancient royal seat of Székesfehérvár.

Articular disorders left marks on many skeletal remains

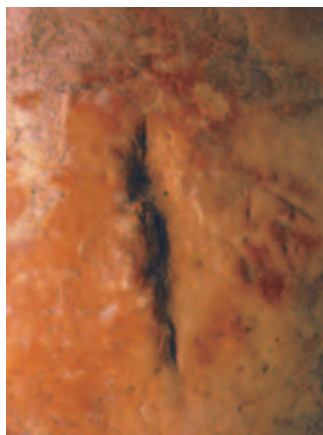


Fig. 42. Healed trauma, still visible on the skull of an adult man

recovered from archaeological sites. Their characteristic symptoms include irregular, excess bone growth around the joint (called exostoses), as well as the high polish or even erosion of the articular surface itself.

As regards injuries and trauma, bone fractures seem to have been less common in the historical past than today. The distribution of bone fractures within the skeleton was different as well. Skull injuries seem to have been more common in the historical past than those of the limb bones. One possible explanation is that head injuries left visible marks, such as skull fractures, while soft tissue on the limbs, and especially on the trunk, may have sustained serious trauma without evident damage to the underlying bone (Fig. 42)

Infected complications have been identified but rarely from the Hungarian Conquest period. This is sometimes explained by the unusually strong immune system of that population, although it is also possible that skilful surgeons of the time worked under reasonably good hygienic conditions, causing minimum damage to the tissues treated.

Nowadays, osteoporosis and its pathological consequences have become one of the greatest public health problems in Europe and North America. The frequency of this condition was only a fraction of what is seen today, for example in 10th–12th century populations. Apparently, the active way of life that required great mobility and consistent exercise was beneficial from this point of view.

Bone remains indicate that tumours of various kinds threatened ancient humans as well. Primary malignant tumours usually develop during the period of intensive growth, therefore their expected frequencies in ancient populations were comparable to those seen today. On the other hand, secondary malignant bone tumours are characteristic of older age, therefore they are expected to occur less frequently in archaeological materials. Such individuals usually died from other disease, before bone tumours could develop and become fatal.

Environmental stress left numerous marks on the bones of developing individuals, as well as on their teeth (Fig. 43). Symptoms of prolonged starvation, as well as of grave fever can be identified on X-ray pictures. The connection between diet and dental disease has long been recognized. Characteristics of dental pathology therefore shed light on the health status of entire populations, offering evidence on both nutrition and lifeways in a broader sense (Fig. 44).

Occupational stress and concomitant skeletal symptoms of overworking were ten times more frequent in the Middle Ages than today. Enthesopathies, deformations seen on the bone at the points of muscle and tendon attachments, as well as work-related developmental disorders, affected the lower limb in some two-thirds of all cases. They occur most frequently on the calcaneus, the heel-

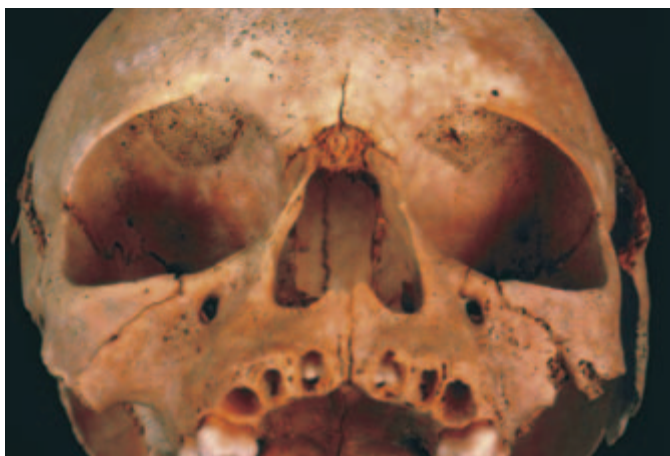


Fig. 43. Deformation in the orbita caused by anaemia related to iron deficiency



Fig. 44. Dental pathologies caused a lot of suffering to our ancestors



Fig. 45. Skull of an adult man from Keszthely-Fenékpuszta, showing visible deformations caused by the bandages

bone. Anomalies in the pelvic region and on the thigh bones, seen most frequently in the skeletons of men, may be interpreted as a sign of regular and exhausting riding. This group of bone deformations is often referred to as rider's syndrome.

MODIFICATIONS CAUSED BY CULTURAL TRADITION

In addition to skeletal traits related to age, sex, heredity and other normal biological phenomena, changes left by cultural practices may also be recognized on archaeological bones and teeth. They include the artificial deformation of the skull, ritual changes inflicted on the bodies dur-

ing the funerary rite and other rituals such as trepanation, and other changes caused by non-intentional human behaviour.

Deformed skulls are found in numerous burials in Hungary since some of the peoples who inhabited this area during the Migration period artificially modified the natural outline of the head. This practice began right after birth, and lasted until cranial sutures ossified in adulthood (Fig. 45). The artificial deformation of the skull, however, did not simply change the shape of the head: it caused a number of diseases and chronic conditions as well.

Trepanation was another well known practice. Today it would seem like a hair-raising idea if someone tried to carefully cut our head open using a flint chisel or an obsidian blade. Nevertheless, numerous skulls with such holes have come to light in Hungary. The majority originate from the 10th century, from the Hungarian Conquest period. The high level of surgery is convincingly illustrated by the fact that many of these holes showed distinct signs of healing.

WHAT DID THEY LOOK LIKE? – THE RECONSTRUCTION OF FACIAL FEATURES

When facing ancient skulls, one often wonders what the human being must have looked like in real life? It seems a real mystery to speculate whether that long-vanished face was handsome or ugly, young or old. With the help of three dimensional facial reconstruction, the original features may be reconstructed onto almost any intact, well preserved skull.

As a first step, a plaster cast of the original skull is made. Plasticine is used for the reconstruction. Eyes are made of

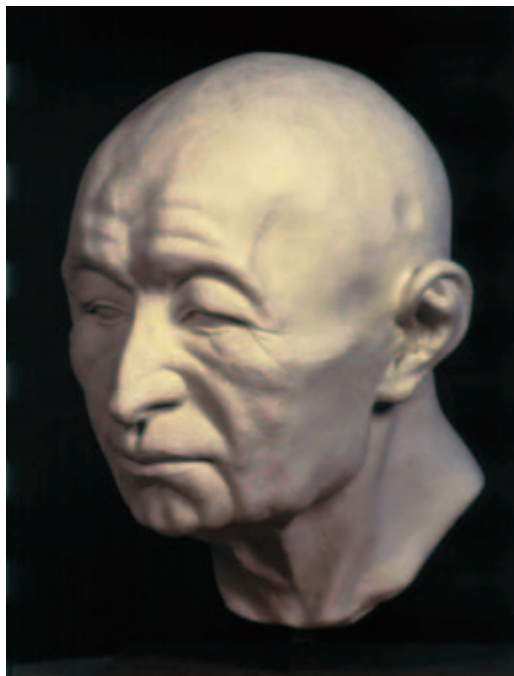


Fig. 46. Facial reconstruction of a man from the Hungarian Conquest period. Ladánybene-Bene-puszt (reconstruction by Ágnes Kustár)

Fig. 47. Facial reconstruction of a young Sarmatian girl. Hódmezővásárhely-Gorzsa (reconstruction by Ágnes Kustár)



Fig. 48. Facial reconstruction based on a child's skull from the Subalyuk Cave, and the face of a modern child (reconstruction by Gyula Skultéty)

glass, and a wax nose is added. Pegs of characteristic lengths are used to mark fleshy points in the face. Finally, the face is covered with artificial skin and the features are harmonized. Hair, eyebrows, moustache and beard are added optionally, on the basis of authentic historical and ethnographic sources (Figs 46–47).

ANTHROPOLOGICAL COLLECTIONS

Fossil finds of early hominids, as well as skeletal remains of the populations that inhabited the area of present-day Hungary are kept in the anthropological collections of museums and universities. It is our basic responsibility to preserve and analyze these finds that represent broad spatial and temporal spectra. Moreover, results of this work must be presented to the public.

Scholars from faraway countries have often visited Hungary to study the earliest anthropological remains. Of these, the Rudabánya and Vértesszőlös finds are the best known. A re-evaluation of the Neanderthal remains, recovered from the Subalyuk Cave, has recently been initiated, using up-to-date research techniques (Fig. 48).

The majority of human remains kept in anthropological collections in Hungary, however, represent populations that inhabited the Central Danube Basin after the Ice Age. The collection of human remains from the Migration period is especially famous. From this point of view, our collections are considered among the richest in the world. Skulls and other skeletal remains from the Avar period, the Conquest period and the Árpáadian Age shed light on Hungarian ethnohistory.

MODERN AGE MUMMIES

In the recent past, the naturally mummified bodies of over two hundred persons and an ossarium containing the remains of at least forty others were discovered in the crypt below the White Friars' Church in Vác. The dates of death painted on the coffins ranged between 1731 and 1838. Thanks to the favourable microclimate and good aeration of the crypt, these remains were mummified spontaneously, without conscious preparation. Dissection scars could be identified on some of the better preserved bodies, bearing witness to 18th century medical autopsy (Fig. 49).

EXHUMATION AND IDENTIFICATION

Two contradictory intentions coexist in the human mind. Scholarly curiosity, as well as practical necessity, often require that the identity of a dead person be determined. Meanwhile, we would instinctively prefer to leave the buried rest in peace (Fig. 50). Physical anthropology has fre-



Fig. 49. Some well preserved mummies show the marks of dissection, evidence of medical autopsy in the 18th century. White Friars' Church, Vác



Fig. 50. Excavating the crypt of the Grassalkovich family at Máriabesnyő

quently been of help in identifying the remains of historical personalities and their family members. Even political victims of Hungary's recent history have been exhumed and properly identified.

PERSPECTIVES IN HISTORICAL ANTHROPOLOGY

The use of up-to-date scientific methods is increasingly common in the analysis of archaeological human bone as well.

Chemical analyses of the bone tissue can shed light on the dietary habits of various historical populations. Carbon and nitrogen isotopes are of help in reconstructing the actual diets. The quantity and mutual proportions of barium, strontium and zinc in human bone finds are also important indicators in nutritional physiology. Relative quantities of trace elements reveal whether animal or plant food dominated in ancient diets.

Palaeoparasitological studies, previously not practised in Hungary, is concerned with the study of parasite remains recovered from soil samples collected at the excavation site. Samples taken from the areas of the chest, stomach and in-

testines of the deceased may contain not only plant and animal remains instrumental in reconstructing ancient environments, but also offer evidence of external and internal parasites that attacked ancient humans.

Genetical methods are used for investigating the pathological history of ancient populations. DNA studies of microbial pathogens are gaining importance since they are of help in testing traditional, morphological diagnoses and offer additional historical information. Old microbial DNA sequences may even be compared to their modern counterparts, thereby establishing parallels to modern pathogenic factors.

Comparing the frequency of shared genetical traits between populations may reveal differences and similarities. In spite of its small amount, human DNA preserved in teeth and bones can be recovered. Surviving short sections of the extracted DNA sequence can be multiplied using the so-called polymerase chain reaction. The thus enhanced genetic information is of help in outlining family relations. Genetic research may elucidate much more of our past than we ever hoped for. Although the bones of millions of people will never be completely recovered even at the best preserved sites, they can be genetically linked to information carried within our own bodies.

APPENDIX: THE MAMMALS OF HUNGARY

Compiled by István Vörös

Legend:

† extinct species

* occasional occurrences

° occurrence expected

italics: domestic animals**boldface**: identified from excavations

INSECTIVORES – INSECTIVORA

1. **European hedgehog** – *Erinaceus europaeus* (Linné 1758)
2. **Common mole** – *Talpa europaea* (Linné 1758)
3. **Common shrew** – *Sorex araneus* (Linné 1758)
4. Alpine shrew – *Sorex alpinus* (Schinz 1837)
5. **Pigmy shrew** – *Sorex minutus* (Linné 1766)
6. **Scilly Islands shrew** – *Crocidura suaveolens* (Pallas 1811)
7. **Bicolored white-toothed shrew** – *Crocidura leucodon* (Hermann 1780)
8. **White-toothed shrew** – *Crocidura russula* (Hermann 1780)
9. **Water shrew** – *Neomys fodiens* (Pennant 1771)
10. **Miller's water shrew** – *Neomys anomalus* (Cabrera 1907)
11. **Lesser horseshoe bat** – *Rhinolophus hipposideros* (Bechstein 1800)
12. **Mediterranean horseshoe bat** – *Rhinolophus euryale* (Blasius 1853)
13. **Greater horseshoe bat** – *Rhinolophus ferrum-equinum* (Schreber 1774)
 - ° Blasius' horseshoe bat – *Rhinolophus blasii* (Peters 1871)
14. **Large mouse-eared bat** – *Myotis myotis* (Brokhausen 1797)
15. **Long-nosed bat** – *Myotis blythii* (Tomes 1857)
16. **Bechstein's bat** – *Myotis bechsteinii* (Kuhl 1818)
17. **Natterer's bat** – *Myotis nattereri* (Kuhl 1819)
18. **Whiskered bat** – *Myotis mystacinus* (Kuhl 1819)
19. **Brandt's bat** – *Myotis brandtii* (Eversmann 1845)
20. **Geoffroy's bat** – *Myotis emarginatus* (E. Geoffroy 1806)
21. **Pond bat** – *Myotis dasycneme* (Boine 1825)
22. **Daubenton's bat** – *Myotis daubentonii* (Kuhl 1819)
 - ° Long-fingered bat – *Myotis capaccinii* (Bonaparte 1832)
23. **Long-eared bat** – *Plecotus auritus* (Linné 1758)
24. Grey long-eared bat – *Plecotus austriacus* (Fischer 1829)
25. **Barbastelle** – *Barbastella barbastellus* (Schreber 1774)
26. Common bat – *Pipistrellus pipistrellus* (Schreber 1775)
27. Nathusius' pipistrelle – *Pipistrellus nathusii* (Keyserling et Blasius 1839)
28. **Common noctule** – *Nyctalus noctula* (Schreber 1775)
29. Leisler's bat – *Nyctalus leisleri* (Kuhl 1819)
30. Giant noctule – *Nyctalus lasiopterus* (Schreber 1780)
31. **Serotine bat** – *Eptesicus serotinus* (Schreber 1774)
32. Northern bat – *Eptesicus nilssonii* (Keyserling et Blasius 1839)
33. Particoloured bat – *Vespertilio murinus* (Linné 1758)
34. Long-winged bat – *Miniopterus schreibersi* (Kuhl 1819)

LAGOMORPHES – LAGOMORPHA

35. **Brown hare** – *Lepus europaeus* (Pallas 1778)
36. **Domestic rabbit** – *Oryctolagus domesticus* (Erxleben 1777), first occurrence: post-medieval period, 16–17th century
37. **Rabbit** – *Oryctolagus cuniculus* (Linné 1758), first occurrence unknown, post-medieval period(?)

38. † **Mouse-hare** – *Ochotona pusilus* (Pallas 1778), Mesolithic, extinct

PRIMATES – PRIMATA

39. **Modern man** – *Homo sapiens* (Linné 1758)

RODENTS – RODENTIA

40. **European squirrel** – *Sciurus vulgaris* (Linné 1758)
41. **Souslik** – *Citellus citellus* (Linné 1766)
42. † **European beaver** – *Castor fiber* (Linné 1758), extinct in the 19th century, modern imports
43. **Common dormouse** – *Muscardinus avellanarius* (Linné 1758)
44. **Forest dormouse** – *Dryomys nitedula* (Pallas 1778)
45. **Fat dormouse** – *Glis glis* (Linné 1776)
46. **Garden dormouse** – *Eliomys quercinus* (Linné 1776)
47. **Southern birch mouse** – *Sicista subtilis* (Pallas 1773)
48. **Lesser mole rat** – *Spalax leucodon* (Nordmann 1840)
49. **Common field mouse** – *Apodemus sylvaticus* (Linné 1758)
50. **Yellow-necked field mouse** – *Apodemus flavicollis* (Melchior 1834)
51. Small-eyed field mouse – *Apodemus microps* (Kratochvil et Rosicky 1953)
52. **Striped field mouse** – *Apodemus agrarius* (Pallas 1778)
53. **Harvest mouse** – *Micromys minutus* (Pallas 1771)
54. **House mouse** – *Mus musculus* (Linné 1758)
55. **Black rat** – *Rattus rattus* (Linné 1758)
56. Brown rat – *Rattus norvegicus* (Berkenhout 1769), post-medieval immigrant
57. **Hamster** – *Cricetus cricetus* (Linné 1758)
58. **Water vole** – *Arvicola terrestris* (Linné 1758)
59. Muskrat – *Ondatra zibethica* (Linné 1758), 20th century, escaped from fur farms
60. **Bank vole** – *Clethrionomys glareolus* (Schreber 1780)
61. **Earth vole** – *Pitymys subterraneus* (de Sélys-Longhamps 1836)
62. Common vole – *Microtus arvalis* (Pallas 1779)
63. Field vole – *Microtus agrestis* (Linné 1761)
64. Root vole – *Microtus oeconomus* (Pallas 1776)
65. † **Narrow-skulled vole** – *Microtus gregalis* (Pallas 1776), Mesolithic, extinct
66. Nutria – *Myocastor coypus* (Molina 1782), 20th century, escaped from fur farms

CARNIVORES – CARNIVORA

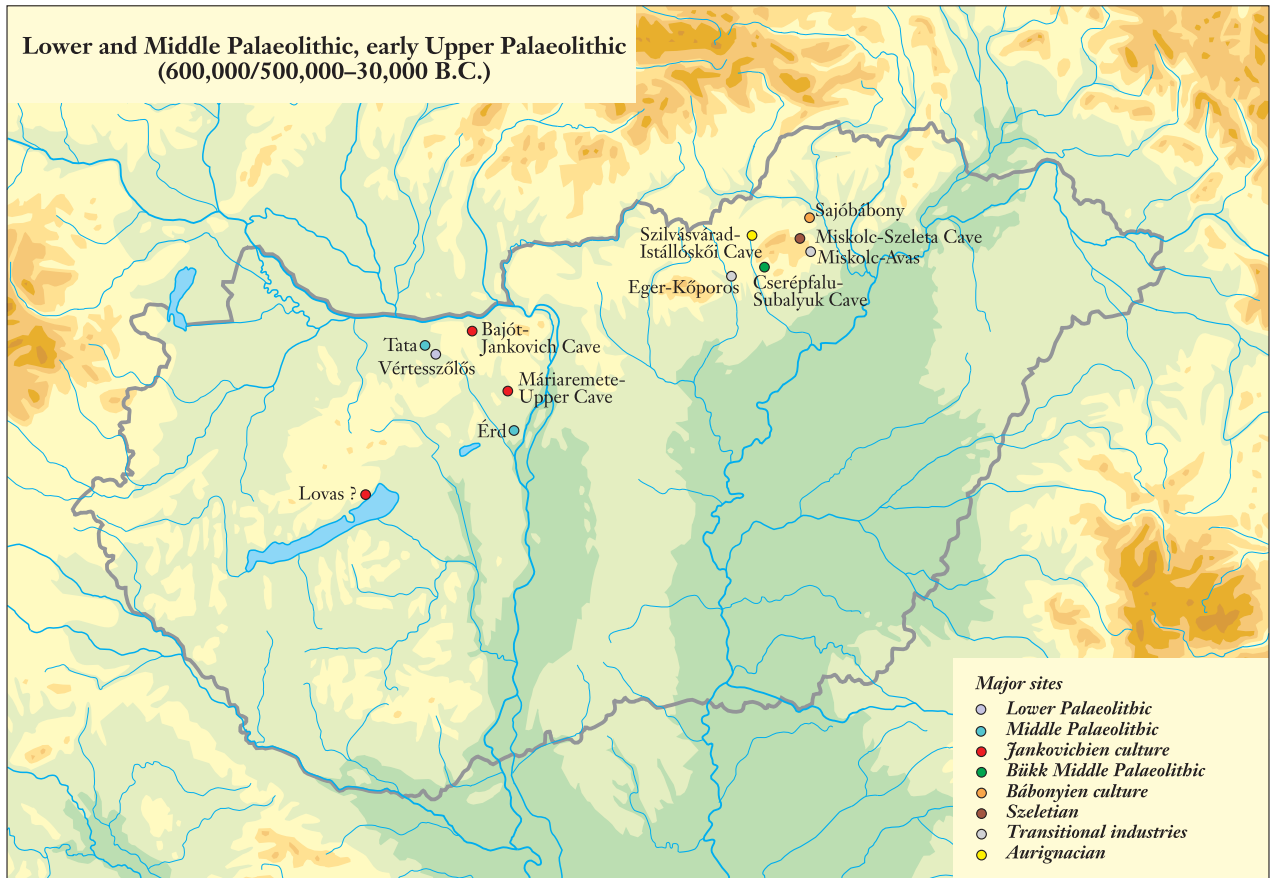
67. Raccoon dog – *Nyctereutes procyonoides* (Gray 1834), 20th century, escaped from fur farms
68. **Wolf** – *Canis lupus* (Linné 1758)
69. Jackal – *Canis aureus* (Linné 1758)
70. **Domestic dog** – *Canis familiaris* (Linné 1758), first occurrence: Mesolithic
71. **Red fox** – *Vulpes vulpes* (Linné 1758)
72. † **Brown bear** – *Ursus arctos* (Linné 1758), extinct in the 15–16th century, occasional reappearance expected
 - ° Raccoon – *Procyon lotor* (Linné 1758), escaped from fur farms, occurrence expected
73. **Badger** – *Meles meles* (Linné 1758)

74. **Otter** – *Lutra lutra* (Linné 1758)
 75. **European mink** – *Lutreola lutreola* (Linné 1761)
 - ° **American mink** – *Lutreola vison* (Brisson 1762), escaped from fur farms
 76. **Pine marten** – *Martes martes* (Linné 1758)
 77. **Stone marten** – *Martes foina* (Erxleben 1777)
 78. **Stoat** – *Mustela erminea* (Linné 1758)
 79. **Weasel** – *Mustela nivalis* (Linné 1766)
 80. **European polecat** – *Putorius putorius* (Linné 1758)
 81. **Russian polecat** – *Putorius eversmanni* (Lesson 1827).
 82. **Wild cat** – *Felis silvestris* (Schreber 1777)
 83. **Domestic cat** – *Felis catus* (Linné 1758), first occurrence: Iron Age–Roman period.
 84. **Lynx** – *Lynx lynx* (Linné 1758)
 85. * **Persian lion** – *Leo leo* (Linné 1758 [*persicus* (Schreber 1776)]), occasional straggler: Late Neolithic–Copper Age
- ODD-TOED UNGULATES – PERISSODACTYLA
86. † **East European wild horse** – *Equus ferus gmelini* (Antonius 1912), Mesolithic–Neolithic, extinct
 87. **Asiatic wild horse** – *Equus ferus przewalskii* (Poljakov 1881), recent imports to nature reserves
 88. **Domestic horse** – *Equus caballus* (Linné 1758), first occurrence: Middle Copper Age
 89. † **European wild ass** – *Asinus hydruntinus* (Regalia 1907), Mesolithic–Neolithic, extinct
 90. **Domestic ass** – *Asinus asinus* (Linné 1758), first occurrence: Iron Age–Roman period
- EVEN-TOED UNGULATES – ARTIODACTYLA
91. **Wild boar** – *Sus scrofa* (Linné 1758)
 92. **Domestic pig** – *Sus (scrofa) domesticus* (Brisson 1762), first occurrence: Neolithic
 93. * **Dromedary** – *Camelus dromedarius* (Linné 1758), Roman period and post-medieval period, beast of burden
 94. **Roe deer** – *Capreolus capreolus* (Linné 1758)
 95. **Fallow deer** – *Dama dama* (Linné 1758), game park imports during the Roman period and post-medieval period (16th century)
 96. * **Mesopotamian fallow deer** – *Dama mesopotamica* (Brooke 1875), occasional immigration: Copper Age
 97. **European red deer** – *Cervus (elaphus) bippelaphus* (Erxleben 1777)
 98. **Maral deer** – *Cervus (elaphus) maral* (Ogilby 1840), first occurrence: Late Neolithic
 99. **White-tailed deer** – *Odocoileus virginianus* (Boddaert 1783), game park import, 19th century
 100. **Sika deer** – *Sika (Cervus) nippon* (Temminck 1838), game park import, 20th century
 101. * **Moose** – *Alces alces* (Linné 1758), occasional stragglers: Copper Age, 16th, 18th and 20th centuries
 102. **Ibex** – *Capra (Ibex) ibex* (Linné 1758)
 103. **Domestic goat** – *Capra hircus* (Linné 1758), first occurrence: Neolithic
 104. **Chamois** – *Rupicapra rupicapra* (Linné 1758)
 105. **Domestic sheep** – *Ovis aries* (Linné 1758), first occurrence: Neolithic
 106. **Moufflon** – *Ovis musimon* (Pallas 1811), game park import, 19th century
 107. † **Aurochs** – *Bos primigenius* (Bojanus 1827), indigeneous, extinct in the 10th century
 108. **Domestic cattle** – *Bos taurus* (Linné 1758), first occurrence: Neolithic
 109. **Water buffalo** – *Bubalis bubalis* (Linné 1758), first occurrence: post-medieval period, 16th century in large estates, common draught animal from the 19th century onwards
 110. † **European bison** – *Bison bonasus* (Linné 1758), indigeneous, kept only in game parks by the Middle Ages, extinct in the 18th century

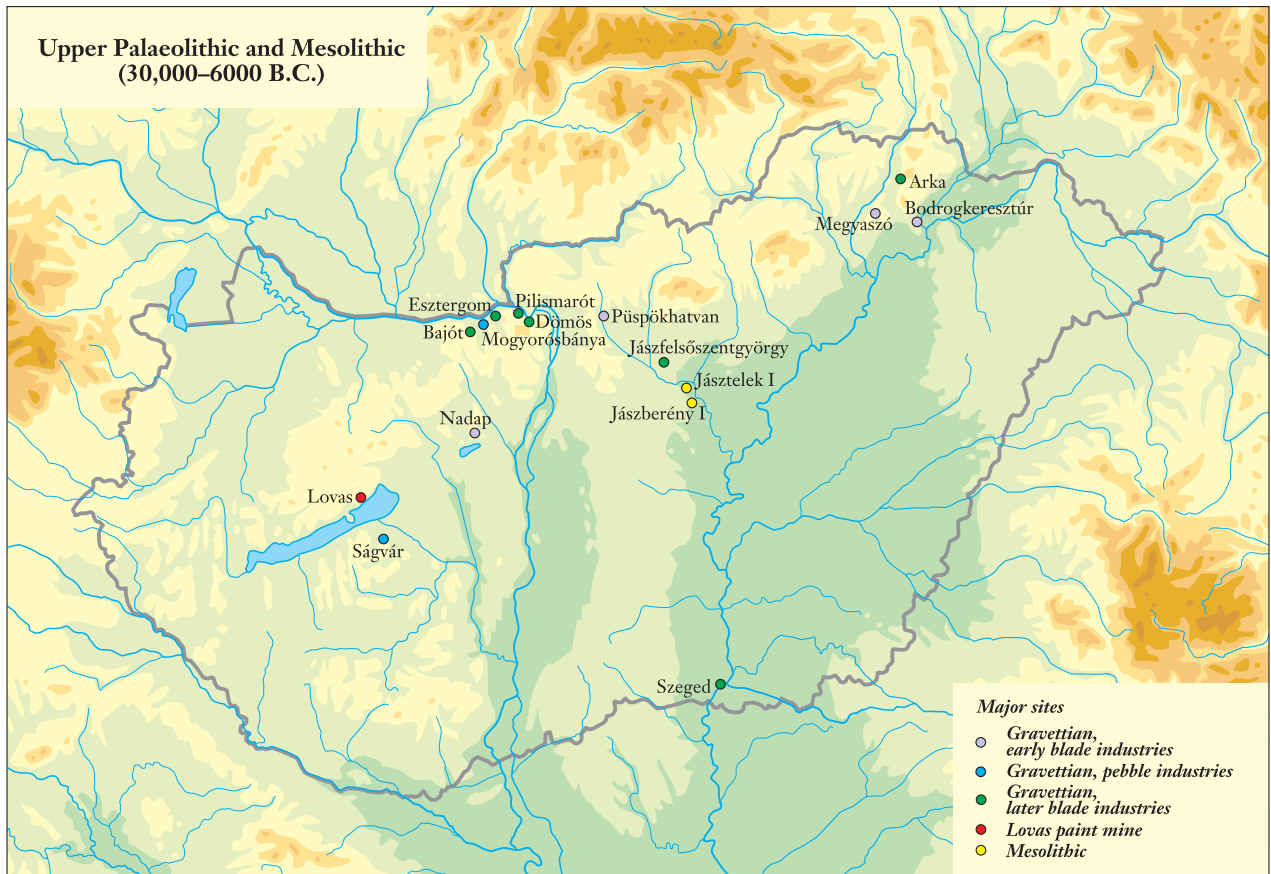
III. THE PALAEOOLITHIC AND MESOLITHIC



**Lower and Middle Palaeolithic, early Upper Palaeolithic
(600,000/500,000–30,000 B.C.)**



**Upper Palaeolithic and Mesolithic
(30,000–6000 B.C.)**



INTRODUCTION

Katalin T. Biró

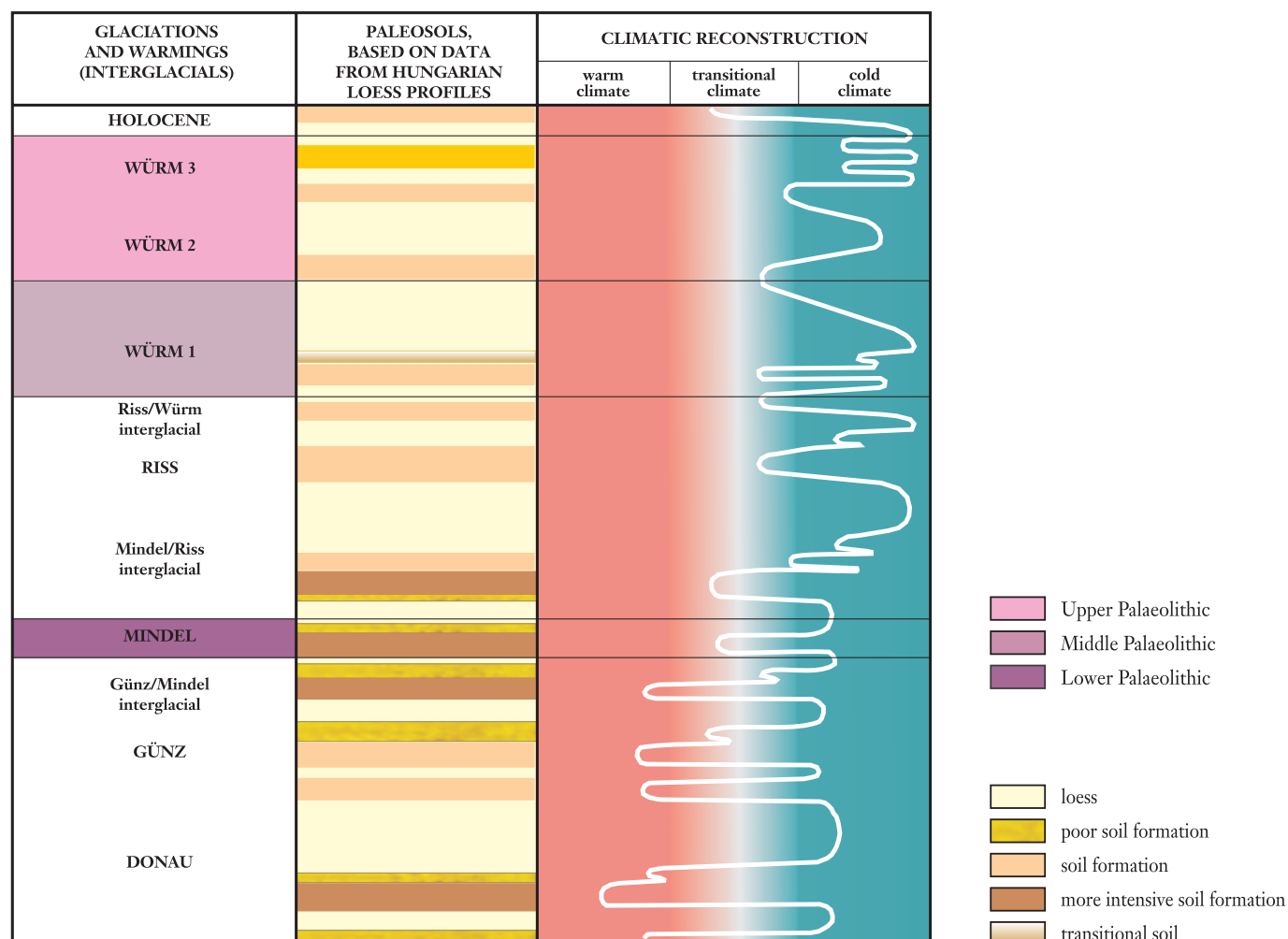
The Old Stone Age, or Palaeolithic, to use a word borrowed from Greek, was the longest period in human history. The various disciplines dealing with human evolution associate the beginning of the Palaeolithic with different events. From an archaeological point of view, the decisive factor is the human manipulation of the environment and tool making, whose traces can be identified on excavations.

The chronological framework of the Palaeolithic is provided by the Ice Age (*Fig. 1*). Several glacials can be distinguished in geohistory; their cause can usually be associated with astronomical events. The current Ice Age began about 2 million years ago. The Palaeolithic saw the alternation of cold (glacial) and warm (interglacial) periods. Short climatic oscillations (called stadials and interstadials), often lasting for several hundred years, can be observed within longer glacials. At present we are living in a period of warming, whose onset – about ten thousand years ago – marked the end of the Palaeolithic.

Several processes leading to the emergence of man date to the Palaeolithic: the evolution of man in the biological sense, the development of speech and conceptual thought, as well as the appearance of tools. The people of the Lower Palaeolithic were familiar with fire, as shown by the almost half a million year old hearths at Vértesszőlős. The burials of the Middle Palaeolithic reflect a belief in an afterworld – the remains of Neanderthal man found in the Subalyuk Cave are perhaps all that survived of a burial. There is little either in biological appearance or in thought to distinguish Upper Palaeolithic man from his modern contemporaries. Aside from anthropological analyses, this is also evidenced by Upper Palaeolithic art, such as cave paintings and small sculpture, many of which continue to fascinate modern artists. Our ancestors were by no means primitive brutes; they were creative and resourceful men and women, who struggled hard for survival and coped admirably in a world that was much harsher than our own.

Hungary is not particularly rich in the finds of this period. As far as we know, the Carpathian Basin was not continuously occupied, with population groups appearing in successive waves, especially in the warm periods.

Fig. 1. Chronology. The phases of the Ice Age and the most important Palaeolithic cultures in Hungary



It was for a long time believed that Palaeolithic man had never settled in Hungary, the main argument being that this region had been unsuitable for settlement in the Ice Age. Ottó Herman was the first to challenge this view within the academic community with evidence to contrary. He was followed by the palaeontologist Ottokár Kadić who, during his excavations in the Szeleta Cave, uncovered a find assemblage in an unambiguous stratigraphical position together with characteristic Ice Age fauna. His findings finally resolved the debate on the existence of the Palaeolithic in Hungary. The contribution of geologists, palaeontologists and other specialists of the earth sciences to this field of research was decisive, especially in the early period of research. Palaeolithic studies would be unimaginable without a close co-operation with specialists working in related disciplines, primarily scholars studying the fauna, the flora, the climate and the environment of the Quaternary. The sites investigated using archaeological methods usually yield an impressive source material for their own studies.

The lack of continuously occupied sites and the scarcity of finds is only relative. Even the territories that are extremely rich in Palaeolithic sites lack continuous layer sequences. Some of the key sites of this period, such as Vértesszőlős from the Lower Palaeolithic, Érd and Tata from the Middle Palaeolithic, have been unearthed in Hungary. The campsites of Upper Palaeolithic hunters on river terraces offer an excellent opportunity to study the settlement patterns of the period. Recent research has confirmed earlier assumptions that the population of the transitional period at the close of the Ice Age (called the Mesolithic) played an important role in mediating the innovations of a

production economy towards the northern and western regions of Europe.

VÉRTESSZŐLÓS: THE FIRST PEOPLE IN HUNGARY

Viola T. Dobosi

Vértesszőlős is a small village between Tata and Tatabánya at the foot of the Gerecse Hills. Although difficult to pronounce for non-Hungarians, the name of the village became a household word in the scholarly community in the 1960s owing to a major archaeological discovery made here.

Palaeontologists often visited the quarry opened on the outskirts of the village from the early 1900s. The quarry was a rich source of 4–500 thousand years old animal bones; splendid leaf imprints were also collected from the calcareous tuff from the end of the 1950s. The sensational archaeological finds remained concealed until 1962. The excavation of the site was conducted by László Vértes between 1963 and 1968. Vértesszőlős remains the single authentic Lower Palaeolithic site in Hungary. The finds were embedded under exceptionally favourable conditions. The prehistoric settlement was hardly damaged, offering the possibility for a wide range of complex investigations and analyses.

The recovered find material is rich and varied, allowing the reconstruction of the one-time organic and inorganic environment, the settlement conditions, the various modes of food procurement, tool-making activities and even the



Fig. 2. Open-air museum of the Hungarian National Museum. Vértesszőlős.

occupants of the site. Evidence for various cultural phenomena were also recovered – their importance points well beyond the significance of the site itself.

Realizing the educational potentials of the site, the Hungarian National Museum built an open-air museum for presenting the settlement to the wider public (Fig. 2). This museum differs from traditional museums and does not always meet the necessary standards in some respects. Still, the evocation of the one-time atmosphere of the campsite, the presentation of the find circumstances in their original environment and the *genius loci* can no doubt contribute to a better understanding and a ‘feeling’ for the past.

The calcareous tuff enclosing the prehistoric site has always been a popular building material. It is easy to carve and its loose, porous structure has excellent heat retaining qualities. Many generations have used this valuable rock since the Roman Age and there are still countless deposits that can be quarried in a wide zone from Buda to Dunalmás. Freshwater limestone was precipitated by springs during various periods of the Ice Age and its formation can still be observed in the cavities hollowed out by karstic waters and in spring craters. Its location (the surface formations, the composition of the over- and underlying layers) and the archaeological, anthropological, botanical and palaeontological remains found there together determine the age when these tuff layers were formed or embedded. This evidence allows the fitting of a particular site into the known sequence of geological events and to determine certain phases of a sequence spanning several hundreds of thousands of years (Fig. 3).

One important phase is marked by the period when the area and the direct environment of the present-day village was the setting for the life of prehistoric man. This setting differed markedly from the present environment. The Tata trench was not the deep and broad valley we see today. The lukewarm springs at the edge of the piedmont built a series of deep basins with a diameter of several meters from the minerals dissolved in their waters. The water discharge of the springs fluctuated and they sometimes dried up com-

pletely, together with these basins. An area with a diameter of 8–9 metres enclosed by steep walls provided an ideal settlement site for group of people roaming the region. The early hominids who discovered and exploited this environment are called early archaic *Homo sapiens* by the anthropologists studying human evolution. In the traditional evolutionary tree they are the first representatives to satisfy the criteria of modern man. These early hominids were the first to populate the habitable areas of the Old World, from the southern tip of Africa to Central Europe.

A community of these early hominids lived in this varied and attractive region for a long time, experiencing successive climatic changes. They probably relocated their camp from one basin to another. Archaeological finds were collected from some eight or nine locations among the basins, most of which were destroyed by modern quarrying operations. These early hominids returned to the basin preserved for the exhibition five times. Tools, hearths, kitchen refuse (splinters from animal bones cracked for extracting the marrow and subsequently crushed for use as fuel, pebble fragments, the waste from tool-making) and the tangible remains of various other activities occasionally accumulated to a thickness of half a metre. This undisturbed prehistoric settlement surface is the culture-bearing layer, the discovery of which is the ultimate goal of every settlement excavation. There were long intervals between the different periods of occupation in the basins at Vértesszőlős. The formation of the 3–4 m thick lime loam, sand, loess and clay embedding the culture-bearing layers was a long process that took place under diverse environmental conditions.

Campsites in calcareous tuff basins have rarely been observed. Prehistorians have long known that this settlement type was more common a few hundred thousand years later, during the time of Neanderthal man. The finds from Vértesszőlős proved that the antecedents of this settlement form could be traced back far into the past. These “basin residences”, as well as the awareness of the favourable environmental conditions and their repeated exploitation reveal much about the mind-set of the communities settling here.

The weather changed gradually, corresponding to the climatic cycles of the Ice Age. The calcareous tuff formations of the moist and warm climate were replaced by loess, the characteristic deposit of a dry and cold period.

The settlement was not abandoned since traces of occupation have also been found in the loess and it would appear that lifeways did not change radically in spite of the transformed environment. The way in which the resources necessary for survival were procured and the fact that the quantity of these resources rarely exceeded the amount needed for survival did not upset the delicate balance between the renewal of the natural resources and the carrying capacity of the territory. Food resources were never exhausted and, as a result, there was nothing to force this small community to move to new territories.

One element of the inorganic environment was at least as important in the life of this prehistoric community as the

Fig. 3. Plant remains from the calcareous tuff. Vértesszőlős



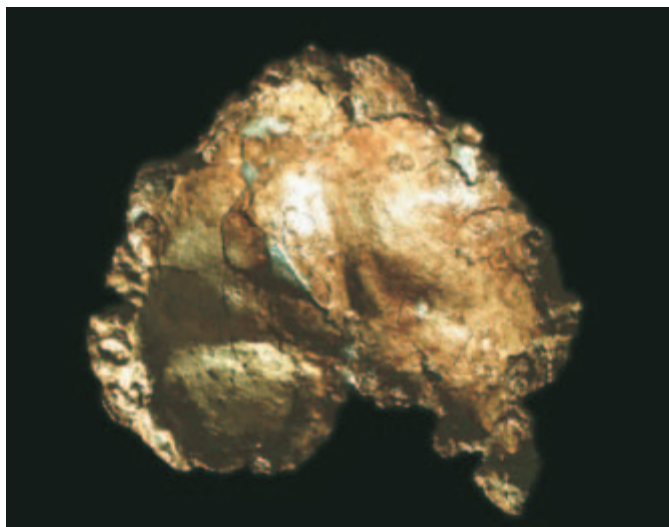


Fig. 4. *Sámuel's remains: the occipital bone of an adult male from the Palaeolithic site at Vértesszőlős and Gyula László's reconstruction of Sámuel*

basin that sheltered them: the presence of ample raw material for making stone tools. For Vértesszőlős man this source was the fluvial deposit of the nearby river. A wide pebble deposit runs parallel to the Átalér up to its mouth a few kilometres away. During its course from the Vértes Mountains to the Danube, the river rounded and rolled the sharp-edged stone rubble transported in its water. The occupants of Vértesszőlős collected good quality quartzite and silex pebbles – choosing pieces the size of an egg or a smaller potato – from this thick gravel layer lying no more than a few hundred metres from the settlement. The rounded pebbles were split, halved or broken into smaller pieces. The edges of the segments and flakes were further worked with a few strikes and the simple tool was ready for use for various tasks. These few centimetres long tools were used for skinning and butchering animals, for processing hides, as well as for bone, antler and wood carving. Most of them still have a smaller or larger cortex.

Tool-making was perfected over time. By the end of the use-life of the settlement, Vértesszőlős man was more circumspect in selecting the raw material for his tools and more skilful in shaping the cutting edges. A strive for perfection, the improvement of knapping techniques and manual dexterity can thus be traced through time in the archaeological record.

The choice of the site was also excellent in terms of food acquisition. The valley dividing the two hill ranges (Gerecse and Vértes) connected differing regions. The meeting point of the hilly region and the plainland, the nearby forest and the proximity of springs providing water for drinking and mud for wallowing was an attractive habitat for a wide range of animals. The diet of Vértesszőlős man included both large and small herbivores and predatory animals, shown by the bone splinters, teeth and mandibles recovered from the site. The accumulation of this kitchen refuse, the debitage from tool-making and the surviving remains of

other activities make up the “culture-bearing layer” whose identification and excavation is the goal of an archaeological investigation.

Horse, an animal of the open steppe, was the most frequently hunted animal at Vértesszőlős. In addition to aurochs and bison, red deer and roe deer from the forests were also carried to the settlement. Predatory animals are represented by wolves and bears. Giant beavers and sabre-toothed tigers, the characteristic animal species of the period, are excellent chronological indicators. These animals were exploited for various purposes: their meat, their fur, their antler and tusks were all used. We do not know how these animals were hunted. The 3–4 cm large stone tools are unsuitable for hunting and no artefacts were found that could be regarded as weapons. It seems likely that the carcasses of fallen animals were not left to waste. Quite a few animals suffered injuries among the rugged rocks beside the springs, making them easy prey for the occupants of the site.

The animals were skinned and butchered a little farther away from the settlement and only the useful parts were brought back. Evidence of this activity is preserved in a butchering site that is also part of the open-air museum. The footprints of the animals that visited the springs to quench their thirst were preserved in the limestone. The soft, pliant loam was hardened by the lime precipitating from the water and the loose sediment deposited on the surface preserved the footprints over the millennia.

The animals had yet another very important use. The occupants of the settlement built hearths from the crushed animal bones. The strongly burnt patches of the hearths with a diameter of 40–60 cm offer convincing evidence that, for the first time in the history of mankind, early hominids guarded and tended fire. The use of animal bones for this purpose is all the more surprising since the climate was quite mild during the first half of the use-life of the Vértesszőlős settlement – spanning a rather long period of

perhaps several millennia – and trees were plentiful. László Vértés, the archaeologist who excavated the site, suggested that the occupants were familiar with the favourable properties of greasy bones that gave more heat, burned longer and needed less tending.

The flora can be reconstructed from the pollen remains and the plant imprints preserved in the limestone around the settlement. Pollen carried to the settlement by the wind gives an idea of the vegetation of more distant regions, while the leaves and fruits that had fallen into the water and were encrusted with lime reveal much about the direct environment. Water plants, pines, deciduous trees (oak, maple, elm) and shrubs with colourful flowers (rose, lilac) thrived on the slopes, the river banks and in the area of the springs. The vegetation around the Vértesszőlős settlement complemented the occupants' diet from early spring to late autumn with a variety of buds, leaves and fruits, many of which could be stored. A number of other plants, mainly grasses, that are no longer consumed today, could also be found on the plainland and on the fringes of the forested areas. Some of the plants in the botanical sample survived from earlier geological periods in the Carpathian Basin, but they gradually disappeared owing to the climatic changes during the Ice Age. The natural habitat of some of these species, such as lilac, lies in the Mediterranean at present, while others represent the wild ancestors of species that were later cultivated (grapes, apples).

The impressive and interesting plant and animal remains (mandibles, leaf imprints) are complemented by other, seemingly insignificant finds that are nonetheless invaluable for the reconstruction of the climate and the environment. These comprise the remains of small water and terrestrial animals, rodents and molluscs. What makes the Vértesszőlős site especially important is that specialists from various disciplines were able to paint a vivid tableau of the environment, as well as of the activities, the physical appearance and intellectual mind-set of these early hominids and to determine the chronology of the settlement. The first hominid group arrived to the Vértesszőlős springs during a brief warm spell of the second glacial of the Ice Age (Mindel glaciation). Radiometric, physical and chemical analyses date this period to about 350 thousand years ago. The period between the earliest and the latest occupation levels spans a few thousand years.

The most spectacular finds were undoubtedly the human remains. The remains of two individuals were found at Vértesszőlős: a child's milk-tooth and the occipital bone of an adult male, who was christened Sámuel by the excavation workers, a name that was popularized in the articles for the wider public (Fig. 4). Some anthropological features, such as the strong occipital torus, the shape of the child's tooth, correspond to this phase of human evolution, sharing numerous similarities with contemporary human remains from other parts of the world, while others, such as the large brain capacity, foreshadow the future path of human evolution. The hominid remains from Vértesszőlős repre-

sent a phase of evolution that points towards *Homo sapiens*. The use of fire, the visible advances in tool-making, the varied and successful strategies for food procurement all reflect a dynamic development.

A long hiatus can be observed in Hungarian prehistory after the abandonment of the Vértesszőlős settlement. We do not know whether the central areas of the Carpathian Basin were indeed devoid of human occupation or whether we have simply failed to find its traces. The first Neanderthal groups appeared in Hungary some 200–250 thousand years later.

THE EVOLUTION AND CULTURE OF MODERN MAN

Katalin Simán

THE MIDDLE PALAEOLITHIC

The Middle Palaeolithic in Hungary began about 100 thousand years ago, at the close of the Riss/Würm interglacial, and ended about 36 thousand years ago, during a long and rather cold stadial of the Würm. Traces of human activity are concentrated in two well distinguishable geographic regions of the Carpathian Basin during this period, spanning over 60 thousand years (cp. the distribution map). One of these geographic regions lay in the eastern part of the Transdanubian Central Range, bordered by the Danube in the north and the east, the Erd Hills in the south, Tata in the west and the line of Lake Balaton in the southwest (although the lake itself did not exist at the time). The other lay in the Bükk Mountains, where most of the 'classical' Palaeolithic sites have been discovered. This distribution of the sites is hardly surprising, given the geographic conditions, the lifeways and customs of the population groups of the period and the climate during the alternating warm and cold periods. A few scattered findspots have been identified between these two main regions: since these yielded but a handful of finds, often no more than one or two artefacts, they can perhaps be interpreted as the traces left by groups on hunting expeditions. We know that the ancestor of modern man, *Homo sapiens sapiens*, had already appeared by that phase of the Middle Palaeolithic when the Carpathian Basin was inhabited. However, only the skeletal remains of Neanderthal man have been found to date in Transdanubia and in the Bükk Mountains.

Transdanubia in the Middle Palaeolithic

Three industries can be distinguished in Transdanubia. Two of these are represented by large, relatively permanent settlements yielding rich assemblages and a few temporary campsites with few finds. The site of the Charentian culture, named after a region in France, lies on a plateau near



Fig. 5. Middle Palaeolithic site in the calcareous tuff under the secondary school.
Tata–Porbanyóbánya



Fig. 6. *Tjurunga* polished from a mammoth tooth lamella.
Tata–Porbanyóbánya

Érd. The excavations brought to light two layers over an area of 250 m²; the upper layer could be subdivided into five occupation levels, indicating that different communities of the same culture returned to this site several times during a period of some 50 thousand years (the lowermost layer can be dated to the Riss/Würm interglacial, while the uppermost layer is only slightly older than 40 thousand years). The stone tools were made on pebbles of quartzite that abound near the site. The hunters concentrated on certain species: the most favoured prey was cave

bear in the lower layers, while in later periods they hunted wild horse and woolly rhinoceros, animals whose slaying was at least as difficult and dangerous. Other hunted species included mammoth, wild ass and red deer. The stone tools found in the caves of the Gerecse Hills are the relics hunting expeditions in this area. According to Veronika G. Csánk, excavator of the Érd site, the bone heaps found during the excavations indicated that this Neanderthal community took care to store meat in meat caches. She believed that the community occupying the site was of southeastern origins. However, since no traces of a comparable archaeological industry have been identified within a radius of several hundred kilometres, Érd remains – for the time being – a solitary, unique phenomenon.

The community that established its camp beside the hot-water springs by the Öregtő in Tata (Fig. 5) appears to be similarly unique, without any analogies. The site was first excavated in the 1910s and, later, in the 1960s. The investigation of the site was resumed in the late 1990s. The hot-water springs first dissolved the lime content of the rocks and subsequently precipitated a series of basins. A Palaeolithic group settled in the sheltered, valley-like basins about 50 thousand years ago, returning to the site several times. Their settlement traces were eventually covered by sand-blown loess; the basins were filled by the springs and coated with a calcareous tuff crust. The site now resembles a cave, although the group that once settled here could see the sky above their heads. The raw material for the tools, carefully worked tiny implements no more than 3 cm long on the average, was selected from the pebbles of the Átalér. They hunted brown bear, horse and red deer, although their main

prey was mammoth calf. One unique find from this site, without any known parallels, is a so-called *tjurunga*, a flat oval object made from a mammoth tooth lamella, resembling a ritual object used by Australian aborigines in their ceremonies (Fig. 6). A number of smaller temporary campsites of the same community have been discovered in some nearby



Fig. 7. Bifacially retouched leaf shaped scraper.
Jankovich Cave

caves, but no large sites that could be associated with the same people or related groups have yet been found within a radius of several hundred kilometres.

The third cultural complex of the period in Transdanubia, the Jankovichen culture, is known from the caves of the Pilis–Vértes–Gerecse Hills. This culture was named after the Jankovich Cave lying near Bajót in the Gerecse Hills, excavated in the earlier 20th century. Beside the eponymous site, the remains of the culture were also identified in several other caves investigated in the first half of the 20th century. The re-examination of these earlier excavations revealed that the culture can be divided into an older phase (end of Riss/Würm, early Würm phase) and a younger one (between 40–50 thousand years ago). These groups hunted reindeer, red deer, rhinoceros, musk ox, bear, ibex and bison. The most typical stone tool of this technocomplex – on the basis of which it was identified as a separate culture – is a leaf-shaped tool made from working an ovoid flake. This finely worked tool functioned as a knife or a scraper, rather than a weapon used in hunting (*Fig. 7*). The good quality raw material for the tools was collected from the rock outcrops in the hills. A few rock types suggest that groups of this culture visited or had contacts with the Zemplén–Bükk region; the source of some lithics lay in the faraway White Carpathians. Sites of the same population have been identified along the Ipoly river and in at least one cave of the Bükk Mountains.

The only site of the culture investigated using modern excavation techniques is the Remete–Upper Cave on the outskirts of Budapest. The most significant finds from the cave were two lower incisors of Neanderthal man, indicating that these lovely leaf-shaped tools were made by Neanderthal man.

The hematite mine unearthed at Lovas in the 1950s was associated with this culture on the basis of a single stone tool found in a pit. The age and the cultural context of this tool, however, is still subject to debate.

The Middle Palaeolithic in the Bükk Mountains

The rich and varied finds assemblages from the Middle Palaeolithic sites of the Bükk Mountains have been the subject of heated debates in the Hungarian and international archaeological community. Even the re-assessment of the excavations conducted at the beginning and in the first half of the 20th century have been unable to resolve these debates. Most of the find assemblages have no known analogies in the Carpathian Basin and, similarly to the Transdanubian industries, they are isolated phenomena. The tools in these assemblages were made both from locally available raw materials, and from lithics originating from the White Carpathians, southern Poland and the Prut region.

The Subalyuk Cave lying in the southern part of the Bükk Mountains was excavated in the 1930s (*Fig. 8*). The finds were discovered in two layers. The lower layer can be dated to the end of the Riss/Würm interglacial or the initial

phase of the Würm glaciation. The finds from this layer were assigned to the classical Mousterian culture. This group hunted ibex, by no means an easy prey, in the mountains. Similar finds were also discovered in a few nearby caves. The upper culture-bearing layer dates to a later period, the end of the Middle Palaeolithic. This group produced smaller tools and followed a different tradition. The skeletal remains of a Neanderthal woman and a child, the most complete human remains from the Hungarian Palaeolithic, were recovered from this layer. Judging from the drawings made at the time of the excavations, these skeletal remains probably came from a burial.

The eponymous site of the Bábonyien culture is Sajóbábony, lying at the eastern foot of the Bükk Mountains. Our knowledge of this industry is based mainly on surface finds, the most typical being bifacially worked tools. Although most of these sites were open-air campsites, the archaeologist who identified the industry associated the finds from the Szeleta Cave with the youngest phase of the this culture. Very little is known about the lifeways of the communities that occupied these sites on eastern slope of the Bükk Mountains from the Riss/Würm interglacial to the end of the Middle Palaeolithic. We do not even know whether they specialized in hunting certain species only.

The Szeleta Cave was the first Palaeolithic site to be excavated in Hungary. The first campaign was followed by several others, as well as a control excavation at the eponymous site of the Szeletian culture. The finds from this site finally proved the presence of the Palaeolithic in Hungary both to Hungarian and international scholarship. The archaeological finds were recovered from several layers. The lowermost culture-bearing layer contained only a few flakes that were unsuitable for a cultural categorization. These were overlain by finds of the “Lower Szeletian”. It is difficult to give a good description of this culture since the stone tools became strongly rolled and worn during the millennia. Ibex and

Fig. 8. Archive photo showing the excavation of the Subalyuk Cave



horse were the main hunted animals. A few caves near the eponymous site and in the interior of the Bükk Mountains yielded the finds of a similar industry.

THE TRANSITION FROM THE MIDDLE TO THE UPPER PALAEOLITHIC

Two sites represent the transition from the Middle to the Upper Palaeolithic from a techno-typological aspect. Although both sites have been excavated, the date of the layers cannot be determined either stratigraphically or by radiocarbon measurements. The bones, if any, have completely decayed since their deposition and it is thus impossible to establish what animals were hunted.

The find assemblage from Eger-Kőporos-tető included both Middle Palaeolithic types, such as leaf-shaped, bifacially worked tools, and a number of typical Upper Palaeolithic

tools. The raw material was predominantly local, procured from the environs of Eger or from the southern side of the Bükk Mountains. At the same time, some lithics were imported from the eastern side of the Bükk Mountains and from the Tokaj-Prešov Mountains, as well as from the Prut region (Fig. 9). The assemblage represents a single industry, although it must in all fairness be added that some specialists have challenged this owing to the diversity of the material, suggesting that the assemblage contains the finds

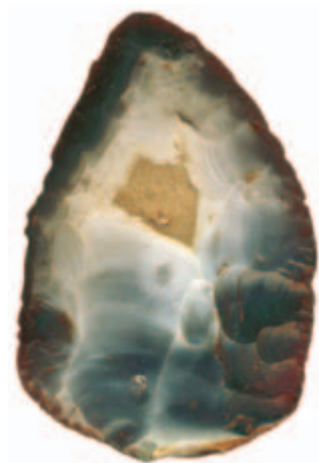


Fig. 9. Middle Palaeolithic type stone tool. Eger-Kőporos

of different cultures. Comparable finds have been collected on other sites in the Bükk Mountains.

The remains of a workshop were unearthed during the archaeological investigations preceding the construction of a housing estate on the Ávas Hill in Miskolc. The tools from this site reflect the same duality, not only as regards their type, but also in terms of their manufacturing technique: the traditional Middle Palaeolithic technique was perfected to a level where the products already had an Upper Palaeolithic character.

THE EARLY UPPER PALAEOLITHIC

The earliest Upper Palaeolithic groups arrived to Hungary sometime during the Middle Palaeolithic. According to radiocarbon dates, an early Aurignacian community settled in the Istállóskő Cave in the western Bükk about 40 thousand years ago. The cave was excavated several times since the be-



Fig. 10. Aurignacian bone point. Szeleta Cave

ginning of the 20th century. Only a few stone tools were recovered from the lower culture-bearing layer; in contrast, over a hundred bone tools, including split-base javelin points (Fig. 10), attest to the presence of hunters. The upper Aurignacian layer of the cave, assigned to around 31 thousand years ago by radiocarbon dates, yielded bone javelin points sharpened at both ends, together with a typical stone tool assemblage of the culture. Most stone tools were not made from locally available lithics. Aside from a few tools made from obsidian and local hydroquartzites, the raw material of the tools was Slovakian hydroquartzite, flint from the Prut region and perhaps from southern Poland, suggesting that these hunters had brought their tools with them from their original homeland and had used local raw material only for replacing tools that had for some reason become useless. The re-assessment of the palaeontological finds from the site revealed which animals had been hunted and, also, that hunting was seasonal. The first occupants' main quarry was chamois, although they sometimes also hunted red deer, reindeer, ibex and predatory animals during their brief stay in summer and autumn. The later group of the upper layer arrived in autumn and remained until the end of winter. They also preferred chamois, but the number of reindeer doubled and horse appeared as a new species among the hunted animals. Their longer occupation of the site is indicated by the presence of jewellery, pipes and a flute with three holes (Fig. 11). The bone sample also included a phalanx and a tooth of *Homo sapiens sapiens*. Other temporary campsites included another nearby cave and the Szeleta Cave on the other side of the Bükk Mountains.

A hearth and finds of the

ginning of the 20th century. Only a few stone tools were recovered from the lower culture-bearing layer; in contrast, over a hundred bone tools, including split-base javelin points (Fig. 10), attest to the presence of hunters. The upper Aurignacian layer of the cave, assigned to around 31 thousand years ago by radiocarbon dates, yielded bone javelin points sharpened at both ends, together with a typical stone tool assemblage of the culture. Most stone tools were not made from locally available lithics. Aside from a few tools made from obsidian and local hydro-



Fig. 11. Flute made from cave bear bone. Istállóskő Cave



Fig. 12. Leaf shaped point from the Szeleta Cave

early Aurignacian culture were found in the upper level of the lower Szeletian layer in the Szeleta Cave. Overlying them were the finds of an industry that was determined as “developed Szeletian”. This layer was later separated into a Szeletian and a Gravettian level; the two levels are now again regarded as representing a single culture. The well-known and oft-published lovely spearheads were found in this layer (Fig. 12) together with the slender arrowheads of the Gravettian culture. This layer was dated to around 32 thousand years ago, a date preceding the appearance of the Gravettian culture in Hungary. The hunted animals were red deer,

mammoth and reindeer. Only two sites with the finds of this group are known to date: a single leaf-shaped spearhead was found in the Istállóskő Cave and finds from a workshop were collected on a nearby hilltop.

It is often mentioned that a tool typical for the lower level of the Szeleta Cave was found in the lower layer of the Istállóskő Cave, while the upper layers yielded a leaf shaped point whose analogies can be quoted from the upper layers of the Szeleta Cave. Similarly, an Aurignacian hearth and tools were found in the lower level of the Szeleta Cave, while a bone point characteristic of the Upper Aurignacian of the Istállóskő Cave was discovered in the lateral corridor (Fig. 13). This indicates not only the contemporaneity of the groups that occupied the two caves, but – accepting that the lower culture-bearing layer of the Szeleta Cave can be associated with Neanderthal man of the Middle Palaeolithic and the Aurignacian culture with modern man – also that both human groups had settled in this territory at approximately the same time.

LATE GLACIAL HUNTERS

Viola T. Dobosi

During the last twenty thousand years of the Ice Age, Europe was populated by Upper Palaeolithic communities whose subsistence was based on specialized, efficient hunting. In the central zone of the continent – an area that is especially important in terms of the possible cultural contacts of Hungarian sites – the new population had perhaps met Aurignacian groups migrating to the west; the few remaining groups may have played a

role in the emergence of a new cultural unit. The strongest argument in favour of this theory is the continuity observed on certain sites and a number of similarities in the technology of tool production.

The long, dry, cold millennia of the last glaciation were only temporarily interrupted by periods with a milder climate. In the especially harsh periods of the last glaciation, the southern fringes of the permanent ice sheet extended to the central areas of the continent, restricting the extent of the habitable world. In order to survive the harsh conditions, *Homo sapiens* pursued a rather successful subsistence strategy. Since vegetation and edible plants were scarce, hunting became the most important means of food acquisition. Hunting was performed with spears, bows and arrows, the usual method being stalking the prey animals in group hunts. Although the simple bows, probably made from organic material, have not survived, the slender, 4–5 cm long arrowheads with retouched edges and pointed tips used in the hunt occur in every find assemblage. The tiny, sharp blades were the fittings of the spears inserted into the sides of wooden, bone or antler spearheads. A spear-thrower with a hooked terminal helped a more accurate aim and increased the range of the weapon. The huge herds grazing in the plains could not be approached from the caves in the hills and these communities therefore relocated their settlements to low hills and river valleys, where artificial dwellings had to be constructed from wood, skin, antler and bone. The success of this strategy is reflected in the fact that these communities survived even the harshest climatic periods of the Ice Age. The relative density or scarcity of the temporary and permanent settlements of these communities largely depends on the extent to which a particular region has been investigated. These sites occasionally expanded into smaller villages with several habitation units. Provided generously with grave goods, the deceased were buried between, beside or under the habitation structures.

The interior of the Carpathian Basin was not covered by ice. The arc of the high mountain range protected this region from climatic extremities. The eastern wind accumulated loess in the dry spells. The several metres thick deposits contain a wealth of archaeological and other finds. Loess covered large territories and levelled uneven surfaces. The meandering rivers cut shallow channels into these plateaus. The rivers were flanked by gallery forests, and smaller forested areas provided refuge in the sheltered valleys of the lower mountain ranges. Pine and birch thrived in the cold periods, while deciduous trees that are also part of the present landscape appeared in the warmer and moister climate. There was sufficient wood to feed the hearths of the camps even in the plainland, where the climate was even harsher. The vegetation of the loess steppes consisted mainly of shrubs. The open, dry grassland was a favoured habitat of large herbivores. Mammoth and, later, wild horse and reindeer were the dominant species; their



Fig. 13. Bone spearhead from the upper Aurignacian layer of the Istállóskő Cave



Fig. 14. The source of the raw materials used for the production of the stone tools found at Esztergom–Gyurgyalag lay in territories beyond the Carpathian Basin

Fig. 15. Stone tools made from chocolate coloured radiolarite and flint with cream coloured cortex. Nadap–Kőbánya



Fig. 16. Fossil shells collected from Tertiary layers. Esztergom–Gyurgyalag

remains occur frequently among the refuse from the settlements. The predatory beasts stalking the herbivores were hunted for their meat, antler and fur.

According to our present knowledge, the central areas of the Carpathian Basin were only inhabited in the last 20 thousand years of the Ice Age. Although there is no reason to assume that there were times when this region was totally uninhabited, most of the known sites are limited to certain periods: it would appear that population groups arrived and settled in favourable environments in successive waves. The plainland, the hills and the valleys with abundant game attracted hunters, while the mountain regions were a source of valuable lithics for the tools.

No permanent sites, such as the ones known from Moldavia and the Russian plainland, have been found by Hungarian prehistorians during the last century of Palaeolithic research. The large hunter communities, whose permanent settlements mostly lie on the fringes of the Carpathian Basin, apparently favoured the environment by the 'gates' leading out of this region or along the outer fringes of the Carpathian Mountains. These wide zones acted as the highways of population movements, with the river valleys and the ice-free passes of the high mountains leading to the much-sought hunting fields.

About fifty Upper Palaeolithic settlements have been unearthed in piedmont areas and on river terraces. Even though the number and quality of the finds recovered from these sites is often rather poor, especially as regards sculptures and other works of art, as well as anthropological finds, each of these sites revealed a few individual traits that enabled the reconstruction of successful strategies of adaptation to the environment using archaeological methods. The Hungarian find material shares many similarities with the Central and Eastern European cultures of this period, meaning that the

Hungarian Late Palaeolithic can be neatly fitted into the general historical framework. These similarities can be traced in similar hunting techniques, in the more or less identical choice of settlement sites, shared features in tool-kits and certain ornaments, as well as certain similarities in the colourful world of beliefs, even though archaeological objects seldom provide unambiguous proof for the latter. These communities maintained strong ties with each other, as reflected, for example, by the presence of various raw materials found many hundreds of kilometres away from their geological source. One case in point is rock crystal from the eastern Alps, a rare and highly valued commodity throughout the Upper Palaeolithic. Amber, a fossil resin that does not occur naturally in the Carpathian Basin, has also been found on some sites, while on other sites the majority of the tools were made from raw materials whose source lay many hundreds of kilometres away. Some tools were made from flint originating from the Prut region (Fig. 14); others were made from silex found in Silesian end moraines (Fig. 15). Tertiary snail shells, collected from the few outcrops of old marine sediments, were popular ornaments (Fig. 16); in certain periods of the Upper Palaeolithic these snail ornaments occur on sites throughout Carpathian Basin. Beside various commodities, ideas and new technologies were also exchanged, and these active direct or indirect contacts no doubt contributed to the uniformity of the cultures of the period. It is this duality of site clusters with individual features and the uniformity in material culture that makes this period very interesting. This approximately 20 thousand years long period is known as the Gravettian after an artefact called the *gravette*, a carefully worked silex arrowhead found on all sites of the period. A finer subdivision according to regions is also possible (independently of the present political boundaries); these regional groups can be separated on the basis of the sites' chronological position or local traditions in tool-making. The Hungarian find assemblages allow groupings according to both of these criteria.

In terms of chronology, the sites fall into three main periods. Since the Carpathian Basin was not part of the harshest climatic zone, these periods represent the less severe (interstadial) phases of the last glaciation. The average temperature remained several degrees below the present one even in these mild periods.

The first settlement wave of the second, Gravettian phase of the Upper Palaeolithic occurred some 26–28 thousand years ago. A distinct culture emerged in the Vienna Basin and the Moravian Basin, from where it expanded to the region between Willendorf and the Pavlov Mountains in Moravia. The best-known finds of this culture, the Venus of Willendorf and the burials of Dolní Věstonice, are standard illustrations in most books on art history and archaeology. With its rich fauna resources, the Carpathian Basin

attracted hunter groups who arrived through the wide 'gates' between the southern Carpathian range and the Alpine foreland. The settlements of this period lie in northern Hungary, usually above the valleys leading from the mountainous areas and on hilltops, up to the valley of the Hernád and the Bodrog in east and farther to the piedmont of the high mountains. The time-tested Gravettian traditions can be seen in the choice of settlement sites. These communities usually settled in areas lying 150–200 m a.s.l. and chose the inner, more protected slopes with more sunshine that were less exposed to the wind. Some sites, such as Püspökhatvan, were established for a specific purpose. The raw material lodes exposed on the steep slope above the Galga valley were mined and prepared for further processing. The many thousands of stone finds only included a few pieces made from rocks imported from other regions; few animal bones, indicating hunting, were found. Each phase of the tool production process can be reconstructed from the finds of this workshop.

The best known and most intensely studied site of the period is Bodrogkeresztúr–Henyé. The hill rising near the confluence of the Bodrog and the Tisza was an ideal location. Beside the rather attractive and pleasant landscape, the site was an ideal base for hunting the wild game roaming the loess steppe of the Great Hungarian Plain, the forests of the mountains and the riverine marshland. Although there is no proof for this, the occupants of the site probably also exploited the rivers rich in fish. Another equally important consideration in the choice of this strategic location was the proximity of the raw material sources, needed for the manufacture of stone tools. This site lies in one of the centres of the obsidian sources. The proximity and, more importantly, control of this highly popular raw material, transported to regions many hundreds of kilometres away, provided a number of advantages to the occupants of the settlement. The site was occupied over a rather extensive period compared to other settlements. Although the culture-bearing layer was not particularly thick, it extended over a fairly large area. No remains of permanent dwellings have survived. Even if such structures had existed, their remains

have probably been destroyed by modern agricultural cultivation since the culture-bearing layer on the hilltop was strongly disturbed. Mammoth and elk were the main hunted animals. The tools made on 6–8 cm long, slender stone blades were suitable for working animal skin, bone and antler, as well as woodworking and the processing of bark and plant fibres. The end-scrapers and burins, the bulky wedges reflect an elaborate and varied tool-kit. The working edges were prepared according to the quality



Fig. 17. Polished limestone disc with serrated edges ("moon calendar"). Bodrogkeresztúr–Henyé



Fig. 18. Excavated occupation level. Mogyorósbánya–Újfalusi Hills

and the hardness of the material used. Large series of these efficient tool types, reflecting long centuries of experience in tool making, were produced.

One of the most outstanding finds of the Hungarian Palaeolithic, rather poor in artistic finds, is the carefully polished limestone disc with serrated edges brought to light at this site (Fig. 17). It is possible that the Megyaszó–Szelesteő site on the other side of the mountain was established at the same time since the two sites enclose the southern tip of the Tokaj–Prešov Mountains. The age of the two settlements is roughly identical and the find assemblages too share numerous similarities in terms of tool types and their raw material.

It would appear that these settlements absorbed, for a longer or a shorter period of time, the excess population of the core area of the culture and that they also functioned as the destinations of hunting expeditions and prospecting for raw materials. Even though a few tool types characteristic of the sites in the culture's homeland are missing, these sites can nonetheless be associated with the Gravettian culture.

The roughly two thousand years of population movements were followed by a more peaceful period, spanning a few thousand years. No major sites from the time following

the first wave of settlement are known. The harsher climatic conditions perhaps forced these early colonists to return to their original homeland.

There was another milder period around 20–18 thousand years ago, a date determined by radiocarbon and other dating methods. The loess profiles from this period show two successive brown humus layers containing snail shells, as well as the bones and teeth of small rodents favouring a moister and milder climate. The charcoal specks indicate a higher proportion of deciduous trees. In the archaeological record this is reflected by an increase in the number of sites, corresponding to the arrival of a second wave of Gravettian groups. In addition to the earlier, traditional blade tools, new types also appeared in Hungary. The tool-kits from a few settlements included tools made with a much older method, rooted in the Lower Palaeolithic and still widely used in the Middle Palaeolithic. These Gravettian groups again used pebbles collected from the river beds as raw material for their tools. The reason for this still eludes us. The countless millennia that elapsed since the Lower and the Middle Palaeolithic excludes a continuity of this tool-making technology. The anthropological make-up of these groups had also changed since we know that the Old World had by this time been inhabited exclusively by *Homo sapiens* for the past 15 thousand years. The environment was no different from the one colonized by the 'blade people'. No traces of a radical geological change that would have made the raw material sources of the preceding and ensuing periods inaccessible have been detected. Several large settlements are known from this period: one of these is Ságvár, the classical Upper Palaeolithic site of Hungary, lying on a hilltop overlooking the Jaba stream. This was one of the first open settlements to be investigated and successive generations of archaeologists worked on its excavation and analysis. The foundations of two, semi-sunken huts were uncovered together with the posthole of the post that supported the roof. The high number of reindeer bones attest to successful hunting strategies. The finds from this site include a long, intact reindeer antler that was perforated, but was not decorated. Comparable perforated antlers ornamented with incised plant and animal motifs are known from contemporary sites in Western Europe. In addition to tools made from brown radiolarite, flakes and tiny chips – the debitage from on-site tool production – covered the occupation level. The site appears to have been quite attractive since another group returned to it a few hundred years later. This group came from the same population and used similar tools. A 80–100 cm thick loess layer was deposited between the two phases of occupation. The two culture-bearing layers and the loess between them represents a characteristic sequence, observed at many other sites; the period has been named Ságvár period after this site.

Another 'pebble' site from the same period has been identified at Mogyorósbánya. The excavation campaigns allowed the reconstruction of the settlement's layout since agricultural cultivation only disturbed the uppermost level of the site



Fig. 19. Glacial terraces and valleys by Pilismarót

(Fig. 18). The four oval habitation units, each with a diameter of 8–10 m, were separated by 40 m wide open zones without any finds, indicating that four hunter groups or four families lived here at the same time. The site lies at the entrance of the valley leading from the Gerecse Hills, full of caves, to the Danube plain, at the meeting point of two favourable ecological niches.

Only three sites of this culture have been systematically excavated and therefore little is known about its settlement patterns. The communities occupying these sites suggest a fairly large overall population since the largest settlements of the period can be associated with them. Neither did the ‘blade people’ disappear. Leaving the mountains and the hills, they moved into plainland. Their small, temporary hunters’ camps have been identified on the wind-blown dunes and the sand or loess covered hillocks rising above the waterlogged territories, for example in the Jászság and in the Szege area.

The pace of events accelerated – the Ice Age was swiftly drawing to its end and the constant change of astronomical phenomena causing the glaciations ushered in the period in which we now live. An ever shorter time elapsed between the second and third Gravettian population wave, and it

seems likely that this region was not entirely unpopulated between the two.

The lifeways of this period (15–16 thousand years ago) are best known from the Palaeolithic settlements in the Danube Bend.

There are certain territories whose attraction, made up of several favourable elements, is difficult to explain. The Danube Bend is one of these. It was continuously and densely settled from the early historical periods, a phenomenon no doubt rooted in the late Ice Age. The attraction of this area can be explained by its ecology and the geographical conditions of the Pilismarót region (Fig. 19). Flowing from west to east, the Danube turns south after the Dömös straits. The river meandered slowly over the plainland before Dömös, its bed – carrying less water in the Palaeolithic – was divided into branches by shoals. The thick loess cover levelled the unevenness of the last hills of the Pilis range and the earlier river terraces on the right bank. This extensive loess plateau is criss-crossed by the still active streams flowing down from the hills and the dried-up channels of one-time streams. The campsites of the Epipalaeolithic hunters lie along the edges of these valleys. Similar settlement patterns have been observed in other regions, where larger hunter communities settled



Fig. 20. Polished sandstone object with incisions of unknown function. Pilismarót–Pálrét

during this period (for example in the Don Bend). The seasonal migration of reindeer herds has to be taken into account at this point. In winter they move into the more sheltered forests, while in summer they migrate to the plainland in search of food. This migration can be north to south, as in the Canadian plains, or from the mountains to the plainland since the few surviving forests retreated to the mountain valleys during the Ice Age. The seasonal migration of the reindeer herds probably led through these valleys – an ideal setting for hunters. The hunter groups exploited this environment to the full. Small campsites dot the landscape, lying no farther than 600–800 m apart, within eyesight and earshot of each other, allowing the one-time hunters to co-operate and organize large hunts. The settlements were only briefly occupied; the prey was transported to the permanent settlements. The find material from these campsites is not particularly rich, but it is astonishingly varied. The presence of obsidian testifies to contact with the Tokaj region, quartz porphyry with the Bükk Mountains and rock crystal with the Alps. The function of the two sandstone pebbles with incised edge found at Pilismarót–Pálrét is unknown: what seems certain is that they were not utilitarian objects (Fig. 20). The tiny blades found on the settlements in the Pilismarót area elucidated an important research issue. A number of these small tools or arrowheads were recovered from the late glacial layers of the caves in the Gerecse, the Pilis and the Vértes Hills, with only a few associated finds (or none at all). Attempts have been made to link these assemblages to a specific culture, but without success. However, once they were found together with other finds on traditional open-air sites near the caves, it became clear that these finds could be linked to the same population group. They were apparently caches of spare tools and



Fig. 21. Bone pendant with incised ornament ("ladder patterned amulet"). Jankovich Cave

weapons, deposited in the caves at the time of hunting expeditions into the hills. The bone pendant with an incised pattern from the Jankovich Cave at Bajót (Fig. 21), the pierced wolf tooth pendant from the Szelim Cave near Tatabánya (Fig. 22) and the pair of red deer teeth from the Csákvár rock shelter (Fig. 23) were probably ornaments worn by these hunters.

The abundance of Palaeolithic sites in the Pilismarót region was noted quite early and the excavations in this region were begun several decades ago. About eight sites are known between Basaharc and Dömös, and future investigations in this area will no doubt identify additional ones. The Dömös site must by all means be mentioned: the remains of a tent built around a framework of posts were uncovered during the excavations. This tent type is still used by the Lapps and the reindeer-herding Mongolian



Fig. 22. Perforated wolf tooth pendant. Tatabánya, Szelim Cave



Fig. 23. Perforated red deer canines. Csákvár rock shelter

communities in the mountains. Skin or bark was laid over the conical post structure and at Dömös this mantle was pegged to the ground with antlers. This dwelling is a unique find in Hungary.

The other regions of Hungary were also inhabited in this period. The Istállóskő Cave, earlier occupied by other groups, was also used by the Gravettian hunters, as shown by the bone ornaments unearthed in the upper layers (Figs 24–25). The hydroquartzite debitage and cores prepared for further work found at Arka in the Tokaj–Prešov mountains, farther to the northeast, suggest that the site was established for the exploitation of raw material resources. The assemblage from this site includes a perforated serpentine amulet (Fig. 26).

The Gravettian period is known for its burials richly furnished with grave goods. The recovery of the skeletal finds of *Homo sapiens*, Upper Palaeolithic man, does not provide new information concerning human evolution. The mapping of the geographical distribution of various anthropological types most certainly contributes to a better knowledge of prehistoric



Fig. 24. Carved bone pendant. Istállóskő Cave



Fig. 25. Fragment of a bone ornament. Istállóskő Cave

events. Unfortunately, Hungary has not made substantial contributions to this field of research. The few anthropological finds discovered under uncertain circumstances do not have a particularly great academic value.

We have arrived at the end of the Ice Age. By the last centuries, the climatic changes and, as a result, the changes in the flora and the fauna accelerated. Little is known about the history of this period. Traces of human occupation in the form of scattered settlement features have been uncovered in the uppermost level of the loess layers underlying the modern humus. These remains are often disturbed, damaged, and are rarely associated with vegetal or faunal remains. They reveal little else than that small groups inhabited the Carpathian Basin, in spite of the radical changes in their earlier environment. One unique site from this period is the paint mine unearthed near Lovas. Although the site was dated to a later period on the basis of the stone tools and the faunal sample, more recent radiocarbon dates as-



Fig. 26. Polished serpentine amulet. Arka

sign it to the very end of the Ice Age (11740 ± 100 , ETH 15199). Red hematite was mined with specialized tools made from antler and elk bones (*Fig. 27*). The amount of hematite mined from the few pits exceeded by far the needs of a single community; this valuable commodity was no doubt exchanged for other goods.

The start of the Holocene about 10 thousand years ago marked the onset of a new period: the Palaeolithic was succeeded by the Mesolithic, characterized by new peoples and new cultures.

THE MESOLITHIC: TOWARDS A PRODUCTION ECONOMY

Róbert Kertész

The Mesolithic brought major changes in human history. Both the environment and the lifestyle of hunter groups were transformed. In consequence of the warming from the end of the last glaciation, the temperature reached the present level and deciduous forests gradually replaced the earlier taiga forests. Parallel to the changes in the environment, the animal population also changed: new species appeared to replace extinct animals and species that had migrated to other regions. The new environment led to a crisis among the hunter-gatherer groups: the descendants of the late glacial communities were faced with a difficult choice. Some were unable to adapt to the relatively rapid and radical change of the environment and chose to follow the reindeer herds to Northern Europe, from where the ice sheet had gradually retreated. Others chose to stay, adapting to the new environment and becoming hunters of aurochs, bison and red deer instead of reindeer, mammoth and cave bear.

Fig. 27. Bone tools from the paint mine at Lovas





Fig. 28. The mosaic patterning of the Jászság area during the Mesolithic. The reconstruction of the vegetation and the animal species was based on pollen samples and the animal bones recovered from campsites.

Key:

1. closed woodland, > 120 m
2. piedmont, more open woodland zone, 100–120 m
3. gallery woods, < 100 m
4. steppe-forested steppe
5. reconstructed acquisition route of the flints and other rocks from the Mátra Mountains used by Mesolithic hunters
6. Campsites

An overview of the Mesolithic in Hungary reveals that the Jászság area is the single region where settlements of this period have been systematically investigated and excavated. The earlier lack of archaeological evidence for settlement during this period led to the theory of a 'Mesolithic hiatus', according to which the late glacial hunter communities moved elsewhere owing to the environmental changes at the end of the Ice Age and the central areas of the Carpathian Basin remained uninhabited for long millennia, until the arrival of the first Neolithic food producing communities. The Mesolithic settlements discovered in the Jászság have refuted this theory. The discovery and excavation of the campsites and typical finds of Mesolithic hunter groups enabled the reconstruction of their dwellings and their lifeways, together with their cultural relations and the broader environment

in which they lived. In the following section we shall offer a glimpse into the everyday life of Mesolithic groups, based on the investigations conducted in the Jászság area a decade ago (Fig. 28).

The surface and the vegetation of the Jászság, lying in the northwestern part of the Great Hungarian Plain by the southern piedmont of the Mátra Mountains, was in essence a mosaic of areas with differing ecological conditions owing to its peripheral location. These regions offered different modes of exploitation. The subsidence basin at the confluence of the Zagyva and the Tarna rivers in the centre of the region was the main area of Mesolithic occupation. Flowing down from Mátra, the rivers reached a floodplain enclosed by higher elevations and created a marshland in the labyrinth of branches and oxbows. It is not mere chance that this environment attracted the



Fig. 29. Aerial photo of the Jásztelek I site, with the channels of the palaeo-Zagyva

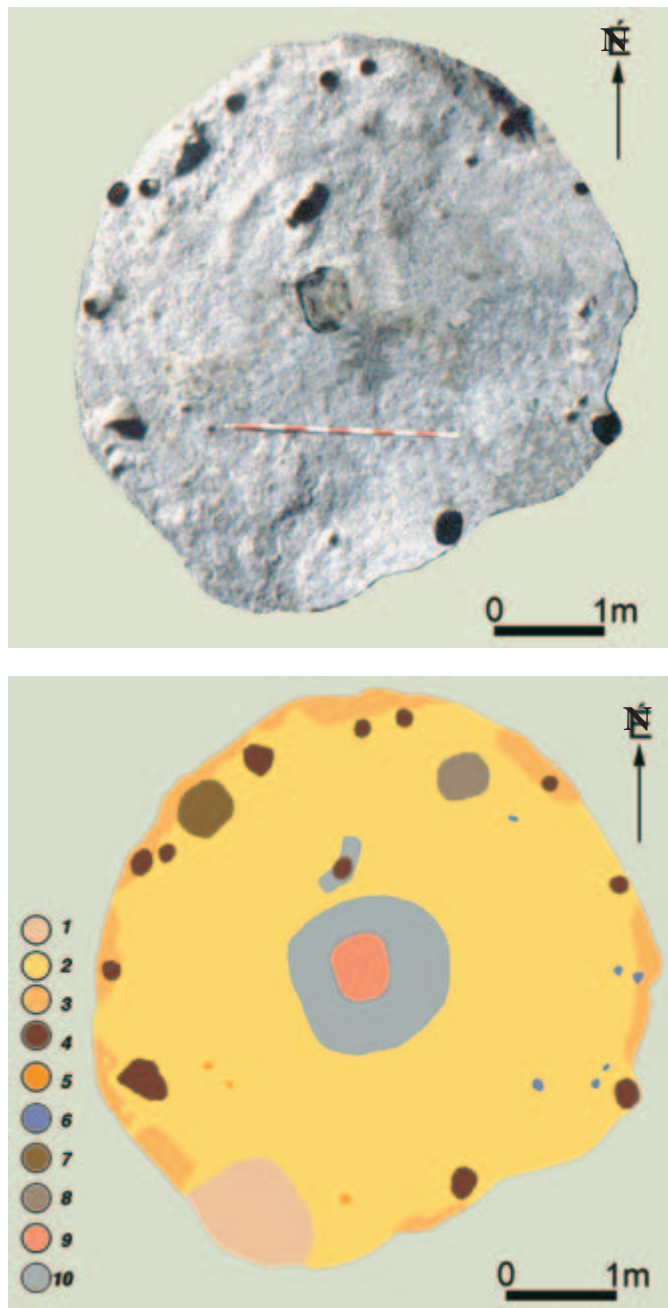
Mesolithic hunter-fisher-gatherer groups, who settled on the dry levees rising 1–2 m above the floodplains among the meanders. The area was rich in water and had a lush vegetation even in the dry summer months, with herbivores and fur animals abounding in the gallery forests and the floodplain grasslands, the rivers and oxbows providing a variety of water fowl, fish and molluscs.

The pollen analyses indicate that the hunters' camps were established in an environment of extensive gallery woods of oak, elm, willow and maple. The shrub level of these gallery woods was dominated by hazel. The water regime became unstable in summer owing to low precipitation. The ground water table sank in the vegetation periods, providing optimal conditions for human settlement and excellent circumstances for creating seasonal campsites in summer (Fig. 29).

These seasonal campsites were indicated by patches with a diameter of 12–17 m. The archaeological finds at the Jászberény I site were recovered from six such patches, while at the Jászberény II site four patches were observed, all lying relatively close to each other. Larger settlements with more intensive surface finds are rare. The Jásztelek I site appears to have been a larger settlement since the finds showed a relatively dense surface scatter over a roughly

50 m × 40 m large area. The culture-bearing layer was usually 10–15 cm thick and lay directly beneath the topsoil. The thin occupation levels of these Mesolithic campsites indicate that they had been occupied briefly by smaller groups. The mobile lifeways of these communities called for seasonal changes in their settlement sites. The finds in the investigated campsites showed find scatters of varying intensity and the different find types often lay in separate clusters, allowing the identification of individual activity areas, such as stone workshops and butchering sites. The excavation of the Jásztelek I site enriched our knowledge of the dwellings of these hunter communities. The sunken foundation and the remains of the structural elements enabled the reconstruction of an asymmetrical conical hut built around a framework of posts – the earliest residential structure from Hungary that could be fully reconstructed (Fig. 30).

Aside from a few carefully worked bone point fragments, the finds recovered from the settlements were exclusively stone artefacts. Tools used for different purposes occur in these lithic assemblages: together with arrowheads indicating hunting with bows, the finds include end-scrapers, burins and borers, as well as various re-touched blades and flakes. The tools were made using the



traditional techniques, although the size and the type of the retouched flake and blade tools and often even the manufacturing technique differed from those used by the late glacial hunters. Microliths, small tools often measuring less than 2 cm, dominate these Mesolithic assemblages (Fig. 31). Some of these functioned as arrowheads (Fig. 32), while others were not used independently, but were parts of composite tools: several microliths were fitted into a bone or antler handle. The most characteristic microliths are geometric in form: crescents, triangles and trapezes, pieces that also reflect a chronological sequence. The lithic inventory is completed by semi-finished tools and unretouched blades that, together with the unworked

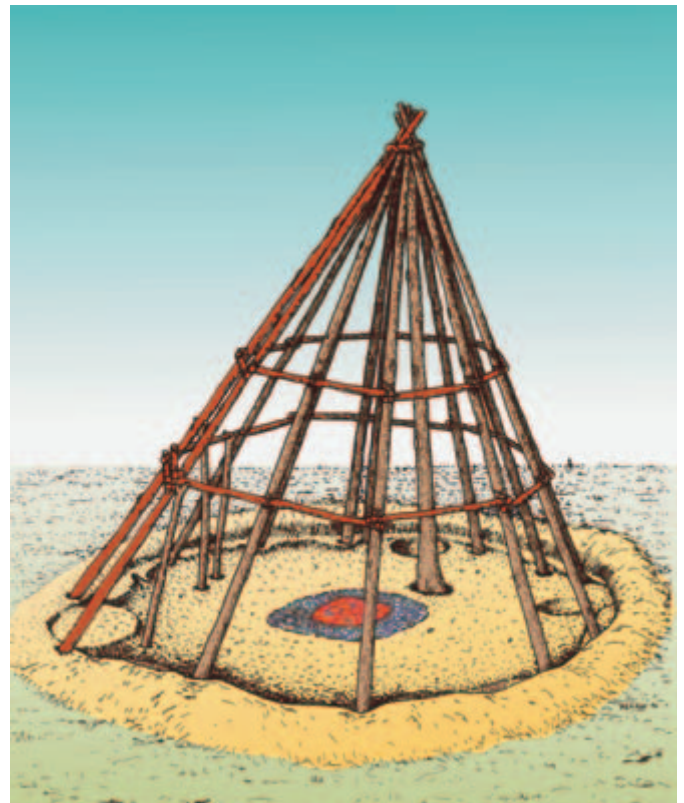


Fig. 30. The hunter's hut unearthed at Jásztelek I (excavation photo, groundplan and reconstruction). 1. Entrance, 2. floor, 3. bench, 4. posthole, 5. posthole at the entrance, 6. posthole of a bed or a storage facility, 7. shallow depression, 8. food storage pit, 9. hearth, 10. ash

flakes and debitage, cores and lumps of raw material, indicate local production.

The stone industry from these hunters' camps was based on flint types from the post-volcanic rocks of the nearby Mátra Mountains. The petrologic analyses revealed that the Mesolithic groups of the Jászság procured this raw material from the northern part of the region, from the constantly shifting fluvial deposits and alluvial fans within a 10 km radius and from the outcrops in the Mátra Mountains, lying some 25–50 km away. Expeditions for the acquisition of raw material probably led through the Zagyva and the Tarna valleys, as well as the valleys of the smaller streams in the northern Jászság. Raw materials from more distant areas, such as obsidian from the Tokaj–Prešov Mountains, glassy quartz porphyry from the Bükk and Szentgál radiolarite from Transdanubia, occur but sporadically.

The other finds from the settlements indicate the full exploitation of what the environment had to offer. Hunted animals included species both of the closed forests and the open forested steppe, corresponding to the mosaic of different ecologic niches in the Jászság area. The bone remains of large herbivores, such as aurochs, bison, wild horse, red deer, boar and roe deer, testify to efficient hunting with bows and arrows (Fig. 32) and dogs, the earliest domesticated animal. The hunting of solitary game (wild

horse, stag, boar) and herd animals (aurochs, bison, hind, roe deer) called for different hunting strategies. Beside the above species, the kitchen refuse contained the remains of birds and smaller mammals (e.g. hedgehog), as well as fur animals, such as hare, beaver, weasel, wild cat, marten, pine-marten, fox and wolf. The presence of fish, pond tortoise, bird eggs, terrestrial and lacustral snails and shells indicate that the diet was complemented by fishing and food-gathering. Even though plant remains have not been found, it seems likely that various mushrooms, roots, tubers, acorn, cornel, water-chestnut, raspberry, strawberry and hazel, thriving in the gallery woods, all figured in the diet of these Mesolithic groups.

The archaeological and palaeoenvironmental evidence suggests that comparable Mesolithic sites probably still lie undetected in areas such as the northern fringes of the Great Hungarian Plain, whose ecology resembled the one in the Jászág area, as well as in the region of silex outcrops in the Northern Mountain Range and in the river valleys connecting these two regions that wound through the alluvial cones in the northern part of the Great Hungarian Plain.

According to radiocarbon dates obtained from terrestrial snail shells recovered from the Jászberény I site, the Mesolithic hunters settled near the palaeo-Zagyva about 8 thousand years ago (8030 ± 250). The stone inventory of the Jászág Mesolithic, labelled the Northern Hungarian Plain Mesolithic industry, shows a number of individual traits. The industry can be interpreted as a transition between the cultural units in the northern Balkans and the northwestern part of the Carpathian Basin. Clear affinities can be demonstrated with the sites in the northern part of the Carpathian Basin and the ones in Transylvania and southern Slovakia (such as Ciumești II, Barca I and Sered I).

Fundamental changes can be noted in the material culture of the late Mesolithic preceding the emergence of the Neolithic in Europe, reflected in the uniformization of the find material. A number of technological innovations (retouched blunting, notches, trapezes, etc.) appeared in the stone industries of the period: these innovations can be noted throughout the continent, irrespective of geographical and cultural boundaries. The changes in the stone inventories point toward the development of Neolithic tool-kits. Certain elements in the stone industry of Jásztelek I, representing the late phase of the Northern Hungarian Plain Mesolithic industry, can be fitted into this general tendency. The archaeological and paleo-ecological evidence suggests that a development resembling the one throughout the European continent can also be demonstrated in Hungary.



Fig. 31. Geometric microliths and arrowheads from sites in the Jászág area

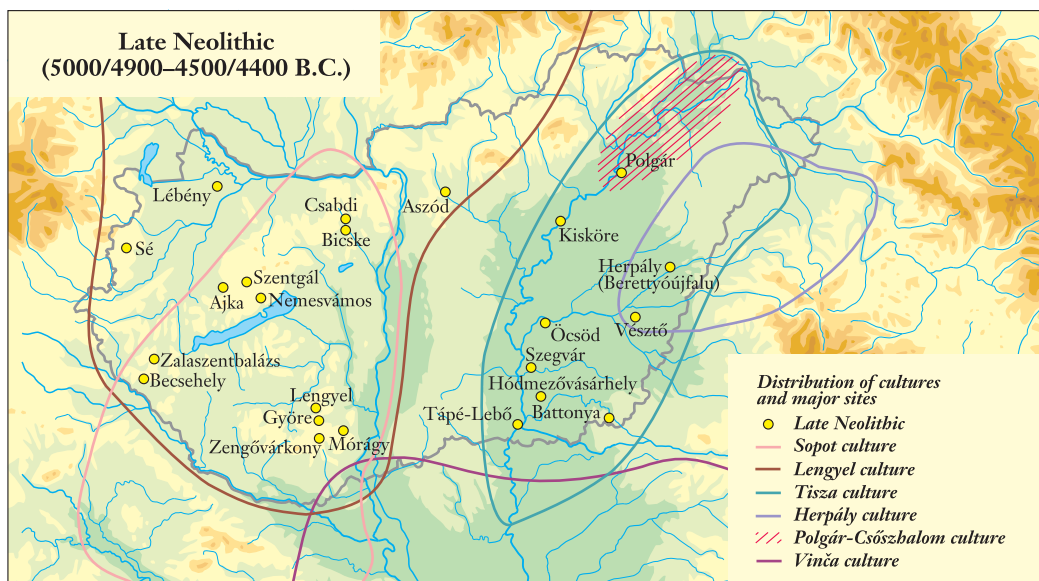
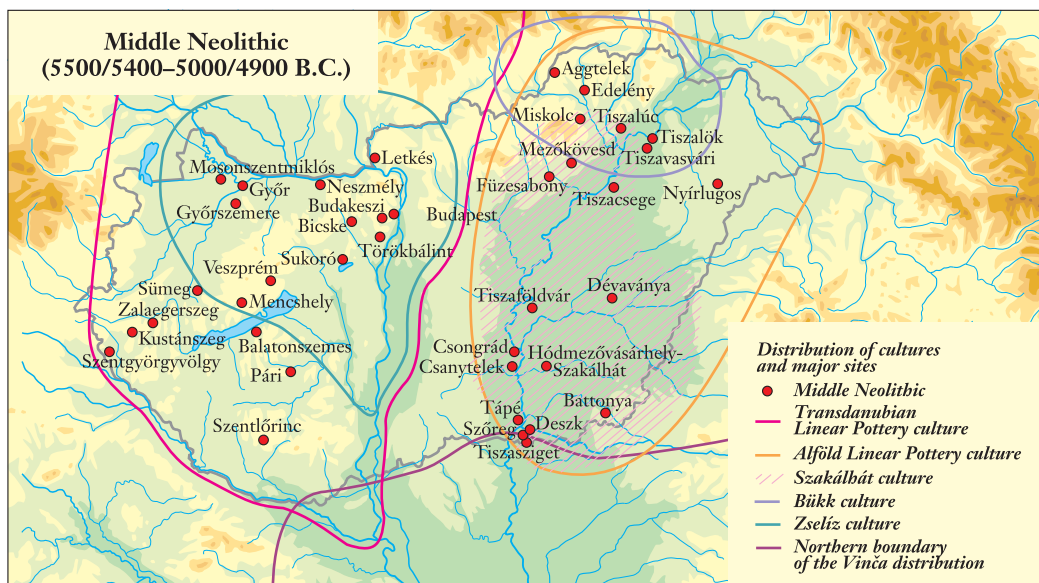
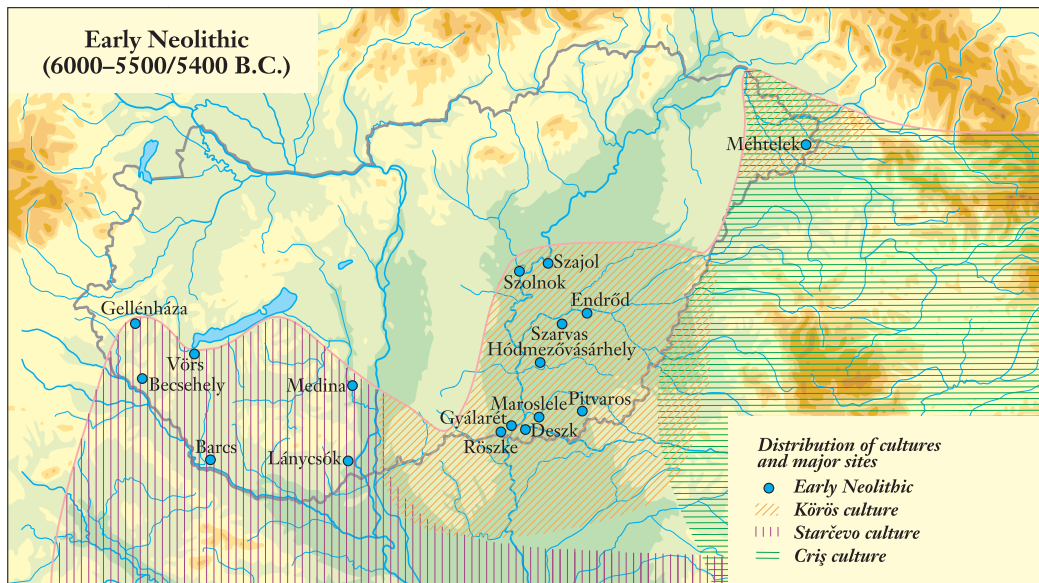
In contrast to Europe, a Neolithic production economy based on plant cultivation and animal husbandry appeared in the millennia following the end of the Ice Age in the Near East and in Anatolia. This production economy and other elements of the Neolithic package (production of clay vessels, weaving and spinning, polished and perforated stone tools) spread to the Balkans and, later, to the central regions of the Carpathian Basin as a result of the cultural and ethnic irradiation from these primary centres of civilization. The northern boundary of the Early Neolithic Körös-Starčevo culture – bound by many strands to the earliest agricultural communities of the Balkans – lay in the centre of the Carpathian Basin about 8 thousand years ago. The Mesolithic hunter groups living north of this boundary and the food producing communities to its south were thus in close proximity to each other. The boundary dividing the Carpathian Basin was only temporary since an intensive information flow can be assumed between these two neighbouring cultures, each with its distinctive population, economy, technology and social structure. The analysis of the lithic assemblages recovered from the late Mesolithic settlements in the Jászág indicates that the Mesolithic groups occupying the northern part of the Great Hungarian Plain were ready to adopt the Neolithic innovations from the south. As a result, the material and spiritual culture of the Neolithic gradually spread to and became dominant in the northern part of the Carpathian Basin too – even if in a slightly modified form – whence it was diffused to the more distant territories of Central and Western Europe.

Fig. 32. Reconstruction of a Mesolithic arrow



IV. THE NEOLITHIC





INTRODUCTION: THE BEGINNINGS OF A PRODUCTION ECONOMY IN HUNGARY

Katalin T. Bíró

A production economy based on crop cultivation and animal husbandry characterized the New Stone Age, or Neolithic communities succeeding the hunter-gatherer communities of the post-glacial in the 7th–6th millennia B.C. in Hungary.

This shift to a production economy is aptly described as the ‘Neolithic Revolution’ by prehistorians. The creative – and, at the same time, destructive – interaction with the environment, the active manipulation of the environment created the basis of ‘modern’ life. The practice of grain cultivation and animal breeding arrived to Europe – and the Carpathian Basin – from the so-called Fertile Crescent, the Ancient Near East, and the Balkans.

Evidence for this is provided by the cultivated crops, primarily cereals, and the domesticated animal species, mostly small ruminants (goat and sheep), whose wild ancestors were not indigenous to Hungary. One of the still unresolved questions of prehistoric research is whether these new subsistence strategies and the commodities were brought by immigrant population groups or whether they spread by ‘word of mouth’, by what would today be called technology transfer and commodities passed on from hand to hand. It seems likely that both played a role in the neolithization of Central Europe. The shift to a production economy meant a more efficient and stable food procurement, and it also increased the carrying capacity of a given area. The demographic pressure of a growing population by necessity called for the colonization of new arable lands. The extent of areas that could be drawn into agricultural cultivation using the techniques of the period were essentially defined by climatic conditions and soil types; it must also be borne in mind that this ‘diffusion’ did not occur in an ‘empty space’, but by encroaching on the turf of hunter-gatherer communities. As a result, neolithization shows a wave-like pattern of advance. One of these waves reached Hungary in the 7th–6th millennia B.C. and marked the northernmost distribution of the earliest Neolithic cultures, the Körös (Criş) and the related Starčevo culture. The rudimentary cultivation techniques practiced by these communities limited the size of the cultivated areas.

The changes brought about by the shift to Neolithic lifeways also affected day-to-day life, material culture and spiritual life. The need to clear territories for cultivation brought the widespread use of polished stone implements, such as chisels and axes, and of large clay storage jars for storing the produce. The spread of agrarian lifeways eventually led to the emergence of permanent settlements occupied over extensive periods of time and, later, to a net-

work of such settlements. The habitat of the Neolithic communities differed fundamentally from that of the Palaeolithic and Mesolithic hunters and foragers. The uplands were only visited for procuring various raw materials. A rudimentary social stratification is reflected in the burials: the earlier graves containing few grave goods or none at all eventually gave way to cemeteries containing both richly and poorly furnished burials by the close of the Neolithic.

The same difference can be noted in the system and the structure of the settlements, especially in the Great Hungarian Plain, where – owing to successful subsistence strategies – successive generations occupied the same site in the later Neolithic. The tell settlements, artificial habitation mounds of superimposed occupation levels, houses and settlement debris, are the best evidence for efficient cultivation techniques. During the Late Neolithic, the cultural boundary between the Aegean–Balkan civilization and the cultures representing the main trajectory of development in Central Europe passed through Hungary.

The beginning of Neolithic research in Hungary cannot be linked to lively debates such as the ones characterizing Palaeolithic or Copper Age studies. The identification and the chronological ordering of the most distinctive artefact type, namely the pottery of this period, was the result of a long process. Flóris Rómer’s call for the collection of “Old Stone Age lithic artefacts” – both chipped and polished stone implements – brought with it the identification of many Neolithic sites, even if this was not always obvious at the time. Classical sites, such as Lengyel in Tolna county (the eponymous site of the Late Neolithic Lengyel culture, excavated by Mór Wosinszky) and the Baradla Cave in Aggtelek, yielding beautiful vessels with elaborate patterns of the Middle Neolithic Bükk culture, were first investigated in the last third of the 19th century. The first major overview, providing a coherent cultural and chronological framework for the find assemblages of the Hungarian Neolithic, was written by Ferenc Tompa. Published in the late 1920s, his monograph, *A szalagdíszes agyagművesség Magyarországon* [The Linear Pottery culture in Hungary], influenced the study of this prehistoric period for a long time. In Tompa’s scheme the Linear Pottery, distributed over Central and Western Europe, and representing the earliest Neolithic in much of its distribution territory, was the first Neolithic culture in Hungary. The study of the rich Neolithic assemblages of the Balkans and the Ancient Near East eventually brought the recognition in the 1940s that the Linear Pottery culture was preceded by the Körös culture and related communities with their varied and much better quality pottery. This recognition was first penned by Ida Kutzián. The relative chronology of the Neolithic cultures can now be more or less accurately determined with radiocarbon dates, precise stratigraphic observations and the study of the interaction between the cultures of this period.

THE HISTORY OF THE NEOLITHIC

Unfortunately, there is no handbook on the Hungarian Neolithic, comparable to the one on the Palaeolithic. The historical outline of the Neolithic (and the Copper Age) was earlier based on the so-called 'short' or 'historical' chronology. At present, the chronological boundaries of the Neolithic are drawn much earlier, falling into the 7th–5th millennium B.C. Based in part on radiocarbon dates, the Neolithic is generally divided into three phases: an early, a middle and a late phase (*Fig. 1*).

Owing to the country's hydrogeology, climate and geomorphology, Hungary was divided throughout the Neolithic. The Danube acted as a major cultural divide – as well as a major route of communication. In the Neolithic it was not so much the river itself, as its direct environment that formed a natural boundary between Transdanubia and the eastern half of the country. The Solt–Pest plainland and the Gödöllő Hills were part of the Transdanubian Neolithic province throughout the Neolithic.

Beside this east–west divide, a north–south one running roughly along Lake Balaton in the west and along the Körös rivers in the east can also be noted. This division was most marked during the Early Neolithic.

THE NEOLITHIC IN THE SOUTHERN PART OF THE GREAT HUNGARIAN PLAIN

Ferenc Horváth

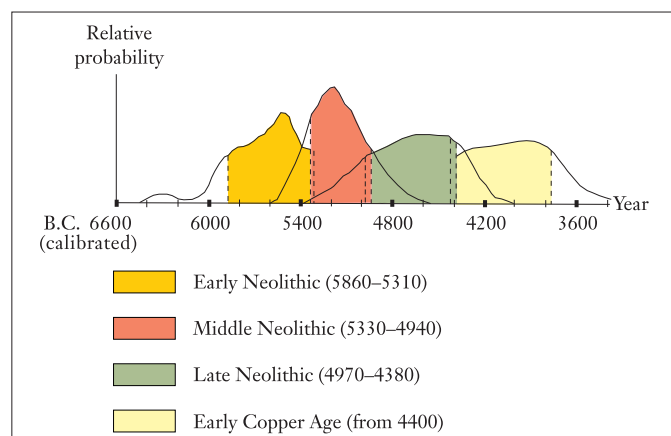
The first food producing communities (the Körös culture) arrived from the Balkans and advanced as far as the Middle Tisza region (the Kunhegyes–Berettyóújfalú area). One group settled as far north as the Tisza–Szamos interfluvium (Méhtelek), with the northernmost settlements lying in the Munkács area in the Ukraine. Related groups colonized Transylvania, the Bácska and the Bánság region (the Starčevo–Criș culture). These groups appeared in the southern part of the Great Hungarian Plain at the close of the 7th

millennium B.C. and occupied the valleys of the Tisza and its left bank tributaries; the southern boundary was marked by the Aranka. They established their settlements on the levees rising above floodplains; on the testimony of the excavated house remains and a clay house model from Röske–Lúdvár, the houses were built around a framework of wooden post, had walls of wattling daubed with clay and a saddle roof. Körös settlements have been uncovered at Maroslele, Deszk, Hódmezővásárhely, Pitvaros, Gyálarét and Röske. Körös pottery is dominated by rounded vessel forms, decorated with pinched motifs and a variety of finger, reed or stick impressions, often arranged into ear of grain patterns, as well as with human and animal figures in relief. The red-slipped vessels from the early phase of the culture were painted with white and, later, brown and black linear and geometric designs. The people of the Körös culture were of a slender gracile Mediterranean stock, although Cromagnoid types – perhaps representing the indigenous population – and Nordic types could also be identified among the skeletal remains.

In the later 6th millennium, in the Middle Neolithic, the Maros valley marked the boundary between two cultural regions in the Great Hungarian Plain. The north was settled by Linear Pottery communities, distributed in Europe from Holland to the Ukraine. The subsistence of the Linear Pottery culture was based on agriculture and animal husbandry. Their communities cleared and burned large tracts of forests to gain new arable land. The rather rudimentary level of agricultural techniques meant that these communities were by necessity rather mobile, moving from one settlement to another as the land was exhausted. Linear Pottery settlements have been excavated at Hódmezővásárhely and in the Tisza–Maros angle. The pottery from these settlements is decorated with deeply incised linear, wavy and geometric patterns.

From around 5400 B.C., we find communities with a distinctively southern cultural and economic tradition (Vinča culture) south of the Maros valley. Vinča settlements have been uncovered at Szőreg, Deszk and Tiszasziget (formerly called Ószentiván). The pottery, the architecture and the culture of these communities was, in a sense, a reflection of the Anatolian–Aegean–Mediterranean world in the northernmost zone of the Balkans. The dark burnished wares are dominated by biconical forms. Their economy was definitely more advanced than that of their northern neighbours. The Vinča communities practiced some sort of crop rotation since their settlements indicate a continuous occupation over several centuries. The burial grounds all lie near the settlements. The exchange of various commodities and contact with adjacent regions led to the emergence of new communities with a new cultural tradition in the northern Maros valley and along the Szárazér around 5300 B.C. (the Szakálhát culture). The first settlement mounds north of the Maros, indicating permanent settlement and the beginnings of stable villages, also appear at this time (Tápé–Lebő, Battonya). These tell nuclei had small Balkanic

Fig. 1. Radiocarbon dates for the Hungarian Neolithic



houses inhabited by nuclear families, while the open, single-layer villages were characterized by large longhouses, most likely occupied by extended families, in the tradition of the Central European Linear Pottery culture (Csanytelek–Újhalastó, Csongrád–Bokros). Their vessels reflect a blend of the Linear Pottery and Balkanic traditions in pottery making and decoration. The women of wealthier families wore necklaces strung of copper beads. Copper was not cast, but worked with cold hammering.

The close of the Neolithic (earlier 5th millennium B.C.) marked the climax of Neolithic development in the southern part of the Great Hungarian Plain as a result of the interaction between the Linear Pottery culture, the communities living in the Maros valley and the Central Balkanic communities (Tisza culture). This period preceded the earliest Mesopotamian dynasties and the first pyramids by almost two millennia. Flourishing communities developing along the same civilizational trajectory as their counterparts in the Balkanic and eastern Mediterranean world appeared in the Tisza, Körös, Maros and Temes valleys – the eastern half of the Carpathian Basin was one of the most developed regions in Central Europe, bound to the southern culture province by countless strands. The large tell settlements, often covering several hectares, were protected with ditches and fences (Lebő in the Szeged region, Kőkenydomb on the outskirts of Hódmezővásárhely, Gorzsa, Szegvár–Tűzköves, Vésztő–Mágor and Battonya–Gödrösök).

In the later 5th millennium, the Tisza culture suddenly disappeared. It is possible that this dramatic transformation was in part caused by a climatic change. The improvement of cultivation techniques was coupled with the dominance of cattle breeding that provided a significant food surplus and perhaps also influenced the later life of these communities.

THE NEOLITHIC IN THE NORTHERN PART OF THE GREAT HUNGARIAN PLAIN AND THE NORTHERN MOUNTAIN RANGE

Katalin T. Bíró

As a result of the complex interplay of lifeways and environmental conditions, the same region can be densely settled or, conversely, almost unpopulated in a given period. This holds true for the northern mountainous region of Hungary that was densely populated in the Palaeolithic – in some periods the only traces of occupation are known from this region – while during much of the Neolithic this region was mostly uninhabited. The only exceptions are the areas rich in various raw material resources, such as the Tokaj–Eperjes Mountains, where communities engaged in mining and stone tool production settled in certain periods. Caves and mountain peaks represent special locations for occupation; a few Neolithic communities also settled here.

The region east of the Mátra Mountains was settled by communities of the Bükk culture in the Middle Neolithic.

According to our present knowledge, the northern boundary of the Körös distribution lay in the Berettyó valley and coincided with the bed of the palaeo-Tisza. North of this line, up to the piedmont region, the northern part of the great Hungarian Plain was densely settled during the Neolithic. It is still unclear for how long the hunter-gatherer Mesolithic population of this region lived side-by-side with the earliest Neolithic communities, although it is fairly evident that the latter played an important role in transmitting the new innovations. Living in this area was a regional group of the Linear Pottery culture, known as the Alföld Linear Pottery. Our knowledge of this culture, and especially of its early phase (mid-6th millennium B.C.), has been greatly increased during the past few years owing to the large-scale excavations at Mezőkövesd and Füzesabony. The rescue excavations conducted as part of the archaeological investigations preceding the motorway construction projects enabled – for the first time – the observation of settlement structures and settlement patterns.

In the last quarter of the 6th millennium B.C., this large cultural unit disintegrated into smaller local groups: the Szakálhát, Esztár, Tiszadob, Bükk and Szilmeg groups in the Great Hungarian Plain. Of these, the Szakálhát group was distributed in the southern part of the Great Hungarian Plain, while the others in the northern part. The sophisticated vessels of the Bükk culture were exported far beyond the actual settlement territory of the culture. The most important raw material sources, such as obsidian (volcanic glass), in northeastern Hungary and southwestern Slovakia lay in the regions occupied and controlled by this population. The Bükk population lived in a unique symbiosis with the food producing communities of the Great Hungarian Plain. Access to these raw material sources played an important role in the history of the Late Neolithic, many smaller details of which are still unknown. The burials, the ritual objects and the cult places in caves allow a glimpse into the beliefs of the Bükk communities (Aggtelek–Baradla Cave, Miskolc–Kőlyuk Cave).

The distinctive cultures of the Late Neolithic (Tisza–Hérvály–Csőszhalom complex) appeared in the Tisza region around 5000 B.C.

The Tisza culture was primarily distributed in the southern part of the Great Hungarian Plain, its northernmost distribution being in the Upper Tisza region; in the south it is known from its tell settlements, while in the north the culture established single-layer horizontal settlements. Cultural influences from Transdanubia and the southern Polish–Slovakian territories also played a role in the emergence of the Csőszhalom culture, while the Hérvály culture maintained close ties with the east and the trans-Carpathian territories. The eponymous sites at Polgár–Csőszhalom and Berettyóújfalu–Hérvály are the two key sites of this period.

THE NEOLITHIC IN TRANSDANUBIA UP TO THE APPEARANCE OF THE LENGYEL CULTURE

Katalin H. Simon

In the 7th millennium B.C., two closely related, but nonetheless distinct cultures appeared in the eastern and western half of Hungary, namely the Körös and Starčevo cultures, the northernmost components of the huge cultural complex representing the Early Neolithic of South-East Europe. Colonizing southern Transdanubia, the Starčevo culture represents the Early Neolithic in this region. These communities made the first pottery vessels that show a marked uniformity over the entire distribution of the culture. In contrast to the tell settlements of South-East Europe, their villages were single-layer settlements that were established on elongated hillocks beside major watercourses and smaller streams. The most important settlements of the roughly two dozen sites known at present are Lánycsók, Becsehely, Medina, Vörs and Gellénháza. Little is known about the internal layout of these villages and hamlets; the houses were built around a framework of upright posts, they had daub walls and lay in clusters, without any apparent system.

The available evidence would suggest that animal husbandry (cattle, sheep, goat, pig) and grain cultivation (barley, einkorn and emmer wheat) played an important role in the subsistence of the Early Neolithic. The deceased were buried between the houses on their settlements.

The Starčevo communities advanced as far as Lake Balaton in the north. This more or less coincides with the boundary of the ecologic zone.

Little is known about the contemporary population north of Lake Balaton; it seems likely that this region was populated by hunter-gatherer communities. The presence of another population to the north of the Starčevo distribution is indicated by the use of flint from the Bakony Mountains and the Balaton Uplands by the Starčevo communities. The arrival and settlement of these communities of southern origin, transmitting new innovations and subsistence strategies, enabled the population of northern Transdanubia to travel the path to neolithization more swiftly than communities in other regions. The interaction between the Starčevo culture and these northern communities is reflected in a number of find assemblages showing this cultural transition (Zalaegerszeg, Szentgyörgyvölgy–Pityerdomb). A new culture appeared in the north around the mid-6th millennium B.C. that, after a rapid expansion, spread beyond the Carpathian Basin: first to the Rhineland and, later, to the Parisian Basin in the west and to the Ukraine in the east. This culture has been labelled Transdanubian Linear Pottery culture in Hungary and Central European Linear Pottery culture in other regions after its distinctive vessels ornamented with incised linear patterns. The emergence of this culture during the late Starčevo phase was followed by its rapid southward

expansion, as a result of which the Starčevo culture disappeared and its former territory was occupied by Linear Pottery communities. In the next centuries the Transdanubian Linear Pottery communities followed Neolithic lifeways. Their large villages and longhouses are known from several sites both in Central Europe and Hungary. Their economy was based on animal husbandry and slash-and-burn agriculture that made these Neolithic communities extremely mobile, explaining the extensive settlements on the hillocks near watercourses. Very little is known about the burial practices of these communities.

This large cultural complex disintegrated into small local groups at the close of the 6th millennium B.C. (Keszthely group, Notenkopf pottery, Zselíz culture). They maintained lively ties with the communities of the Great Hungarian Plain, especially with the Szakálhát group, with which they shared several features regarding their lifeways and pottery. The similarity in beliefs is reflected in the numerous face pots, found in both regions, and the elaborately decorated vessels ornamented in the same spirit.

In the meantime, the Early Neolithic cultures were succeeded by a new culture in Croatia and Slovenia, called the Sopot culture after its eponymous site in Croatia. In the early 5th millennium, the settlements of this culture, representing the Sopot II phase, appear in southern and, slightly later, in northeastern Transdanubia. The material culture of the earlier population changed considerably. Products from other Central European cultures appear on Hungarian sites, reflecting a widening circle of contacts. At the close of the Middle Neolithic we can again note a tendency towards uniformization. The late groups of the Transdanubian Linear Pottery culture in northwest Hungary and Slovakia played a major role in the emergence of the Lengyel culture. In Hungary the Lengyel culture emerged on a Central European basis, under cultural influences from South-East Europe.

THE LATE NEOLITHIC IN TRANSDANUBIA

Katalin T. Bíró

The Late Neolithic of Transdanubia is represented by the Lengyel culture, part of the cultural complex that encompassed western Slovakia, most of Austria, southern Moravia and southern Poland.

The research of the Lengyel culture in Hungary began in the 1880s, following Mór Vosinszky's excavations. At first, only the southern Transdanubian sites of the culture were known: the eponymous site at Lengyel-Sánc and the settlement and cemetery of Zengővárkony, excavated by János Dombay in the 1930s and 1940s, are particularly significant.

Nándor Kalicz's excavations at Aszód in the past few decades have clarified the Lengyel distribution in northeastern Hungary. The eastward advance of the Lengyel communities to the Tokaj–Eperjes Mountains to procure

valuable raw materials (Tokaj obsidian and various flints) can be traced fairly accurately. Recent investigations have shed light on the close relations between the Late Neolithic cultures of eastern Hungary (Gorzsa group, Polgár-Csőszhalom) and Transdanubia.

Various regional and chronological groups have been distinguished within the Lengyel complex. These chronological groups, based on differences in pottery forms and ornamental styles, have only recently been linked to 'absolute' dates. The Lengyel culture appeared around 4800 B.C. The pottery of this culture is characterized by a wide variety of vessel forms, lavishly painted fine pottery and coarse household vessels. Although vessel painting already appeared during the preceding Sopot culture, it was not characteristic of the Transdanubian Linear Pottery culture. The early Lengyel phase is characterized by red, white, black and yellow painting. In the late Lengyel phase the ratio of painted ornamentation declined, together with the diversity of painted colours; in the latest phase, representing the Early Copper Age, Lengyel pottery was decorated with a variety of applied ornaments, such as knobs.

Distinct regional groups appeared from the earliest Lengyel period. These include the southern Transdanubian group in Tolna and Baranya counties, distributed around the eponymous site, the Aszód-Csabdi-Svodín group exploiting the different resources of the environment in the Danube Bend area, and the 'industrial sites' of the late Lengyel communities in the Bakony Mountains, clustered around the raw material sources. A few Lengyel settlements have also been identified in the piedmont regions and on higher hills; these were apparently established with a view to more efficient agricultural cultivation. The presence of these sites suggests a control over a given area and a specialized activity (mining and crafts). The importance of hunting in comparison to animal husbandry apparently grew, perhaps not unrelatedly. Major settlement centres played an important role in long-distance trade; traded goods included copper, marine shells and obsidian, the latter a commodity that had been traded

extensively in earlier periods too. Remains of stone and bone workshops have been uncovered at the late Lengyel settlement of Aszód. The houses of the Lengyel settlements follow the so-called longhouse tradition of the Middle Neolithic in Central Europe. The first appearance of large cemeteries in eastern Transdanubia, still within the confines of the settlement, but distinct from the residential areas, can be linked to the Lengyel culture.

In the Great Hungarian Plain, the close of the Late Neolithic is marked by the abandonment of tell settlements and an overall cultural change. The reasons can in part be sought in climatic changes, the deterioration of the environmental conditions and/or the decline of the economy, as well as in the arrival of new population groups. In contrast, the late phase of the Lengyel culture survived unbroken into the Early Copper Age, together with a number of Late Neolithic traditions.

NEOLITHIC SETTLEMENTS

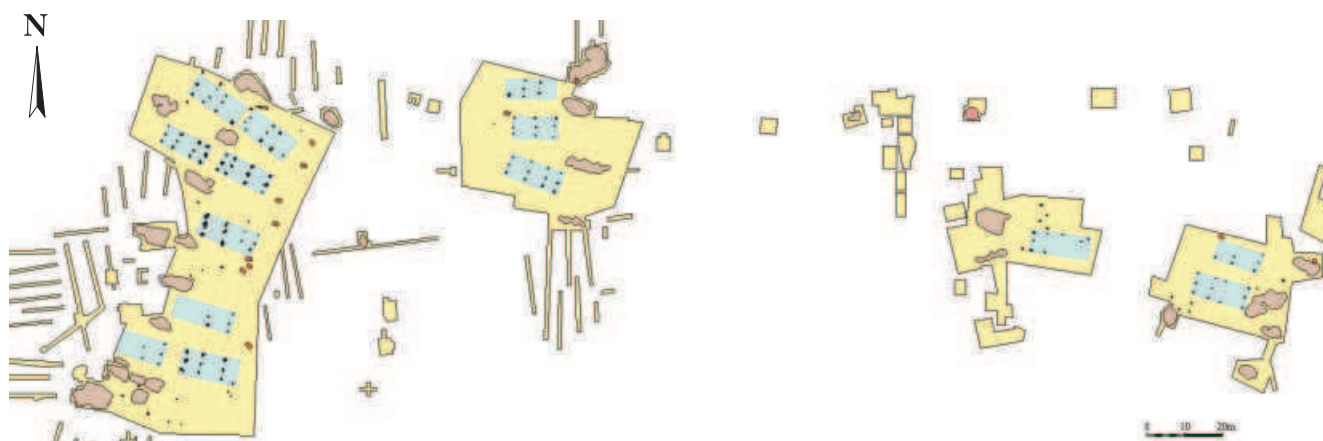
One major advance in the research of the Neolithic was the investigation of Neolithic settlement patterns and settlement systems. These were enabled by the rescue excavations conducted over extensive areas and by the micro-stratigraphic observations made in the course of systematic research projects. The following section offers an overview of new advances in settlement archaeology.

FÜZESABONY–GUBAKÚT: A NEOLITHIC SETTLEMENT IN THE GREAT HUNGARIAN PLAIN

László Domboróczki

Discovered in 1993, during the systematic field surveys preceding the construction of the M3 motorway, the site was excavated in 1995 and 1996.

Fig. 2. The layout of a Neolithic village. Füzesabony–Gubakút



After the removal of the upper humus layer, the dark patches of the postholes outlined the one-time houses among the pits containing a rich assemblage of finds. Judging from the regular spacing of these postholes, the houses were erected around a framework of posts (4 x 3). Most houses were tripartite, their length ranging between 14–16 m, their width usually 6 m. The walls were made of wattling daubed with clay. We found burnt daub fragments bearing the imprint of this wattling in the refuse pits and wells. The houses were arranged into northeast–southwest oriented rows; the houses showed a uniform northwest to southeast alignment along their longitudinal axis. Four rows of houses were uncovered in the excavated area. The single burials or grave groups of two or three burials were usually found along the sides of the houses, usually by the side facing away from the pits (*Fig. 2*).

The overwhelming majority of the finds can be assigned to the Alföld Linear Pottery culture. The finds were dominated by pottery – tens of thousands of sherds were recovered from the various settlement features. Aside from animal bones that were also used for making various tools and implements (needles, awls, spoons, chisels, sickle handles), many stone tools (axes, chisels, blades) and jewellery (beads) were also found. The analysis of these finds and of the soil samples will offer a detailed picture of the life of this early agrarian and animal breeding Neolithic community and its environment (*Fig. 3*). The fifteen radiocarbon dates for Gubakút indicate that the settlement can be dated to the period between 5500–5200 B.C., corresponding to the early Alföld Linear Pottery phase.

The settlement structure observed at this site is not unique to Füzesabony–Gubakút; a similar layout characterized a number of other sites from this period. Settlements with a comparable internal layout have been uncovered west of Transdanubia up to Rhineland and slightly beyond,



*Fig. 3. Clay idol head.
Füzesabony–Gubakút*

to the Parisian Basin, over the entire distribution of the Central European Linear Pottery culture. The archaeological record shows that similar settlements were the rule along the northern fringes of the Great Hungarian Plain during the Middle Neolithic.

MOSONSZENTMIKLÓS–EGYÉNI FÖLDEK: A NEOLITHIC VILLAGE IN TRANSDANUBIA Ildikó Egry

The archaeological heritage of the Central European or Transdanubian Linear Pottery culture that occupied Transdanubia in the Middle Neolithic is known from over five hundred sites.

Similarly to the investigation of other large Neolithic villages in Western Europe, it was the motorway constructions that offered an opportunity for the large-scale excavation of Linear Pottery sites in Hungary, contributing to a better knowledge of the settlements of this culture.

In 1993–94 we could study the remains of a 7000 years old Neolithic village over a 6 ha large area, as part of the archaeological investigations preceding the construction of the Mosonszentmiklós section of the M1 motorway (*Fig. 4*). The remains of various buildings were clearly outlined on the surface that had been cleared.

The roughly 600 m long sand dune, barely rising above the surrounding land, had been traversed by a stream; its filled-up channel cut across the planned track of the motorway in a north to south direction. The Neolithic houses had been built along this stream; some houses were as long as 40 m, while their width ranged between 6–8 m. On the western bank, the houses formed loose rows with fairly large open spaces between them. They were roughly north to east oriented, and their entrance probably lay on the southern side, more protected from the wind. Only the discoloured patches indicating the one-time postholes, measuring 30–50 cm in diameter, could be observed in the yellow sandy soil. Arranged into three rows, the timber posts were spaced at roughly 80 cm from each other and served as the load-bearing elements, on which the horizontal cross-beams rested; their ends were joined to the wooden roof structure that had been covered with reed, thatch or bark. In some cases, the upright timbers stood in pairs on the southern side, suggesting that the house had a loft that needed extra support. The posts of the wooden framework for the wattle-and-daub walls were not dug particularly deep into the ground and their remains could only be identified from the densely spaced, small, round postholes. Clay for the daub was extracted from pits dug along the longitudinal house walls and the deep ditch formed in this way also served for collecting rainwater or snow dripping from the roof. This is confirmed also by the fact that a well-like depression, probably functioning as a cistern, was noted by each of these ditches. The remains of the walls and the one time occupation surface was completely destroyed during later centuries since it lay on ploughland.

The Linear Pottery communities erected similar buildings throughout Europe, from the Rhine to the Dniester. It seems likely that these longhouses were inhabited by extended families of fifteen to twenty individuals. The internal division of these houses no doubt corresponded to



Fig. 4. Map of the site. Mosonszentmiklós–Egyéni földék

various functions (residential area, storage area). The annual cereal stock of the entire community could be stored on the loft of these larger, one-storey houses. The sophisticated carpentry skills reflected in the construction of these buildings, built using specialized stone and bone tools, would suggest that their interior furnishings were made of wood and other natural materials, such as leather, reed, etc.

The buildings uncovered at the Mosonszentmiklós site were not coeval: the settlement grew continuously since some occupants abandoned the community from time to time and returned later. It seems likely that the exhaustion of the fields led to these temporary migrations and that the occupants returned after some time to again cultivate their former fields.

Oven remains with a small activity pit and small baking platforms were uncovered in the open areas between the

houses. A small ‘workshop’ of six such baking platforms was observed in the side of a larger pit that had no doubt been provided with some sort of protective roofing. Although several more ovens were needed for the various daily activities, as well as kilns for producing the pottery, these were probably above-ground structures and have most likely perished without trace.

Circular storage pits were found beside and, occasionally, inside the houses. The fill of these pits contained the day to day artefacts of this prehistoric community that were intentionally or unintentionally discarded. Pits that were no longer suitable for storage were reused as refuse pits into which animal bones, broken vessels, stone tools and other ‘rubbish’ was thrown (Fig. 5). One rare find was a bird shaped footed vessel with a human face (Fig. 6) that was forgotten or intentionally left in a small niche in the side of one



Fig. 5. Grinding stone.
Mosonszentmiklós–Egyéni földék



Fig. 6. Bird shaped vessel. Mosonszentmiklós–Egyéni földék

of these storage pits, perhaps when the settlement was finally abandoned.

The form and decoration of the vessel fragments recovered during the excavation offer a secure basis for dating the settlement. The ceramic inventory was dominated by pottery fragments decorated with so-called Notenkopf motifs (Fig. 7). Other sherds represented an earlier period, when pottery was decorated with deeply incised, simple curvilinear patterns, while the late phase of the culture is represented by vessel fragments of the Zselíz culture, ornamented with elaborate designs of densely incised lines and painted bands. The finds would suggest that the first occupants of this Neolithic village arrived to this area at a fairly early date – even if not during the initial phase of the culture – and remained here, even if with the occasional break,

Fig. 7. Pot with Notenkopf decoration. Mosonszentmiklós–Egyéni földék



throughout the entire span of the culture. It seems likely that the final abandonment of the site can be linked to some migration since the unusually low number of stone tools, such as axes and chisels, recovered during the excavation suggest that the occupants took these multipurpose tools with them when they moved away.

The Mosonszentmiklós settlement is the largest Linear Pottery culture site in Transdanubia excavated to date. The excavated area with the twenty buildings and the associated pits, yielding a rich find assemblage, represents about one-half of the occupied area. The 1.5 m deep and 2 m wide ditch with postholes in its floor, running along the edge of the loess dune, some 100 m from the houses, was a palisade that protected the settlement and its occupants from the north.

HÓDMEZŐVÁSÁRHELY–GORZSA: A LATE NEOLITHIC SETTLEMENT IN THE TISZA REGION

Ferenc Horváth

The tell-like settlement of the Tisza culture is known from the systematic investigations between 1978–1996. The most significant Neolithic site in the Tisza–Maros angle rises a bare 4–5 m above the environment; until the major river regulations, the site actually lay on the Tisza floodplain on the bank of the Kéró creek. It was a marshy area criss-crossed by smaller streams. The occupation deposits of the tell accumulated to 2.6–3 m, of which 180–200 cm date to the Neolithic. The settlement covers some 7 ha, of which the tell occupies roughly 3.5–4 ha.

The Neolithic layer sequence can be divided into six settlement phases, meaning that the layout of the village changed six times. The earliest phase spans the second half of the early Tisza period, the succeeding phases date to the classical and the late Tisza period, while the latest phase corresponds to the Prototiszapolgár period. According to calibrated radiocarbon dates, the settlement was occupied between 4900–4400 B.C. Transdanubia was at this time occupied by the Lengyel culture, while the Vinča culture flourished in the northern Balkans.

The settlement initially lay in the centre and on the southern slope of a natural elevation, a Pleistocene loess dune. The houses were large, multi-roomed structures erected around a wooden framework. House 2 is one of the largest currently known residential buildings of the Hungarian Neolithic (Fig. 8). The conflagration destroying the building preserved its walls to a height of almost 1 m. Its groundplan resembled an inverted, angular U shape; the building had six rooms. Its total length was over 20 m (20.2 m × 13 m). All the rooms were thickly plastered with clay. The entire ceramic inventory, as well as the stone tools and implements of the house survived under the collapsed walls. Each room had its own domed oven and some also contained a loom. The northernmost room of the eastern wing was re-



Fig. 8. Detail of house 2.
Hódmezővásárhely–Gorzsa

served for cult practices; grain was also stored here in large, rectangular clay bins and a large altar plastered with clay was also set in this room. The building was probably the home of the family playing a leading role in the community's life and perhaps also served communal purposes.

The animals were kept in the unoccupied open areas, where the gardens and fields, as well the cemetery also lay. The many thousand tons of clay needed for daubing the houses and plastering the ovens, as well as for making pottery, was mined locally. The settlement was protected by a wattled fence that also prevented the animals from straying away. During the later occupation phase the residential area was protected by a 2.5–3 m deep ditch. The excavations and the subsurface probes indicated that the built-up area was the largest at this time and that the houses were arranged around a large, open area. This settlement phase was fairly long, spanning some 150–200 years. Although the buildings of this occupation phase burnt down several times, the houses were always rebuilt on the same spot and with a more or less similar groundplan.

The sophisticated pottery called for highly developed firing techniques. The intricate decoration of incised meander patterns resembling woven patterns, no doubt had some symbolic meaning. Thin walled vessels polished to a shiny black colour and decorated with small, lentil-like knobs were also used. Similarly to other communities in the Tisza–Maros angle (the Gorzsa group), the ceramic inventory of this community too included a distinctive vessel form, the so-called collared vessel, a wide-mouthed pot with everted rim (Fig. 9). Beside bone implements, an abundance of chipped and polished stone tools were also found, together with evidence for spinning and weaving, copper working, grain cultivation, animal husbandry, hunting and

fishing. The copper and *Spondylus* shell ornaments, radiolarite from Transdanubia, chert from the Mecsek, the Bakony, the Banat and Volhynia, Transylvanian marble and other raw materials indicate a flourishing long-distance trade and contact with other regions.

The reason for the final destruction of the settlement remains unknown. The last settlement phase can be dated to the Prototiszapolgár period, marking the transition between the Tisza culture and the Early Copper Age.

BURIAL RITES OF THE NEOLITHIC

The intensive and intimate relation between the one-time Neolithic communities and their deceased has since long become alien to modern European culture. The relation between the living and the dead lasted longer than the



Fig. 9.
Collared vessel. Hód-
mezővásárhely–Gorzsa

actual burial ceremony, which can only be guessed at from the currently known archaeological record.

Death was a mysterious, incomprehensible phenomenon for Neolithic man. By this time, certain beliefs had no doubt evolved as to what happened to the dead, where they went, and whether they could return, even if in a perhaps different form. These beliefs evolved into various rites that were expressions of communal identity, rather than a personal one. These rituals are at least as characteristic of an archaeological culture as the grave goods themselves.

NEOLITHIC BURIALS IN THE TISZA REGION

Hargita Oravecz

The first villages and the burials that can be associated with them appeared at the dawn of the Neolithic in the Tisza region (7th millennium B.C.). The burials on settlements are, at the same time, also a reflection of a sedentary lifeway. According to Mircea Eliade, “For an agriculturalist the ‘real world’ is the space in which he lives: the house, the village, the fields, the setting for contact with supernatural beings.” The presence of burials in or beside houses within the confines of the village is therefore not mere chance.

The Körös population buried its dead with various ceremonies and rites. The deceased were laid to rest either in a proper grave pit or in a refuse pit; the body was deposited in a contracted position with the legs drawn up and with the head oriented to the east or southeast. Remains of red paint

can often be observed on the bones, especially on the skull. At Szajol–Felsőföld and Szolnok–Szanda, the deceased were found on the house floor together with various tools, vessels and ritual artefacts. The traces of burning on the skeletons suggest that the house was set on fire after the burial ceremony. This rite and the practice of cremation (observed at Hódmezővásárhely–Gorza for example) or of burying the skull only (recorded at Óbesenyő) echoes similar practices in the Balkans and the Greek Neolithic, suggesting some sort of spiritual link. The deceased were rarely provided with grave goods, such as a vessel or a shell armring. Some one hundred Körös burials have been uncovered to date.

The Middle Neolithic burials were also found within the boundaries of the settlement, usually in the open areas between the residential buildings. On some settlements, there was a definite tendency to bury the dead in a specific area, lying farther away from the houses.

A population growth and, as a result, a higher population density can be assumed for the Alföld Linear Pottery culture in view of its efficient subsistence strategies. Even so, only some two hundred burials of the Alföld Linear Pottery are known, an unproportionately low number. The burials are usually found in clusters of two or three graves that perhaps represent families.

The burial pits were oval or rectangular. The deceased were usually laid to rest on their left side, with their head oriented to the southeast. This rite (orientation, contracted position of the dead) shows a remarkable uniformity over a

Fig. 10. Bracelet strung of shell beads, deer teeth and bone. Kisköre–Gát, Tisza culture

Fig. 11. Bracelets made from Spondylus shell. Kisköre–Gát, Tisza culture



large area. The same rite can be observed not only in smaller communities, but also among the regional Alföld Linear Pottery groups, perhaps reflecting the 'identity' and integration of a larger population group.

Most burials were provided with very few grave goods or none at all. At the same time, the care of the community towards certain individuals is reflected in the custom of painting the body of the deceased with ochre and their burial with their personal ornaments and other grave goods.

The most common grave good recovered from Neolithic burials is pottery. The deceased were usually provided with one or two vessels, although in some burials there were as many as three to six vessels. Stone and bone implements were deposited into burials more rarely. Personal ornaments, such as bead necklaces, bracelets strung from beads or polished from shell and disc shaped belt ornaments were probably part of the costume (*Fig. 10*).

Some of the articles recovered from these burials were quite valuable. Although most were typical household artefacts, a few grave goods were prestige items made from imported raw materials (marble, copper, gagate, *Spondylus* shell; *Fig. 11*). Some burials reflect a burial rite diverging markedly from the usual one, such as the graves

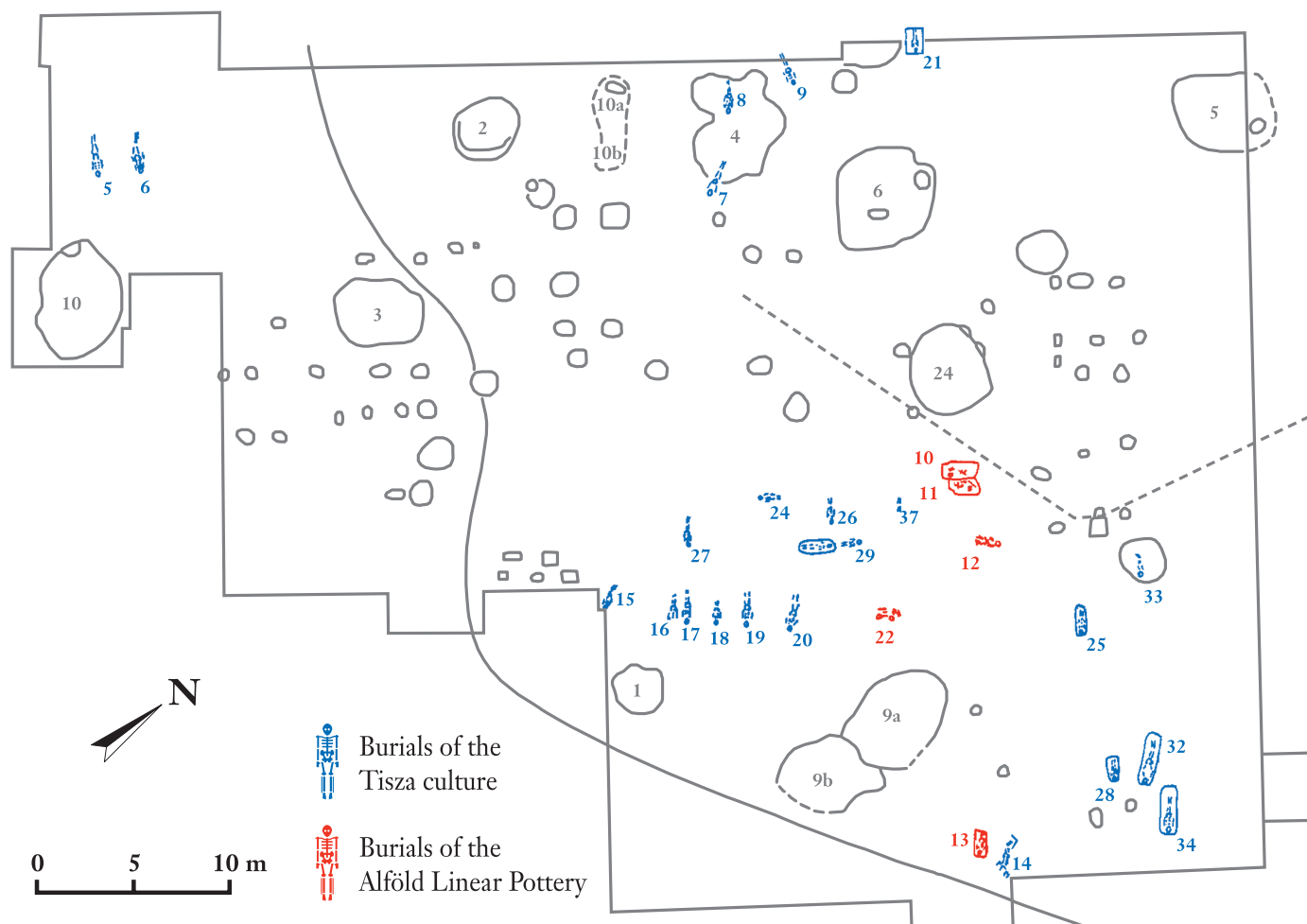
containing a dismembered body, or only the skull of the deceased.

One unresolved question is the interpretation of the differences between burials. The joint occurrence of simple graves and of burials furnished with various grave goods perhaps reflected a social differentiation within the community.

By the end of the Neolithic, the intensive agrarian economy resulted in a long and continuous development on the stratified tells and the associated settlements; the graves from this period total over four hundred and they also include some rich burials with luxury items and prestige jewellery. Recent investigations on Tisza–Herpály–Csőszhalom settlements have revealed an amazing diversity of burial customs and burial rites. The deceased were laid to rest within the confines of the settlement, usually in smaller groups around the houses, although the first grave groups outside the settlement also appear at this time (*Fig. 12*).

The burial rites of the Late Neolithic include a number of traditions from earlier times, such as the deposition of the dead in a contracted position and the custom of painting the body with red ochre; at the same time, a number of new elements also appear. In the northern part of the Great

Fig. 12. Middle and Late Neolithic burials. Kisköre–Gát



Hungarian Plain, the deceased were sometimes laid to rest in an extended position on their back. Coffin burials also appeared: these have been best preserved at the Vésztő–Mágoridomb site, where the deceased were buried in 140 cm by 70 cm by 20 cm large coffins made from elm and ash-wood. The deceased were placed into the coffins in a contracted position and sprinkled with ochre or wrapped into a burial shroud with their grave goods.

Beside the usual burial modes, a number of other, rather unusual funerary practices have also been observed in the Tisza region. These include infants buried as foundation deposits into the house foundation. Cremation burials sprinkled with ochre and symbolic burials with grave goods (but without a skeleton) recall the burial practices of neighbouring regions, such as Transdanubia. Most of the Late Neolithic burials are simple affairs without any grave goods; however, a few graves were furnished with articles that were quite valuable in their time. Differences between male and female burials appear in the deposition of the deceased and in the burial goods. Female burials contained an assortment of jewellery, such as head ornaments, bead necklaces, dress ornaments and shell arm-rings, while male burials usually contained pendants made from boar tusk, boar mandibles and stone implements. The personal belongings of the deceased included rare and valuable items, such as necklaces strung of copper, marble and Spondylus shell beads, armrings of Aegean or Adriatic shell, and multiple bone rings that apparently reflected a social stratification.

NEOLITHIC BURIAL CUSTOMS AND BURIAL RITES IN TRANSDANUBIA

István Zalai-Gaál

Very little is known about the burial customs of the Starčevo communities, representing the earliest Neolithic population in Transdanubia. The single published grave, the double burial of an adult and a child from Lánycsók, recalls the burials rites of the Early Neolithic cultures of the Great Hungarian Plain and the Balkans.

No cemeteries of the Central European or Transdanubian Linear Pottery culture have yet been found. The burial practices of this period are indicated by a few graves and the so-called 'unusual find complexes'. There is no evidence that the deceased of the Transdanubian Linear Pottery culture were buried with a uniform orientation. In the cemeteries of the western Linear Pottery culture, the deceased were usually buried with an east to west orientation.

The Late Neolithic–Early Copper Age Lengyel culture can be regarded as the genetic successor of the western (Central European) Linear Pottery culture. The cemeteries of this culture have only been found along the Danube, in the eastern Lengyel province. In the central and western part of Transdanubia, the deposition of the dead is indicated by a few 'unique' burial features as in the Linear Pottery culture.

Earlier, Nándor Kalicz estimated the number of Lengyel sites at around three hundred. Although over a hundred Lengyel sites are known from southeast Transdanubia (Tolna and Baranya counties), 'regular' burials have only been documented at twenty-two sites. The 658 analyzed burials have been uncovered at twelve sites, the most important of these being Zengővárkony (168 burials), Mórág (109 burials) (*Fig. 13*) and the eponymous site of Lengyel (67 burials).

The relation between the known sites and cemeteries is conspicuously disproportionate, even assuming that some Lengyel sites, identified during field surveys or indicated by stray finds, probably included cemeteries or grave groups. The relation between settlements and cemeteries is roughly identical to the one in the Great Hungarian Plain: the deceased were buried in the unoccupied parts of the settlement.

The treatment of the deceased is indicated not only by the 'regular' cemeteries, but also by the inhumation and cremation burials found in various pits, houses and ditches. It seems likely that the number of isolated human bone remains is much higher than can be assumed from the published finds. Skull burials and the deposition of infants and small children into vessels can be regarded as a more unusual form of burial. Such burials have been found in the Mórág cemetery: in one grave, the skull of an infant girl was deposited in a pedestalled vessel, in two other graves, infant boys were placed into a vessel in a contracted position. Another grave contained the body of an infant girl in a round bowl (*Fig. 14*). The skull was missing from several Late Neolithic burials; the reason for their removal was no doubt ritual in nature. This assumption is supported by several graves: at Zengővárkony, for example, the skeleton was found in a rather unusual position and a dog was also deposited into the grave. The burials without a skull often formed

Fig. 13. Girl's burial with Spondylus bracelets and vessels. Mórág





Fig. 14. Burial of an infant girl. Mórógy

small groups: at Zengővárkony, fifteen such graves formed a small cluster in the southern part of the cemetery. Mór Wosinszky reported that one skull showed traces of trepanation; the custom of dismembering can also be assumed in several cases. The practice of dismembering is known from all prehistoric periods. This custom is usually explained by a fear of the dead, although other interpretations of this custom include a secondary or tertiary reburial.

The chronological, ritual and social aspects of Neolithic

and Copper Age burials were usually studied through the analysis of 'regular' cemeteries. However, one must also examine the apparent 'exceptions' on a given site or in a given region. In Transdanubia, the deceased were usually laid to rest in a contracted position in an oval grave pit. The burials formed smaller clusters or rows, and one pit generally contained a single burial; multiple burials were very rare.

The Neolithic cemeteries of Transdanubia are characterized by burials with the deceased laid to rest in a contracted position. It has been suggested that this contracted position imitated the sleeping position or the position of the embryo in the womb; other interpretations proposed that this was nothing more than economizing the available space in the burial or that the deceased had been tightly bound for fear that they might return. However, these are no more than assumptions.

The most common grave good in Lengyel cemeteries is pottery into which food and beverages had been placed. The burials in the cemeteries of southern Transdanubia sometimes contained symbolic artefacts, such as grave vessels, human and animal statuettes, anthropomorphic and zoomorphic pottery, dog skeletons, boar mandibles, the remains of food (animal bones and shells), querns and grinding stones.

The study of grave goods and clothing suggest that the personal belongings of the deceased should be distinguished from the articles placed into the grave by the still living members of the community (such as pottery and other symbolic objects).

Symbolic graves, called cenotaphs, into which a variety of grave goods, various implements and personal ornaments were deposited, but did not contain any human remains, raise a number of questions. It is often difficult to determine whether the so-called sacrificial pits, called *bothroi*, found in



Fig. 15. The *bothros* and the female idol found in the cemetery. Mórógy

Lengyel cemeteries, as for example at Mórág, were indeed such pits or symbolic graves (*Fig. 15*).

The custom of cremating the dead was practiced by both Linear Pottery and Lengyel communities. The first cremation burials of the Lengyel culture were uncovered by Nándor Kalicz at Aszód, where inhumation and cremation burials were found over the entire territory of the site: the 225 graves included 15 cremation burials.

Sixteen burials of the Lengyel culture were uncovered during the rescue excavations conducted at Györe in Tolna county; nine of these were cremation burials that formed a separate group.

The grave goods recovered from cremation burials differ little from the ones placed into inhumation graves. In contrast, the cremation burials of the western Linear Pottery culture are usually poorer, containing fewer grave goods than the inhumation graves, suggesting that the difference in the burial rite perhaps reflected some sort of social stratification. Some prehistorians have argued that the inhumation graves contained the burials of the 'wealthier' or high status members of the community, while the 'poor' were cremated. However, the possibility that inhumation and cremation burials can be associated with two different population groups cannot be excluded either.

In sum, we may say that the Neolithic communities of Transdanubia had a wide array of burial practices. At the same time, various other forms of the treatment of the deceased can be assumed in this region, as shown by the disproportion between settlements and cemeteries, as well as by the occurrence of 'unusual' burial features.

NEOLITHIC BELIEFS

Eszter Bánffy & György Goldman

Most archaeologists are aware of the fact that very few tangible traces of the life and activities of prehistoric man survive: house remains, pottery, bone and stone tools and implements. However, prehistorians would like to gain a better understanding not only of the lifeways, subsistence strategies and trade relations of prehistoric communities, but also of their beliefs and patterns of thought: their relation to the environment, their perception of and their awareness of the passage of time and their efforts to influence their fate on the strength of their beliefs. In other words, prehistorians also try to identify the artefacts and phenomena that provide evidence for prehistoric beliefs and religion.

The question of prehistoric religions and beliefs gave – and still gives – rise to many controversies. In the lack of adequate 'control', this field of prehistoric research is often replete with fanciful speculations and wild flights of the imagination that often reveal more about their author than about the beliefs of prehistoric man. The other end of the spectrum is the idea that prehistorians should only

register, date and categorize the artefacts recovered from excavations, and that they should not speculate about their meaning since this is essentially impossible. It has also been argued that the study of Neolithic figurines – or idols – is untimely since all too many mistaken interpretations have been proposed. The appearance and widespread use of various archaeometric analyses led to a focus on quantifiable data as opposed to more philosophical studies concerned with the reconstruction of prehistoric cults and rituals. 'Postmodern' archaeology, a backlash against the former approach, again took up the study of human thought and beliefs, although often allowing too wide a berth for fanciful analyses.

As always, the truth lies somewhere in the middle. We can hardly forsake the study of an important corpus of Neolithic finds – clay statuettes, anthropomorphic vessels, house models, small altars and the evidence of various rituals – even if their analysis and interpretation must be conducted with the utmost care, bearing in mind that one hypothesis should not serve as a basis for further uncertain speculation. The best approach is the study of the relation between the find(s) and their context, instead of just the object itself. In other words, the find spot and the find context of cult objects are at least as important as the finds themselves.

In Hungary, the first clay statuettes, vessels modelled on the female body, house models and small altars standing on three or four feet appeared at the dawn of the Neolithic, some 8000 years ago, in Transdanubia and the Körös–Maros region (*Fig. 16*). These depictions, made with loving care and a perceptible effort for aesthetic perfection, are in no way inferior to the similar objects from the Balkanic–Aegean region, the then most developed culture province. We may say that the relics of prehistoric beliefs reached southern Hungary in an already developed form at the time of the shift to a food producing economy.

The archaeological record shows that the Neolithic clay statuettes and other ritual objects were almost exclusively recovered from houses or from refuse pits associated with houses. In some cases, it could be observed in which part of the house these finds generally lay: usually in a protected corner or near the hearth. The number of ritual finds recovered from houses in the Carpathian Basin and neighbouring regions is so high that it cannot be regarded as mere chance or as an isolated phenomenon. It must also be borne in mind that the Neolithic sites where such a 'cult corner' could be identified in houses were without exception excavated using modern excavation techniques. This cannot be mere chance either: it seems likely that such cult corners also existed in houses uncovered during earlier excavations; however, the concept of 'residential building' and 'sanctuary' represented two different compartments in most prehistorians' minds, this being the reason that there are many mentions of prehistoric sanctuaries in the earlier archaeological literature. A closer examination of these 'sanctuaries'



Fig. 16. Early Neolithic altar. Hódmezővásárhely–Kopáncstanya, Körös culture

revealed that they were, more often than not, residential buildings in which an area had been set apart for ritual practices and the cult objects were usually found in this area. The inventory of these cult corners also include the finds from refuse pits since these had obviously been used in houses.

The idols brought to light from Neolithic houses are usually female statuettes; male depictions occur more rarely, as do statuettes whose gender cannot be determined. Clay idols of this type were produced throughout the Neolithic, although the distinctive types differed from period to period. The Early Neolithic is characterized by so-called steatopygous idols, female figurines with emphatic buttocks. The human form is rather schematic, the face is barely indicated, the hair is depicted with bundles of densely incised lines. The arms are often small stumps, the breasts no more than two tiny knobs, while the buttocks are rather exaggerated, hence their name (Fig. 17). These statuettes appear in the Balkans and in Hungary wherever the Körös population settled. The idols from the regions to the north and west reflect an entirely different taste. They are flat and the head is modelled more emphatically than in the southern cultures. Their face resembles an inverted triangle, the mouth and the eyes are indicated with incised lines, the nose with a small knob (Fig. 18). It has been suggested that these idols were in fact masked, with the face of the deity concealed behind the mask. This interpretation is corroborated by the extreme schematism of the depiction. The height of these idols varies between 6–8 and 15–20 cm. The types described above are fairly frequent. The number of Early Neolithic statuettes known from Hungary totals over two hundred. The later Neolithic saw a decline in the number of statu-

ettes; at the same time, the Late Neolithic idols are much more carefully made, with a wealth of smaller details. Another change compared to the Early Neolithic is that in contrast to the standing idols, statuettes in a sitting posture also appear. An early, unfortunately broken specimen, sporting an armring on its arm, comes from Battonya–Parázstanya. The most sophisticated statuettes were found at Szegvár–Tűzköves, a settlement of the Tisza culture. A total of five enthroned figures were brought to light at this site. One of them, the so-called Sickie God, depicts a male figure, while two others are undoubtedly female statuettes. The remaining two idols from this site are also unusual in that they have both female characteristics (breasts) and male ones (penis). The fifth statuette also has some sort of implement, perhaps an axe, slung over the shoulder (Fig. 19). The two insignia or attributes indicate that these were the early depictions of deities with a specific function.

One interesting observation is that the treatment of these statuettes – i.e. to what extent they were valued or cherished – shows no correlation whatsoever with the ‘quality’ of the statuettes and how carefully they were modelled. Finely ornamented, carefully formed idols have been recovered from refuse pits, while coarse, carelessly fired statuettes have been found among the ritual objects in a house. It would seem that fine and coarse statuettes were both made, depending on what type of symbolic depiction was needed. Similarly, finely ornamented and coarsely finished house models have been recovered from both sacral contexts and refuse pits: the former are usually interpreted as sanctuary

Fig. 17. Steatopygous idol. Hódmezővásárhely, Körös culture





Fig. 18. Flat idol. Dévaványa, Alföld Linear Pottery culture

models, the latter as oven models – even though it seems more likely that both depict houses, although in a different, ceremonial or everyday context.

Most of these finds show tracers of wear and, perhaps, of intentional breaking. This would suggest that these objects were not regarded as intangible objects made for viewing and adoration that were simply set into the cult corner. The evidence would rather imply that these objects were used in various ritual activities on the one hand, and, on the other, that they were regularly made for specific occasions in the quality and form called for by that occasion (this being one of the reasons that they are found

in relatively high numbers on settlements). After fulfilling their role, they were rendered ineffective in the spirit of some ritual ‘command’: they were smashed to pieces and buried – fragments of the same idol were sometimes placed into different pits.

It would appear that the setting of Neolithic rituals and cults was not the settlement *per se*; ritual activity seems to have been conducted inside residential buildings. If this was the case for every house, cult life was the private affair of individual families. Neither the finds themselves, nor the overall archaeological record indicate the presence of some sort of shamans or priests.

Anthropomorphic pots, especially the ones that do not simply bear a figural depiction, but whose neck, belly, handle and base are modelled on the human body, can probably be interpreted as symbolic human representations. It seems likely that vessels depicting women were used for storing important commodities, such as seed, in the dark cavity of the vessel body: the analogy of a new life growing inside the womb springs to mind in this case. In some cases, these vessels contained ashes. This vessel type occurs in almost all phases of the Hungarian Neolithic.

The Körös population of the Early Neolithic made small, globular vessels with a strongly exaggerated lower part and a human face under the rim (Fig. 20). There is no other incised or painted ornamentation on these vessels. Little is known about the face pots of the Alföld Linear Pottery culture since only a few fragments are known. A significant change occurred by the Middle Neolithic, marked by the appearance of anthropomorphic vessels with elaborate incised and painted decoration. These pots have a cylindrical neck, wide shoulders and an elongated, flask shaped body. The human face is always depicted: two short incised lines mark the eyes, one line the mouth, while the nose is a small knob. These pots were initially called face pots, and only when the first few intact specimens were found did it be-

Fig. 19. Clay idols. Szegvár-Tűzköves, Tisza culture





Fig. 20. Vessel with a female body. Hódmezővásárhely–Gorzsa, Körös culture

come clear that these pots bore not only human face depictions, but were in fact modelled on the human body, even if in a strongly stylized form (Fig. 21). Although some smaller changes can be noted in the modelling of these vessels over time, their traditional features remained unchanged. A V shaped line, flanked by two horizontal incisions perhaps indicating the neck, can be seen under the rim. The incised lines under the rim on the other side depicted the hair and a comb was sometimes also shown. The human arms were most often shown in an upright position, although

separately modelled hands placed on the belly also occur. The small human figure, occasionally incised onto the vessel shoulder, and the various incised motifs under the face depiction were perhaps vested with some symbolic meaning. The function of these face pots changed by the Late Neolithic since they became considerably smaller and their form was also altered, as shown by the specimens from Szegvár–Tűzköves.

Janus faced vessels, with two plastically modelled human faces under the rim, set on opposite sides, are known from Transdanubia. The lower part of the face pots found re-

cently in the Budapest area portray the human body more realistically and the body itself is depicted in a sitting position. This sitting posture characterizes the best known anthropomorphic vessels of this period, the specimens from Hódmezővásárhely–Kökénydomb. It would seem that these pots were identified with human beings (Fig. 22).

The vessel lid bearing a human face depiction from Battonya can also be assigned to the category of face pots since it had no doubt been placed on a vessel. Comparable lids are known from the south, from the Neolithic of the Balkans; the lid from Battonya perhaps marks the northernmost occurrence of this ceramic type.

The finds in this category also include carefully modelled zoomorphic figurines, such as the red polished animal statuette – perhaps depicting a bovine – decorated with finely incised lines from Szentgyörgyvölgy–Pityerdomb; the nose is perforated, suggesting that it was a domestic animal. It is almost touching how this statuette was carefully placed into a shallow pit dug into a house floor, surviving there undisturbed for over seven millennia (Fig. 23); its head faced north, corresponding to the general orientation of the houses and other settlement features of the Early Neolithic settlement.

The sophisticated mind-set of Neolithic man, capable of abstraction, is reflected in the animal figurines that do not portray real animals, but depict fanciful creatures, such as the two-headed ram statuettes found at Zalaszombatfalva and Aszód. The fragment depicting two rams fitted together at their back came from a vessel lid. It would appear that these statuettes were not the depictions of an imaginary monster, but rather the two-dimensional variants of rectangular altars with animal heads placed at the corners, a fairly common find type in this region during the long centuries of the



Fig. 21. Face pots. Battonya and Gyoma, Szakálbát culture

Neolithic (Fig. 24). An unusual figurine combining a human and a bird shape from the Aszód site of the Lengyel culture can most certainly be regarded as a mythical creature (Fig. 25). It is therefore quite clear that prehistoric man was less concerned with the artistic portrayal of the world around him, than with creating objects that best reflected the power of thought.

The statuettes portraying creatures with a human head and animal body of the Alföld Linear Pottery culture were imaginary creatures, existing only in the realm of human imagination. In this case we may assume a symbolic meaning in order to understand the artists of the Neolithic, in view of the consistent portrayal of creatures differing from real, live animals.

Similarly to anthropomorphic pots, vessels modelled on various animals have also been found, for example at Tiszacsege and Battonya. It seems likely that these vessels had been used in rituals.

Beside the articles that can be associated with religion and beliefs, several phenomena observed on prehistoric settlements too fall outside the sphere of day to day activities. These include ritual pits and find assemblages that can be interpreted as foundation deposits. The former is a pit that was periodically used for depositing various objects intended as sacrifices that were then burnt or covered with sand or clay. The idols and altars from the cult corners in the houses were sometimes also buried in such pits. János Makkay, who devoted several studies to these sacrificial pits, distinguished bloody and non-bloody sacrifices (such as food sacrifices) in the Hungarian Neolithic. The other type of sacrifice was presented before the construction of a house in order to protect the life and possessions of its inhabitants, and to safeguard the house itself.

Fig. 23. Cattle statuette. Szentgyörgyvölgy–Pityerdomb, Transdanubian Linear Pottery culture



Aurochs horns were placed under house floors at the Herpály settlement in the Tisza region, and in some cases child skeletons were also found. It is unclear whether these children had been sacrificed or whether, after dying from some natural cause, the inhabitants of the house merely hoped to make use of their more intimate relation with the ancestors and the afterworld.

The burials also reveal much about the beliefs of a given community. It has already been mentioned in the section on Neolithic burials that the deceased were buried within the confines of the settlement, usually in the open areas between the houses or in a house, the latter being a rather rare burial form that can perhaps be explained by the status of the deceased. The grave goods, various items deposited in the grave believed to be necessary for life in the afterworld, and the custom of sprinkling the body with red ochre, allow a glimpse into prehistoric thought and beliefs once we are able to interpret them correctly.

Other, probably ritual phenomena from the Neolithic of Hungary, were observed not in houses and, sometimes, not even on settlements. It would appear that the practice of constructing large enclosures was adopted from Central Europe, rather than the Balkans since comparable structures are known from the Linear Pottery realm. Ditched enclosures, often with a diameter of 100 m, have been found throughout Hungary, although most frequently in Transdanubia. The earliest of these enclosures is perhaps the one uncovered at Becsehely; another one is the large ditch dating to the late Lengyel period excavated on the outskirts of Sé, a village near Szombathely. A number of previously undetected enclosures have been identified with the help of aerial photography.

Fig. 24. Two-headed ram. Zalaszentbalázs, Lengyel culture



Fig. 22. The Venus of Kökénydomb. Hódmezővásárhely, Tisza culture



Fig. 25. Mythical bird. Aszód, Lengyel culture

These enclosures had various functions. Enclosing a settlement nucleus and often provided with a palisade, single or multiple enclosure ditches were essentially defensive structures, such as the ones at the eponymous site of the Lengyel culture in Tolna county, at Aszód and at Herpály in the Great Hungarian Plain, where they enclosed the houses of these settlements. Other enclosures were different in nature. The concentric enclosure ditches with a V shaped section were often so narrow that even a child could easily jump over them and thus a defensive role can hardly be assumed. In addition, the area enclosed by these ditches was usually 'empty' or had a single building only. The ditches were interrupted by entrances, usually aligned towards the four points of the compass. In some cases, these enclosures were not associated directly with a settlement, but were built somewhat farther from the contemporary village and, on the testimony of similar finds from Western Europe, they 'served' several communities – these examples illustrate the difficulties in interpreting these constructions.

Most prehistorians agree that these enclosure ditches were not built for everyday, but rather for sacral purposes. No matter how these Neolithic enclosures are interpreted, it is quite obvious that their construction called for the concerted action of a larger group or community in order to perform the enormous earth-moving operations. When interpreting the function of these enclosures, we must take into consideration this larger community. A striking difference can be noted between the Neolithic cultures that followed the South-East European tradition, in which cult

life was apparently the private affair of individual families practiced inside their homes, and the agrarian civilizations that evolved in Central Europe, characterized by fewer figural depictions (statuettes, altars) and by the concerted effort of the larger community for creating the setting of community rituals, such as initiation rites or ceremonies perhaps related to the course of the stars, the Sun and the Moon, that affected the entire settlement or perhaps several settlements. This no doubt also contributed to a differing social evolution.

Both traditions can be observed in the Carpathian Basin and a blend of these two traditions can also be noted. Although in different proportions, both traditions were present in the Neolithic cultures of Hungary and both survived into the Copper Age, even if in a slightly altered form.

RAW MATERIALS, MINING AND TRADE

Erzsébet Bácskay & Katalin T. Bíró

Palaeolithic man had a strong and intimate relation with the world around him, with his natural environment. This relationship changed during the Neolithic: prehistoric man actively manipulated the environment in which he lived, changing it for his own purposes and thus an increasingly larger part of the organic and inorganic environment became a source of raw materials to be collected and exploited. Many of these raw materials were valuable commodities, often expressing social prestige, that could be traded.

The circle of raw materials widened continuously: beside a wide array of lithics used for the manufacture of tools, implements and ornaments, bone, shells and snails, various raw materials (fired clay, metals) for creating synthetic fabrics also played an increasingly important role. Ethnographic analogies suggest that the actual range of raw materials used was much wider, but most of these perished during the millennia.

The various cherts and flints used for the production of chipped stone implements have been extensively researched. This can in part be ascribed to the significance of this corpus of finds and in part to the fact that the most renowned scholars of the Palaeolithic were without exception well-trained in the earth sciences from the very beginning of Hungarian research in this field.

The regular exploitation of chert and flint deposits can be documented since the Middle Palaeolithic. This activity became demonstrably more intensive and more organized, assuming an almost industrial scale on some sites. The schematic geological map of Hungary shows that this region is relatively rich in various rocks suitable for making chipped stone implements (Fig. 26). The most oft-used flint type during prehistory was Jurassic radiolarite from the Transdanubian Central Range, flint from a Lower Creta-

ceous chert deposit at Sümeg–Mogyorósdomb, the Upper Jurassic–Lower Cretaceous cherts of the Mecsek Mountains and the various hydrothermal and limnic cherts of the Northern Mountain Range (limnoquartzite). In these areas, smaller mining sites exploiting surface outcrops for a shorter period or only from time to time – often together with a flint workshop – can be found alongside smaller and more extensive mines with underground exploitation that were mined for longer periods of time during prehistory. The mode of exploitation and the mining tools used depended on the geologic conditions of the site: for example at Duna-szentmiklós, near Látatlan, the outcrops or the rock covered with only a thin layer of earth were worked using large hammerstones. In some places the rock was extracted by digging shallow pits: the matrix rock was loosened and detached with antler tools as, for example, at Tata–Kálvária-domb (Fig. 27). At Sümeg, mining was conducted in narrow,

1–5 m wide parallel galleries following the seams of underground flint. The miners used antler tools and hammerstones, the latter playing a more important role in the primary processing. The limnoquartzite banks of the Neolithic mine at Miskolc–Avas were mined with shafts. Some prehistoric mines, such as the ones at Tata and Sümeg, are now accessible to the wider public as museums (Fig. 28).

Prehistoric mines usually contain few finds that are suitable for determining the date of their exploitation; their cultural context is determined using radiocarbon dating and by mapping the distribution of the raw material. The archaeological record indicates that the heyday of underground mining fell into the Neolithic and the Early Copper Age (Sümeg, Szentgál, Miskolc–Avas), the main reason being the growing demand for good quality raw material. Mining in the wider sense of the word can be traced from the Middle Palaeolithic (Budapest–Farkasrét, Miskolc–Avas)

Fig. 26. Prehistoric mines in Hungary. The location of the mines is shown on the geologic map of Hungary

Key to the map

I. Holocene (sand, mud, clay), II. Pleistocene pebble, sand, III. Pleistocene loess, IV. Neogene sedimentary rocks, V. Paleogene sedimentary rocks, VI. Tertiary volcanic rocks, VII. Mesozoic sedimentary rocks, VIII. Mesozoic eruptive rocks, IX. Paleozoic sedimentary rocks, X. Paleozoic granite, XI. Gneiss, crystalline schist

Key to the prehistoric mines

1. Miskolc–Avas, 2. Sümeg–Mogyorósdomb, 3. Tata–Kálvária-domb, 4. Korlát–Ravaszlyuktető, 5. Erdőbénye–Sás patak, 6. Boldogkőváralja, 7. Bakonycsérnye–Tűzkövesárok, 8. Szentgál–Tűzkövesbég, 9. Hárskút–Édesvízmajor, 10. Dunaszentmiklós–Hosszúvontató, 11. Látatlan–Margittető, 12. Látatlan–Pisznice, 13. Budapest–Farkasrét, 14. Lovas–Mackóbánya, 15. Kisújbánya–Szamárhegy

Black: flint mines, red: paint mines, green: mines for the raw material of polished stone tools

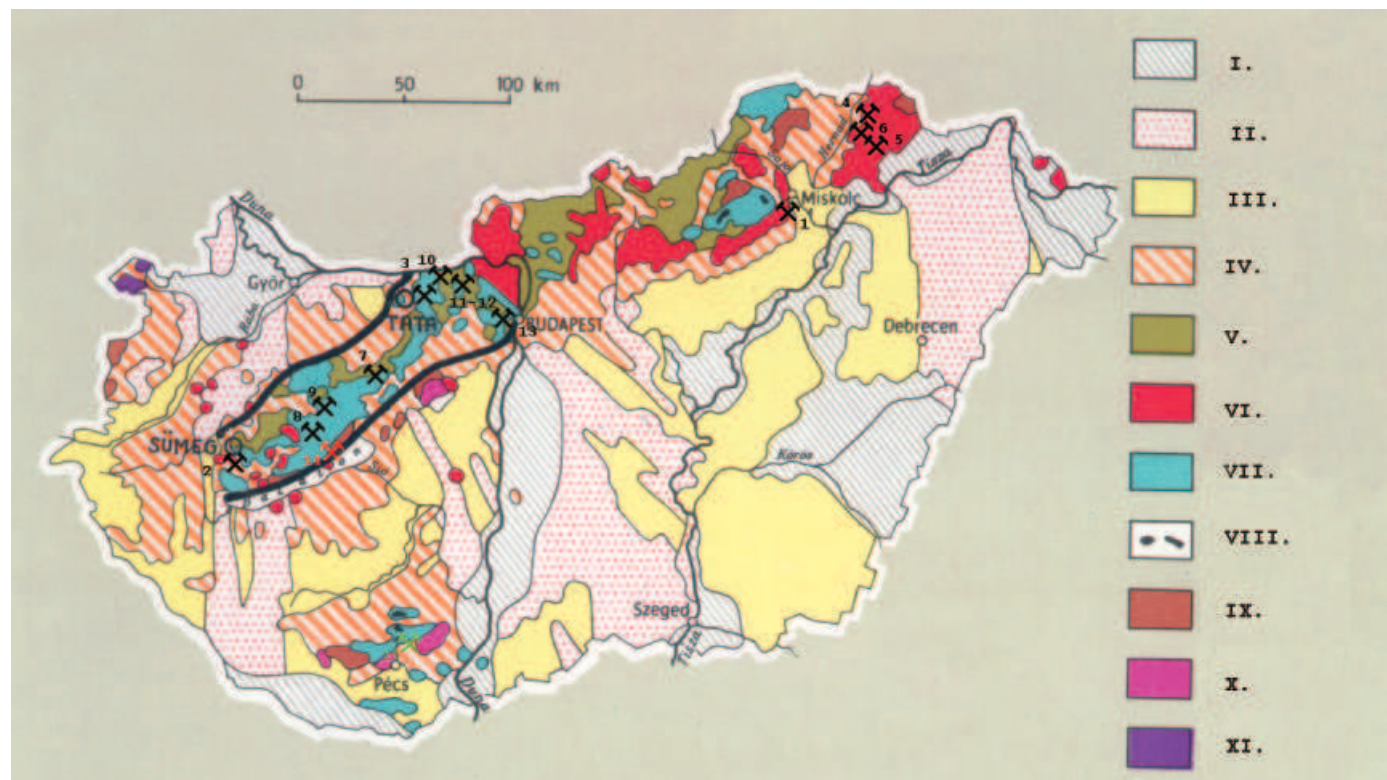




Fig. 27. Flint mining pit. Tata–Kálváriadomb

to the close of the Copper Age (Tata) or even as late as the Late Bronze Age (Sümeg), although with declining intensity. Some mines, such as the ones in the Gerecse Mountains, at Bakonycsernye, Hárskút and Erdőbénye, only catered to local demand, while the raw material from others, such as Szentgál (Figs 29–30), exploited over several millennia, was traded over a fairly large area, appearing on sites many hundreds of kilometres away. The distribution of Sümeg chert shows a definite concentration southwest of the mine from the Late Neolithic to the close of the Copper Age.

The distribution of prehistoric raw materials can be mapped as a result of a better knowledge of the various raw materials. Attractive and distinctive raw materials, such as obsidian that can be found on sites throughout the Carpathian Basin, caught the eye of both prehistoric man and prehistorians. Obsidian is volcanic glass, created by the rapid cooling of lava rock. Its natural occurrence is

very rare; in Europe, it can only be found on a handful of Mediterranean islands and in the Tokaj–Eperjes Mountains. Its characteristic chemical composition allows the precise sourcing of the obsidian recovered from archaeological sites. Obsidian from northeast Hungary and southeast Slovakia was traded over large distances, to Thessaly and northern Italy and even as far away as Denmark. Similarly, the trade in ornaments and jewellery made from Spondylus shells can be traced from the Adriatic and the Aegean through the Carpathian Basin to the western fringes of Central Europe.

One of the very first collections of prehistoric raw materials was assembled in the Hungarian National Museum (the Lithoteka Collection) in order to gain as full a knowledge as possible of the range of lithics available to prehistoric man. This collection of samples was useful for direct comparisons and, also, for providing data on the characteristic properties of these raw materials through physical, chemical and mineralogical analyses, on the basis of which the provenance of the specimens recovered from archaeological contexts could be more or less precisely determined. The most important part of the collection, the systematically enlarged database, is now also available for study through the Internet. Based on this collection, the most important stone raw materials and the major ‘import’ commodities have been successfully identified. We have a fairly good idea of the supply areas and the changes during various periods and in different cultures. Similarly to other elements of the material culture, the changes in the supply areas and trade contacts are specific to a given culture and, at the same time, they offer a better understanding of major prehistoric events, such as migrations, regional shifts and the changing networks of contacts.

The main goal of the study of these raw materials is to gain a better knowledge of the various raw materials known



Fig. 28. Open-air museum in the Geologic Park at Tata, presenting the remains of prehistoric flint mining



Fig. 29. Large block of radiolarite from Balatonszemes–Bagódomb (early Transdanubian Linear Pottery), originating from Szentgál–Tűzkövesbég

to have been used in prehistory. The study of the raw materials used for the production of polished stone tools and implements is conducted within the framework of a European research project financed by UNESCO (IGCP-442) and major advances have already been made in the identification of the most important raw materials used in the production of polished stone tools (such as basalt and green schist). We

Fig. 30. Conical core of Szentgál radiolarite from Budakeszi–Tangazdasági szőlők. This finely worked core was a stray find, perhaps originally part of a board



have also identified a mine at Kisújbánya–Szamárhegy in the Mecsek Mountains where phonolite, used for the manufacture of stone tools, was mined in prehistory, probably during the Late Neolithic. This mine can perhaps tentatively be associated with the Late Neolithic Lengyel settlement at Zengővárkony, where semi-finished and finished stone axes, in part made from phonolite and in part from other rocks of the Mecsek Mountains have been found.

It would appear that trade in polished stone artefacts was conducted through a similar trade network as the one for the raw material of chipped stone implements. The most striking difference is that while chipped stone was most often traded in a semi-finished form (cores, blades), the pol-

Fig. 31. Vessel for storing red paint. Bodrogkeresztúr



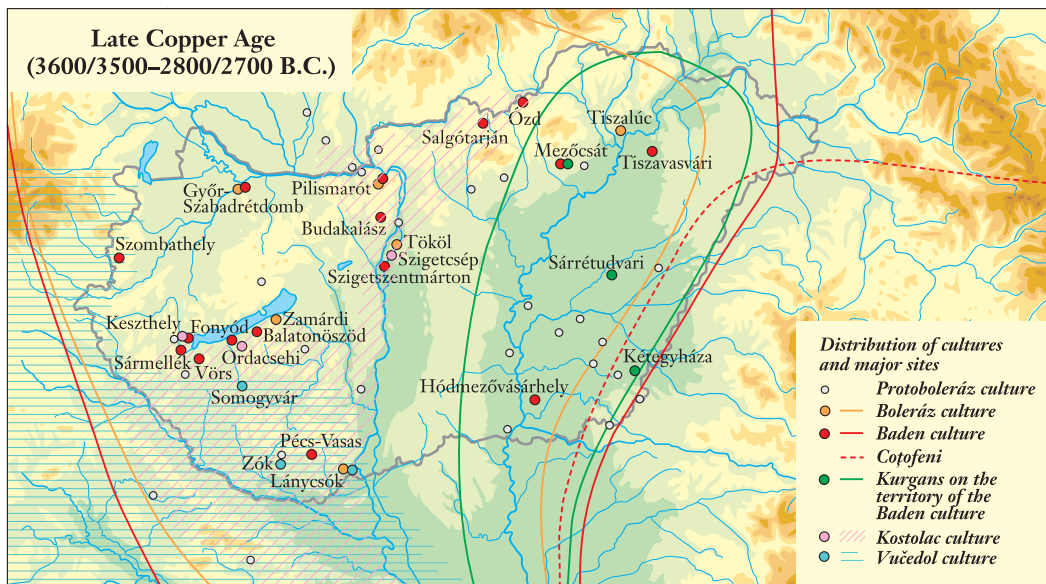
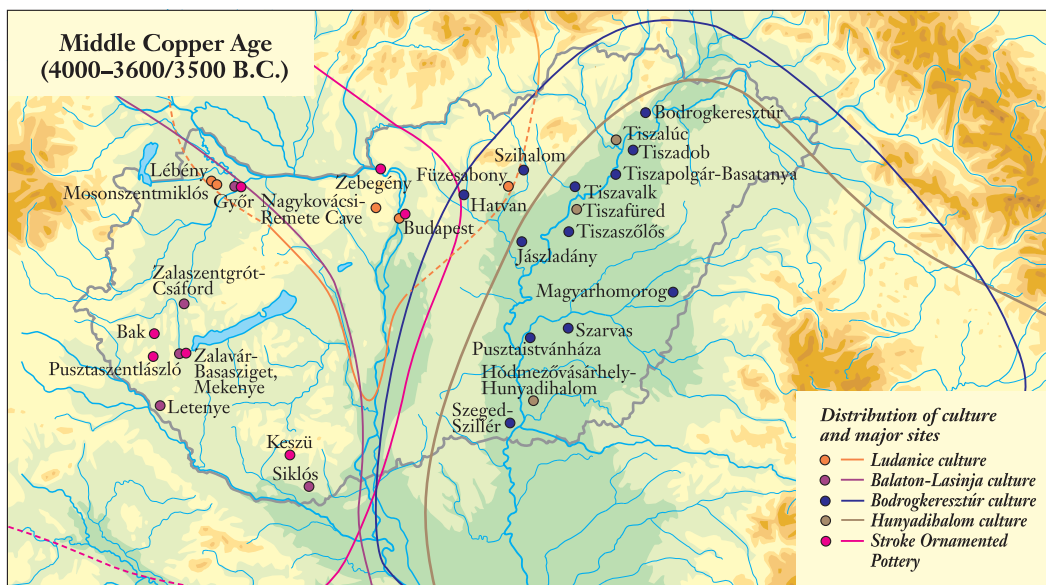
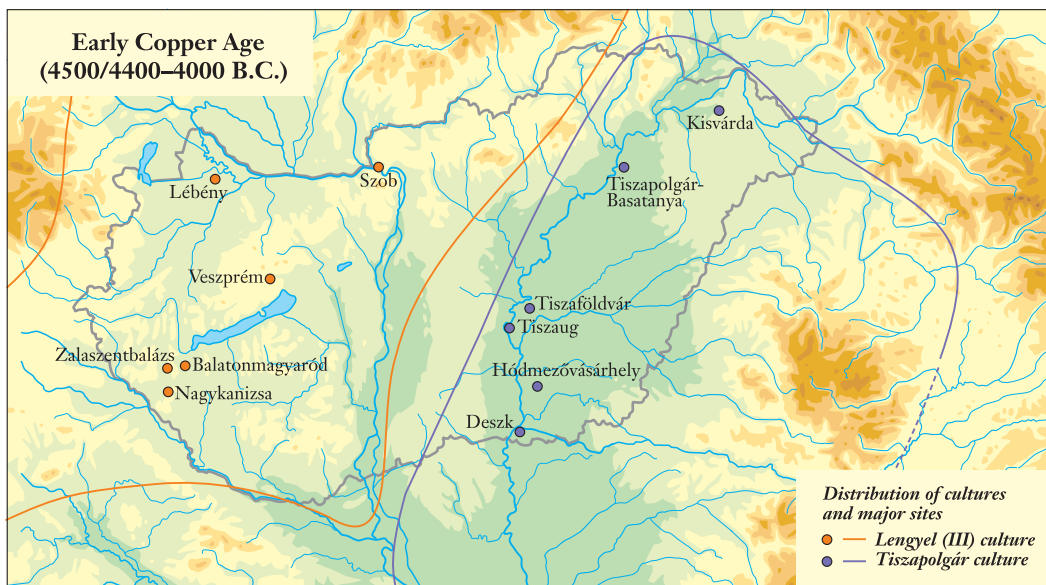
ished stone tools were usually traded in a finished form from the workshops lying near the raw material resources since only slight alterations connected with their usage and re-usage can be demonstrated on the finds from settlement sites.

The production and use of synthetic materials can first be documented in the Neolithic. Most important among these is fired clay, used for making pottery. It seems likely that the clay used for pottery making was procured from the

direct environment of a given settlement, while the finished vessels travelled over large distances, either as storage vessels or as an unusual gift. A small clay vessel in which red paint was stored – and, probably, transported – apparently functioned as a packaging medium (*Fig. 31*). Although the study of the mineral and chemical composition of pottery, as well as of its manufacturing techniques is a fairly new discipline, the results of these analyses will no doubt enrich our knowledge of the material culture of prehistory.

V. THE COPPER AGE





HISTORY OF THE COPPER AGE

(4500/4400–2600/2500 B.C.)

László András Horváth & Zsuzsanna M. Virág

One of the most controversial issues of European prehistory was whether there was an independent Copper Age, separate from both the Neolithic and the Bronze Age. Hungarian prehistorians have from the very beginning consistently used the term 'Copper Age', and even though the internal subdivision of this period has been modified quite often, the independence of the period has never been challenged. Ferenc Pulszky can be credited with the introduction of an independent Copper Age into Hungarian prehistoric research. In his lecture presented at the VIIIth Prehistoric and Anthropological Congress, held in Budapest in 1876, he argued for the interpolation of a Copper Age into the three-fold division of prehistory – Stone, Bronze and Iron Age – on the basis of the then known forty-two copper artefacts. The first truly modern studies, based both on the examination of copper artefacts, as well as on the excavation and publication of cemeteries, were written by Jenő Hillebrand and Ferenc Tompa in the early decades of the 20th century. János Banner, Ida Bognár-Kutzián and Pál Patay devoted many studies to various aspects of the Copper Age, including the refinement of the internal chronology of this period, as did Nándor Kalicz and István Torma in the 1960s and 1970s. János Makkay, Pál Patay and István Ecsedy contributed much to a better understanding of the eastern relations of this period, the beliefs of Copper Age communities and the metallurgy of the age, while Pál Raczky clarified many important issues of South-East European interrelations and the absolute chronology. As a result, a fairly accurate historical framework for the Hungarian Copper Age could be drawn up by the early 1980s.

In the last phase of the Neolithic, around the mid-5th millennium B.C., the climate of the Carpathian Basin



Fig. 1. Grave goods from the Tiszapolgár–Basatanya cemetery. Early Copper Age, Tiszapolgár culture

changed significantly. The Atlantic climate, favourable for crop cultivation, was replaced by a cooler Subboreal climate that also affected the environment. Spruce and poplar woods succeeded the earlier linden, elm, hazel and oak forests, and extensive beech forests also appeared. This, in turn, had an impact on both Neolithic economy and society. In consequence of the environmental changes, a visible shift towards animal husbandry can be noted in subsistence strategies, in spite of the fact that the invention of the plough and the use of cattle as draught animals can be regarded as significant innovations. The use of yokes, enabling the use of animal-drawn wheeled vehicles, made local transportation and economy more efficient. These new subsistence strategies led to the emergence of social differences that are reflected in the burials. Earlier prestige articles indicating social status, made from various raw



Fig. 2. Vessels of the late Lengyel culture. Zalaszentbalázs, Early Copper Age



Fig. 3. The characteristic “milk jug” of the Bodrogkeresztúr culture. Pusztasztvánbáza, Middle Copper Age

materials, were replaced by ones made of copper and gold. The conscious use of these two metals during the Copper Age gave rise to metallurgy on a truly industrial scale. The changes in the economy and in lifeways marked a new period, separate from the Neolithic.

Although the environmental changes affected the entire region, the transition from the Neolithic to the Copper Age differed in the eastern and western half of the Carpathian Basin. In the Tisza region, the environmental changes deepened the economic and social crisis of the Tisza–Herpály culture and this brought an end to the centuries long unbroken development. The survival of certain elements of the material culture and of various beliefs indicates the continued existence of the earlier population. Adapting to the changed conditions, the loose settlement network of large tells and single-layer settlements of the Neolithic was replaced by a rather dense network of smaller settlements in the Tiszapolgár culture of the Early Copper Age (Fig. 1). The distribution of this culture more or less coincided with that of the preceding Neolithic cultures in the Tisza region, although smaller shifts can be demonstrated at the beginning of the Copper Age. This period also saw the appearance of the first gold ornaments and the first massive copper implements and weapons.

Hardly any differences can be noted in the settlement patterns of the Late Neolithic and the Early Copper Age in Transdanubia. The classical phase of the Lengyel culture, falling into the Late Neolithic, was followed by the late

phase of the culture representing the Copper Age without any break (Fig. 2). Some villages continued their existence or were rebuilt in the immediate vicinity of the earlier settlement. Changes can be noted in the pottery, although this has more of a chronological, rather than a cultural significance.

Development took divergent paths during the transition from the Early to the Middle Age Copper Age (c. 4000 B.C.). On the testimony of the large cemeteries in the Great Hungarian Plain and on its fringes, the Tiszapolgár culture was succeeded by the Bodrogkeresztúr culture without a break (Fig. 3); in Transdanubia, however, a number of differences can be noted between the Lengyel and the ensuing Balaton–Lásinja culture. Although the archaeological record does not suggest a complete population change, the appearance of southern, especially Balkanic cultural traditions as opposed to the Central European traditions of the Lengyel culture, indicates deeper changes than in eastern Hungary. Local development only continued in the central and, to a smaller extent, the northeastern areas of Hungary where the Ludanice communities, direct descendants of the local Lengyel culture, maintained close ties with their neighbours.

The Bodrogkeresztúr period marks the real *floruit* of the Copper Age with its golden symbols of power and the heavy copper axes, many of them heavy to the point of being inutile. Being rare and valuable prestige commodities, these copper and gold artefacts no doubt belonged to the high-status worldly or sacral leaders of a given community.

Major changes can be noted at the end of the Middle Copper Age. Appearing on the western and northwestern periphery of the Carpathian Basin contemporaneously with the Balaton–Lásinja and Ludanice cultures, the Stroke Ornamented Pottery culture – so called after its distinctive decorative technique – occupied the territory extending from the eastern Alpine foreland to the Adriatic. Its expansion into the Tisza region was checked by the Hunyadihalom culture that succeeded the Bodrogkeresztúr culture. This cultural complex emerged as a result of the arrival of various eastern and southeastern population groups. The number of settlements declined conspicuously in this period, most likely the result of a significant population



Fig. 4. Clay wagon models from Budakalász and Szigetszentmárton. Late Copper Age, Baden culture



*Fig. 5. Copper disc
from Zalavár–Basasziget.
Middle Copper Age,
Balaton–Lásinja culture*

decrease. These two cultures, both new arrivals to the Carpathian Basin, formed the basis of a process of uniformization that led to the emergence of the Baden culture in the Late Copper Age. The transition between the two is represented by the Protoboleráz horizon, a brief, but marked period in the Hungarian Copper Age. Major southern and eastern impacts can be noted in the Carpathian Basin during this period, spanning no more than a few generations. The blend of external influences and local traditions, some going back for many millennia, eventually led to the emergence of an unusually large cultural complex. The unity of material and spiritual culture is especially conspicuous in the Boleráz group, representing the early phase of the Baden culture. The nature of the cultural force that forged a uniform culture throughout the entire Carpathian Basin from the strongly different regional groups remains unknown. Neither is it clear to what extent the climatic change, bringing a wetter and, presumably, cooler climate at the very beginning of the Baden period, played a role in these changes. The classical Baden phase was marked by the disintegration of the initial unity and the appearance of a colourful patchwork of regional Baden groups. This period saw the appearance of four wheeled vehicles of eastern origin that brought a revolutionary change in transportation (*Fig. 4*). The resurgence of metallurgy, disrupted at the end of the Middle Copper Age, can also be noted. Although the internal development of the Baden culture is fairly well known, its close and its relation to the Early Bronze Age is still unclear. There is no evidence that this unprecedented development came to a sudden and drastic end.

Steppean Kurgan groups began infiltrating the eastern half of the Carpathian Basin during the Baden period, in the later 4th millennium B.C. At present, only the burials of the Kurgan culture are known: the smaller and larger burial mounds – called kurgans – dotting the Great Hungarian Plain usually contain the burials of one or several members of a community. The archaeological record indicates the peaceful coexistence of the Baden and Kurgan communities. It seems likely that these Kurgan groups played a role in the emergence of the Early Bronze Age.

A similar peaceful coexistence can be assumed in the case

of the Kostolac groups on late Baden sites at the close of the 4th millennium B.C. The period named after this southern population, arriving from the south along major waterways, such as the Danube, was a brief episode in the Late Copper Age.

The emergence of the Vučedol culture at the beginning of the 3rd millennium B.C., immediately preceding and surviving into the Early Bronze Age, can be located to Croatia. This culture was also distributed in southeastern Transdanubia. The stratified settlements, rich metallurgy and unique pottery of this culture set it apart from the other Copper Age cultures of the region.

The absolute chronology of the Copper Age of the Carpathian Basin is based on calibrated radiocarbon dates. The Early Copper Age can be dated between 4500/4400–4000 B.C., the Middle Copper Age between 4000–3600/3500 B.C., while the Late Copper Age between 3600/3500–2600/2500 B.C. This chronology is also supported by the evidence from cross-dating and traditional archaeological comparisons. One case in point is the copper disc found at the Zalavár site of the Balaton–Lásinja culture – similar discs were still popular during the Stroke Ornamented Pottery period (*Fig. 4*). A similar disc was brought to light near Lake Boden on a settlement that was dated to the early 4th millennium using dendrochronology. This date supports the calibrated radiocarbon dates for the Middle Copper Age cultures of the Carpathian Basin.

SETTLEMENTS

Zsuzsanna M. Virág & Mária Bondár

Our knowledge of Copper Age settlements has been greatly enriched by the large-scale excavations conducted over the past few years. This is especially true of Transdanubia, where there is now evidence for above-ground houses (*Fig. 6*). These new finds have modified earlier views on the use of pit-houses and suggest that the pits provided with

Fig. 6. Aerial photo showing the outlines of Early and Middle Copper Age houses. Győr–Szabadrétdomb





Fig. 7. Excavated houses from the Middle Copper Age settlement at Zalavár-Basasziget. Balaton-Lásinja culture

hearths or ovens were not necessarily residential structures, but served other purposes.

Compared to the Early Copper Age, a dense settlement network covered Transdanubia in the Middle Copper Age. In contrast, only a few Bodrogkeresztúr settlements are known from the Tisza region. The reason for this divergence can most likely be sought in the nature of the subsistence strategies adopted by these two populations. The stockbreeding communities in the Tisza region had an essentially mobile lifestyle and the small, temporary campsites

Fig. 9. Map of the excavated section of the Middle Copper Age settlement at Zalavár-Basasziget. Balaton-Lásinja culture

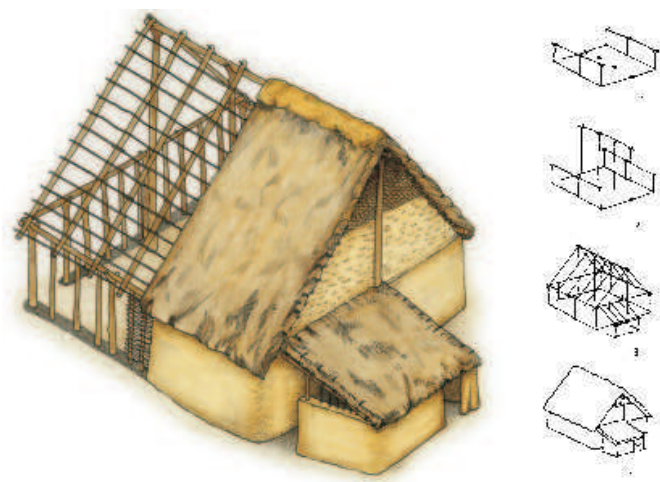
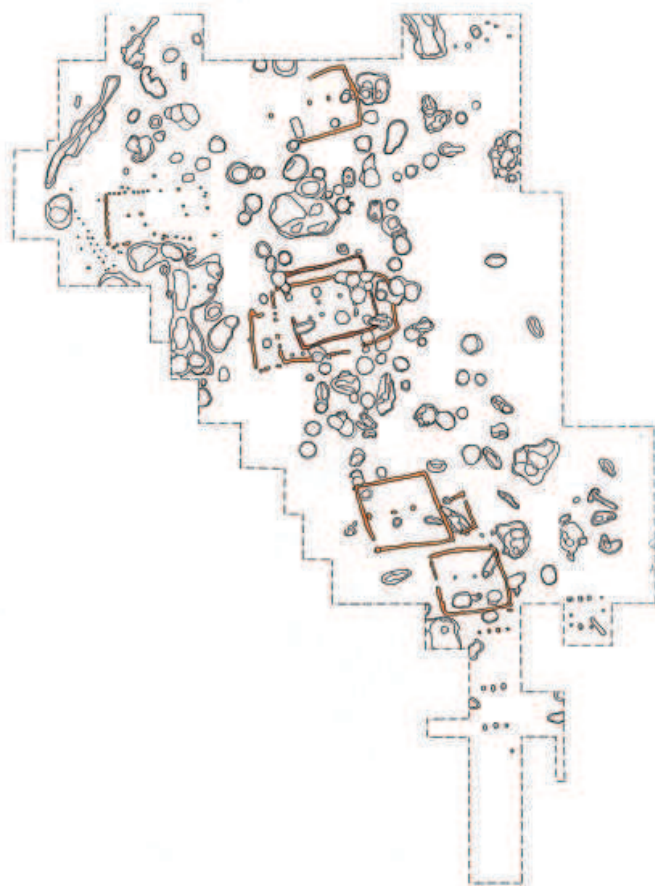


Fig. 8. Reconstruction of a Middle Copper Age house. Zalavár-Basasziget, Balaton-Lásinja culture

left few traces in the archaeological record. In Transdanubia, however, settlements were established in locations with a favourable environment near water; these settlements often lay quite close to each other and some had apparently been occupied over a longer period of time as shown by the abundance of finds. The remains of houses erected around a framework of massive timbers also suggest the longer occupation of these sites.

Most settlements were established on low islands or peninsulas that were especially suited to occupation in dry weather. Much more is known about the settlements of the Early and Middle Copper Age in Transdanubia owing to recent investigations.

The almost completely excavated Middle Copper Age settlement at Zalavár-Basasziget, sited on a small peninsula extending into the marshland of the Little Balaton, covered an estimated 5000 m² and can be assigned to the Balaton-Lásinja culture. The house remains, the refuse pits and the clay extraction pits indicate a continuous occupation. The settlement had two to four contemporaneous houses during the various occupation phases (Figs 7–9).

The sites investigated around Győr in the Hanság marshland offer a similar picture. The Middle Copper Age communities in this area lived in small hamlets with a few houses; these sites covered no more than 1–2 hectares. Scattered around the houses were storage bins and clay extraction pits that were eventually filled with refuse.

The one or two-roomed houses were 7 m wide on the average, their length often reached 20 m, although shorter houses about 10 m long were also quite frequent. The upright timbers reinforcing the walls and supporting the roof structure were set into a foundation trench or, more rarely, into a posthole. The use-life of these settlements was determined by a subsistence strategy based on animal husbandry. In contrast to the more briefly occupied settlements, the sites with massive timber structures can be regarded as more permanent settlements, although judging from the

finds uncovered on these sites, they were not particularly long-lived either. One unusual phenomenon is that the Ludanice communities of the early phase of the Middle Copper Age also settled in caves in the Budapest region and northeastern Transdanubia.

In the later phase of the Middle Copper Age, the number of settlements decreased in Transdanubia. The temporary settlements of this loose settlement network are marked by scattered pits. In contrast to the Tisza region, where village-like settlements with several houses have been uncovered, no houses have yet been found in Transdanubia from this period. The most thoroughly investigated site is the Tiszaúcs settlement of the Hunyadialom culture in the Great Hungarian Plain. The core of the settlement, a roughly 150 m by 100 m large area, was enclosed by a palisade fence of closely spaced posts set into a foundation trench. The houses in this protected area had been renewed several times; the pits yielded a varied assemblage of pottery fragments and animal bones, mainly from cattle. The timber framed, two-roomed houses measured 10–12 m by 6–7 m. The archaeological record indicates that there were twenty to twenty-two houses during one occupation phase (Fig. 10).

The unification process affecting the entire Carpathian Basin during the Late Copper Age is also reflected in the settlements. The over 1600 sites of the Baden culture from Hungary reflect a relatively dense settlement network. The Baden communities settled in a variety of envi-

Fig. 10. Map of the excavated section of the Middle Copper Age settlement at Tiszaúcs-Sarkadpuszta. Hunyadialom culture

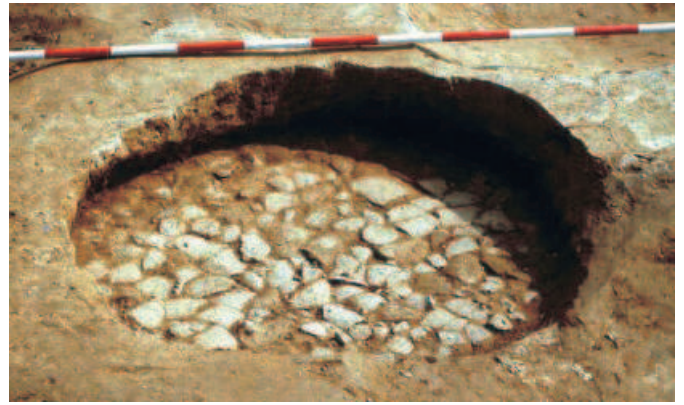


Fig. 11. Oven plastered with pottery sherds. Sármellék-Égenföld, Late Copper Age, Baden culture

ronments, ranging from the plainland to upland locations, as well as settlements near waterways and in caves. Beside small, temporary campsites, a number of several hectares large villages have also been identified (for example at Pilismarót–Szobi rév). The excavations on Baden sites brought to light hearths plastered with pebbles and sherds, smaller ovens, as well as storage bins and refuse pits (Fig. 11). The archaeological record only offers a partial picture of the residential buildings since burnt daub fragments (clay mixed with vegetal remains) are all that survived of the one-time houses. The archaeological remains suggest that these buildings had terre pisé walls or were log cabins.

The late Baden settlements established near larger lakes and waterways indicate a contemporary occupation by Kostolac communities. The location of these settlements was no doubt influenced by the importance of fishing in the subsistence and the importance of waterways for transportation and communication. The briefly occupied Kostolac settlements had temporary, hut-like structures. The Baden population often established protected, fortified settlements in upland locations in northeastern Hungary during this late phase. The several meters high occupation deposits indicate a longer occupation. Some upland sites, such as Salgótarján–Pécskő, were inhabited up to the Early Bronze Age. The stratified settlements of the Vučedol culture, surviving into the Early Bronze Age, appeared at roughly the same time in the southwestern part of the Carpathian Basin.

EARLY METALLURGY IN THE CARPATHIAN BASIN

Zsuzsanna M. Virág

The earliest appearance of metals and metal artefacts, as well as lumps of worked copper preceded the Copper Age proper. The first use of copper can already be observed in the Neolithic. It would appear that Neolithic man began

collecting nuggets of malachite-azurite and native copper owing to their attractive appearance and colour in order to experiment with this unusual raw material and to manufacture various prestige items – such as small beads, pins, rings, armrings – signalling the special status of their wearer. The occasional use of copper in the early phases of the Neolithic was by the earlier 5th millennium B.C. replaced by a more conscious usage, as shown by the growing number of copper finds recovered from the settlements and burials of the Tisza–Hérvály–Csőszhalom and Lengyel cultures. The various small articles made from native copper contained very little of this raw material and their form essentially imitated various stone, shell and bone ornaments and artefacts. Most of these copper articles were made by hammering, although rare instances of copper smelting have also been documented from this period (Zengővárkony, Berettyóújfalú–Hérvály).

As a result of this centuries long experimentation with copper, a genuine and well organized copper metallurgy emerged by the Early Copper Age (4500/4400 B.C.). The technology of smelting copper from its ores was discovered, together with the melting of the smelted metal for casting, leading to the processing of copper ores on a large scale and the mass production and widespread use of heavy copper implements. The exploitation of the rich copper deposits in the Carpathian Basin and the northern Balkans gave rise to a flourishing South-East European copper metallurgy. The distinctive products of this metallurgy, axe-adzes and various axes, appeared during the Early Copper Age Tiszapolgár culture. These were manufactured at several locations throughout South-East Europe, where the smelting procedures necessary for this early metallurgy were known and practiced. This is also confirmed by the presence of pottery kilns in which graphitic pottery needing a high firing temperature was produced. The sudden upswing of copper metallurgy also wrought changes in the fabric of society. The copper implements were not simply utilitarian articles – being commodities with a specific value, they were often a measure of wealth, signalling the power and status of their owner. It has been suggested that these copper implements perhaps also had a sacral function (*Fig. 12*).

The Copper Age also saw the appearance of gold, most likely as a result of the rather frequent joint occurrence of copper and gold; the various objects made from this metal

represented a special value. The melting point of these two metals is similar (1083 °C and 1063 °C) and their contemporaneous utilization can in part be attributed to the similar techniques necessary for their processing. There is little evidence for the use of gold before the Copper Age; articles of gold only appear in greater number from the Early Copper Age, usually from burials and hoards. The continuity of Late Neolithic traditions is indicated by the gold discs that imitated earlier perforated shell ornaments. Beside their value expressed in the material itself, these gold articles were also vested with a symbolic meaning. Most prehistorians agree that the gold discs, with two small embossed knobs and a large central perforation, are stylized representations of the female body (*cp. Fig. 14*).

There is only meagre evidence for the use of gold in the early phase of the Hungarian Copper Age. A number of burials in a contemporaneous cemetery in eastern Slovakia yielded a variety of gold pendants and copper axes. A gold hoard is also known from Hungary: found at Hencida, its ornaments evoke the types and traditions of South-East European metallurgy.

The copper deposits exploited during the Copper Age lay in the Mátra Mountains (Recsk), in the Mecsek Mountains, in the Zemplén Mountains (Telkibánya) and in the Rudabánya area (*Fig. 13*). Some of these were probably already known in the Neolithic. Although the source of the gold used for the manufacture of gold articles has not been identified yet, the known gold deposits of the Carpathian Basin suggest that these should be sought in the Transylvanian Ore Mountains, as well as in the mining areas of the Selmec and Körmöc Mountains, where the auriferous ores could be mined from surface deposits. Gold was perhaps also panned from the Körös, the Maros, the Szamos and the Aranyos rivers.

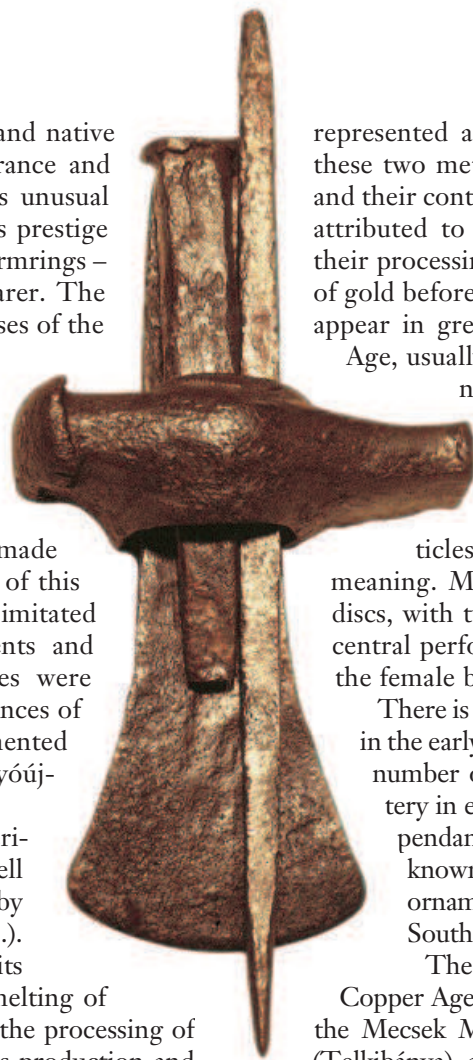


Fig. 12. Hoard from Szeged–Szillér. Early Copper Age, Tiszapolgár culture

Fig. 13. Native copper from Rudabánya





Fig. 14. Gold pendants and tubes from the Middle Copper Age cemeteries of Jászladány and Magyarbóly. Bodrogkeresztúr culture

The unbroken continuity of metallurgy during the florescence of the Hungarian Copper Age (4000–3600/3500 B.C.) meant that the use of copper and gold became truly widespread. During the Bodrogkeresztúr period, the eastern half of the Carpathian Basin was part of the South-East European metallurgical province, extending from eastern Slovakia to Greece. The production of heavy copper implements continued and it is also possible that the manufacturing centres were relocated to the Carpathian Basin. One new type among the massive implements is a heavy axe. The manufacture of gold articles also continued. One distinctive product of eastern Carpathian and South-East European gold metallurgy was the tabbed pendant with a perforated circular lower part and a small tab for suspension, whose form evokes the Early Copper Age

discs. These large ornaments, often with a diameter of 15 cm, are known from various hoards (Tiszaszőlős and Mojgrád in Transylvania). The wear traces suggest that they were breast ornaments strung onto some kind of cord. Their smaller variants were recovered from burials, where they were usually found lying by either side of the skull, suggesting that they had perhaps ornamented a headdress (Fig. 14). Other gold ornaments include small rods and pins, small tubes, wire spirals, rings with overlapping terminals, biconical beads and conical ornaments of sheet gold. Metallurgy spread to the Alpine region at this time, although it was practiced on a more modest scale in that area. The massive copper implements and the copper ornaments were both produced in local workshops. Raw material for the emerging eastern Alpine metallurgy was no doubt procured from the rich copper and gold deposits in Carinthia and the Salzburg region.

In the western half of the Carpathian Basin, the most distinctive Balaton–Lásinja metal products were the large gold, silver and copper discs ornamented with three embossed knobs and *répoussé* work. These metal discs, found mainly in hoards, were worn as breast ornaments. Even though these discs differ from the ones found east of the Danube, their symbolism suggests that some similar meaning was attached to them (Fig. 15). The gold pendant found at Hatvan shows a unique blend of these two metalworking traditions (Fig. 16).

The decline of metallurgy in the later phase of the Middle Copper Age is reflected by the scarcity of metal finds in the Hunyadhalom culture of the Tisza region and the Stroke Ornamented Pottery culture of Transdanubia. This period was characterized by small metal articles with a negligible ore content and it seems likely that some of the earlier workshops in which heavy copper implements had been mass-produced ceased their turn-out of these products. There is evidence for metalworking on the village level in Transdanubia: moulds and crucibles containing copper slag

Fig. 15. Gold discs. Csáford, early phase of the Middle Copper Age, Balaton–Lásinja culture

Fig. 16. Large gold pendant. Hatvan, Middle Copper Age, Bodrogkeresztúr culture





Fig. 17. Crucible and copper ornaments. Zalavár–Mekenye, late phase of the Middle Copper Age, Stroke Ornamented Pottery culture

have been found on several settlements of the Stroke Ornamented Pottery culture at Zalavár, Bak and Pusztaszentlászló (Fig. 17).

A conspicuous decline of copper metallurgy and copper finds can be noted in the Baden period (Late Copper Age, 3600/3500–2800/2700 B.C.). Gold articles also disappeared. The decline of the flourishing South-East European metallurgy is usually attributed to the arrival of various groups from Eastern Europe and the north Pontic steppe, as a result of which the trade and cultural relations between the various metallurgical workshops were disrupted. To this we may perhaps add the exhaustion of the surface ore deposits in the Carpathian Basin. The drop in the number of copper articles during the Baden period can perhaps also be associated with changes in the attitude towards the social and economic role of copper and it is possible that the accumulation of copper articles lost its former significance. Copper finds, such as breast ornaments, spiral armrings, neckrings and diadems, are rare over the entire, rather extensive Baden distribution; these copper articles were probably insignia of power or personal ornaments of high status individuals, or perhaps the paraphernalia of rituals. Copper daggers were also rare (Fig. 18).

Aside from a range of new copper types indicating eastern connections, the simple copper beads and rings from the burials and the small copper awls from settlements were no doubt local products. The crucibles found on sites in the Mecsek Mountain s(Lánycsók) and eastern Slavonia indicate the continuity of local metallurgy, although on a much smaller scale. The Baden period also saw the use of new raw materials – provenance studies indicate the use of arsenic copper for the production of metal articles that had earlier only been used in the east and in the Alpine region.



Fig. 18. Copper dagger. Sármellék, Late Copper Age, Baden culture

COPPER AGE RELIGION AND BELIEFS

(cemeteries, cult places, art)

Eszter Bánffy, Mária Bondár &
Zsuzsanna M. Virág

The changes in the later half of the 5th millennium B.C., marking the advent of the Copper Age, also influenced religious beliefs. In spite of the survival of some earlier beliefs, the finds that can be associated with religion testify to substantial changes.

One of the most important indications of this change is the transformation of funerary practices following the abandonment of the large, permanent settlements. The small, briefly occupied Copper Age settlements could not serve as an adequate resting place for the deceased. This led to the emergence of independent cemeteries, in which the burials were arranged into rows. Cemeteries, rather than settlements, became the symbol of permanence and the survival of the community. Many large cemeteries that had been established in the Early Copper Age were still in use during the Bodrogkeresztúr period of the Middle Copper Age (Tiszapolgár–Basatanya, Magyarhomorog Tiszavalk–Tetes).

In contrast to the Tisza region, a different attitude towards the deceased can be noted in Transdanubia, where hardly any burial grounds are known from the Early and Middle Copper Age. The few solitary graves and grave groups from the Ludanice distribution indicate the survival of inhumation. The burials found on settlements preserved many Neolithic traditions.

The treatment of the deceased is in many cases an adequate reflection of the society of the living and, at the same time, it also reveals much about the community's beliefs concerning the afterworld. In the cemeteries of the Tisza region, the deceased were laid to rest in a contracted position on their side and provided with various articles that were believed to be necessary in the afterworld. Multiple burials were also quite frequent. Copper weapons and long stone knives were laid beside the men's skulls, while women were usually provided with pottery vessels and copper ornaments, as well as small stone and bone implements. The belts strung of beads (Fig. 19) were part of the female costume, as were gold pendants that were fastened onto headbands and worn by high status individuals (cp. Fig. 14). Boar mandibles were only recovered from male burials. The richness of the grave goods from a few male and female burials exceeds by far that of the average grave: the reflection of social differences in burials can already be noted at the end of the Neolithic. Gold articles were probably acquired by high



Fig. 19. Middle Copper Age female burial, with a multiple string of stone beads around the waist. Szibalom–Pamlényi-tábla, Bodrogkeresztúr culture
Key: 1–7. vessels, 8. animal bone, 9. string of beads

status individuals only – this increased the value of gold and, at the same time, it enhanced its role as marking social status. The possession of gold articles was also important for the living and gold articles were no doubt part of the paraphernalia used in various rituals and ceremonies.

The gold hoards from Hencida, Tiszaszőlős and Csáford also indicate the role of gold in Copper Age society. The gold discs, stylized female depictions, are important relics of human representations in an age when these declined significantly (cp. Figs. 14–16). There are very few idols made from clay or other materials from this period. Their buxom form recalls the traditions of Neolithic statuettes (Fig. 20).

The continuity between Neolithic and Copper Age beliefs is also indicated by a number of buildings and other phenomena that can be associated with cults and rituals. In the Neolithic, these were usually performed within the settlement, while in the Early Copper Age, special cult places, entirely separate from the settlement, also appeared, parallel to the emergence of independent cemeteries. The sacrificial pit too survived into the Copper Age as shown by a ritual child burial from the Little Balaton region dating to the Middle Copper Age. The pit with an *omphalos*-like floor uncovered at Balatonmagyaród contained the skeleton of a 5–6 years old boy, provided with a few vessels and a grinding

stone that was practically inutile. The *omphalos* (central place, centre of the universe), the body of the boy still not entirely divorced from the world of the ancestors and the symbolic grinding stone are all elements well known from various Neolithic sacrificial assemblages.

Enclosures were also built during the Early and Middle Copper Age. A huge oval enclosure was identified at Balatonmagyaród, a site dated to the latest phase of the Lengyel culture extending into the Copper Age (c. 4300 B.C.); the enclosure ditch reflects the continuity of Central European Neolithic traditions. One of the gates of this enclosure was also excavated (Figs. 21–22).

Lying farther to the east, a Middle Copper Age enclosure uncovered near Füzesabony is perhaps even more significant. An enclosure of two concentric, slightly oval ditches was identified at Füzesabony–Pusztaszikszó. The width of the two V sectioned ditches was a mere 50 cm, suggesting that they could hardly have been defensive in nature (Figs. 23–24). The enclosure was interrupted by a gate on the southern side. A row of heavy posts was aligned along the inner ditch – these can perhaps be interpreted as a row of columns resembling the slightly later structures of massive stone blocks, such as the one at Stonehenge. The most important area of the site was again the ‘navel’, the centre of the area enclosed by the ditches, where an almost 5 m deep sacrificial pit was found. Intact vessels and animal bones, the remains of meat offerings, were deposited into the pit during the periodically repeated rituals. An intact, articulate goat skeleton, most likely the offering presented during the consecration rite, lay on the floor of the pit. The most intriguing aspect of the enclosure and its finds is that even though the Füzesabony site lies in the Bodrogkeresztúr distribution, the enclosure has a distinctly Central European ancestry, and the finds too have more in common with the cultures succeeding the Lengyel complex than with the Bodrogkeresztúr culture.

A similar sacrificial site or cult place was uncovered at Szarvas; the finds suggest that this site was the scene of bloody offerings.

The Late Copper Age Baden period shows a colourful variety of beliefs based on both local traditions and cultural influences from other culture provinces. Similarly to the earlier phases of the Copper Age, the paraphernalia of rituals were for the



Fig. 20. Clay idol. Tiszafüred, later phase of the Middle Copper Age, Hunyadhalom culture

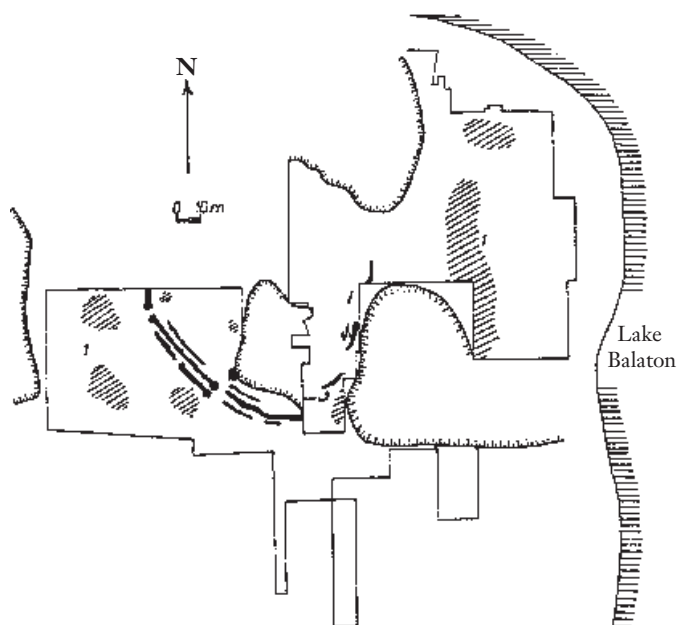


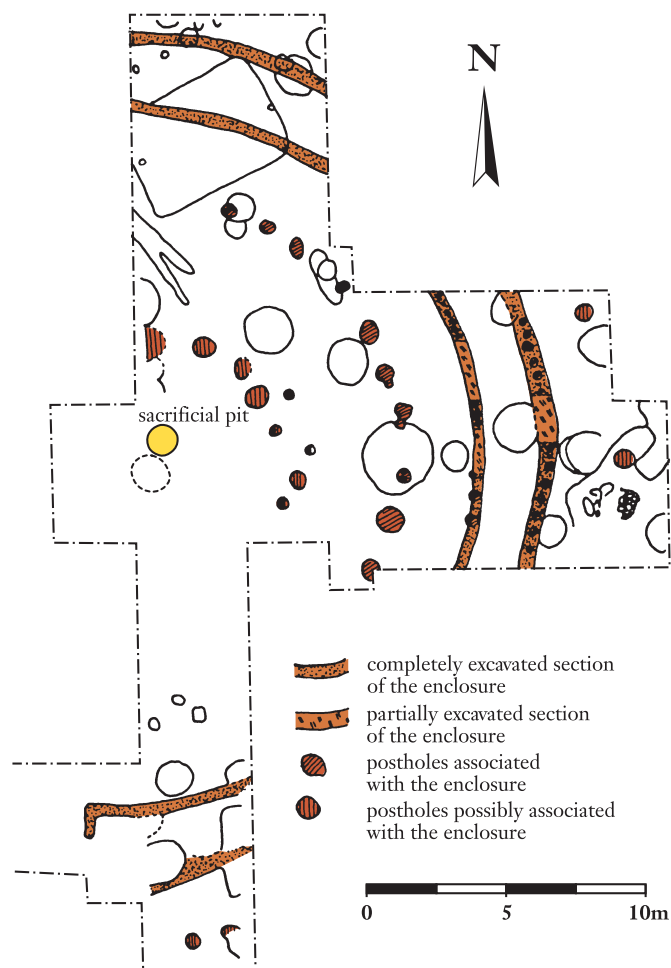
Fig. 21. Groundplan of an Early Copper Age enclosure. Balatonmagyaród–Hídvégpuszta, late Lengyel culture

Fig. 22. Excavated section of the Balatonmagyaród enclosure, with a section showing the infill levels



Fig. 23. Aerial view of a Middle Copper Age enclosure during excavation. Füzesabony–Pusztaszikszó, Ludanice culture

Fig. 24. Plan of the excavated section of the enclosure. Füzesabony–Pusztaszikszó, Middle Copper Age, Ludanice culture



greater part made from perishable materials. The cult objects include anthropomorphic urns and the flat, headless, female statuettes of clay (Fig. 25), found throughout the entire Baden territory. Probably broken as part of a ritual, the idols were thrown into the refuse pits of the settlements. Some sites – such as Győr-Szabadrétdomb and Tököl – yielded an unusually high number of idols, while only a few were brought to light at others, such as Pilismarót. The clay mask found at Balatonőszöd, a unique find from this period, was probably used during rituals (Fig. 26).

In contrast to the earlier sporadic occurrences, the custom of cremation became more widespread in the Baden period, a practice that can no doubt be associated with the belief in the cleansing properties of fire. In the cemetery at Pilismarót-Basaharc, containing a total of 110 burials, the ashes of the deceased were scattered on the ground and the vessels used in the funerary rite were placed beside them. A mound of flat stones was raised above the grave at the end of the burial ritual (Fig. 27). In some cases the ashes were collected and placed inside an urn. Quite unique anthropomorphic urns were found at Ózd-Center; their faces recall the depictions on the anthropomorphic vessels from Troy, even though we now know that the Ózd urns predate the latter (Fig. 29). Comparable vessels have been found at a number of other sites in the region, for example at Méhi (Včelince, Slovakia), where one of the burials yielded an urn modelled on the female body and a small female statuette, suggesting that the



Fig. 25. Headless idol. Zamárdi, Late Copper Age, Boleráz group

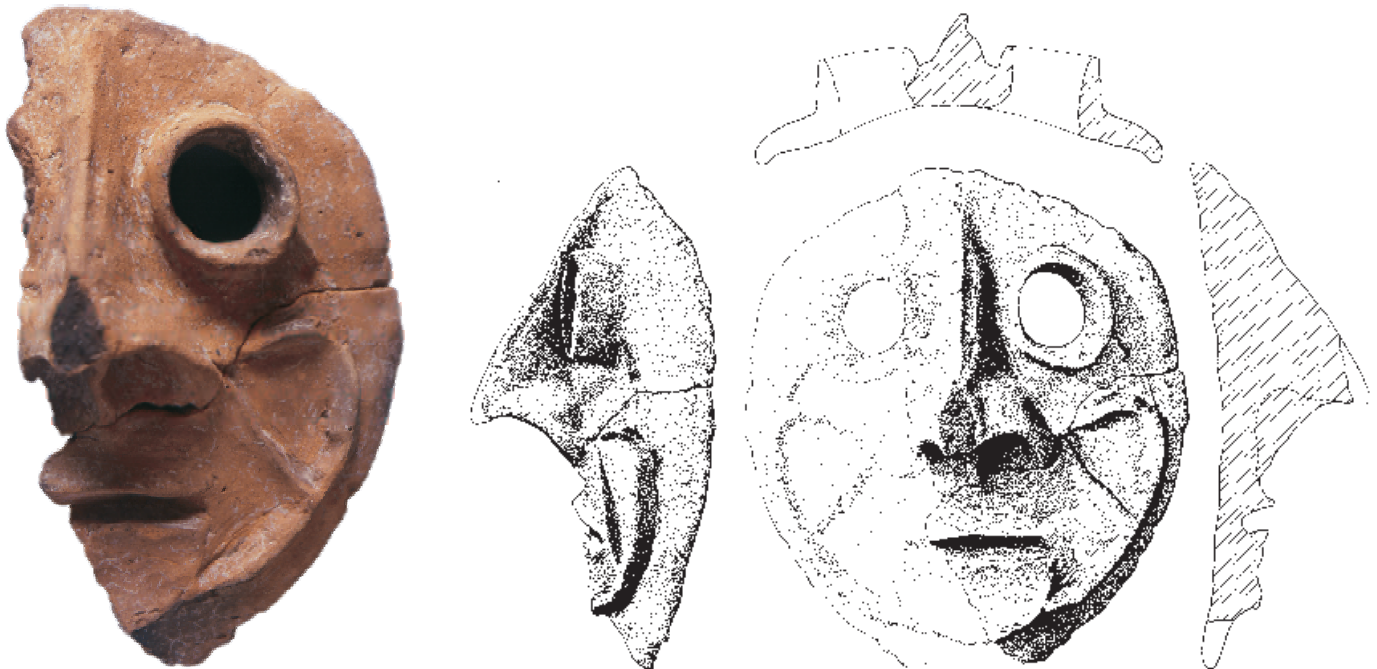
different types of representations – such as the face pots and idols – of Neolithic and Copper Age small sculpture were in essence the expressions of the same set of beliefs. The symbolism of fertility and femininity, the association of women with the concept of birth and death, as well as rebirth, was at least three thousand years old by the Baden period.

Beside the cremation of their dead, the Baden communities also practiced inhumation. The deceased were laid to rest in burial grounds separate from the settlements. In addition to small burial grounds containing no more than ten to twelve graves, large cemeteries used over a longer period of time are also known. At the same time, some individuals were buried in or very near to the settlement; the reason for this practice is not known.

Mass graves containing both regularly interred individuals and skeletons suggesting that the corpses had been simply thrown into the pit have also been found. The reason for these mass graves remains unknown: perhaps they are indications of an illness or a plague that led to the more or less simultaneous death of several members of the community (Fig. 28).

The largest cemetery of the Baden culture, containing a total of 437 burials, was uncovered at Budakalász. The earliest burials in the cemetery, used for an estimated two hundred years, were cremation burials. After the burial of the ashes, the graves were covered with stones. Stones were also

Fig. 26. Clay mask, modelled on the human face. Balatonőszöd-Temetődűlő, Late Copper Age, Baden culture



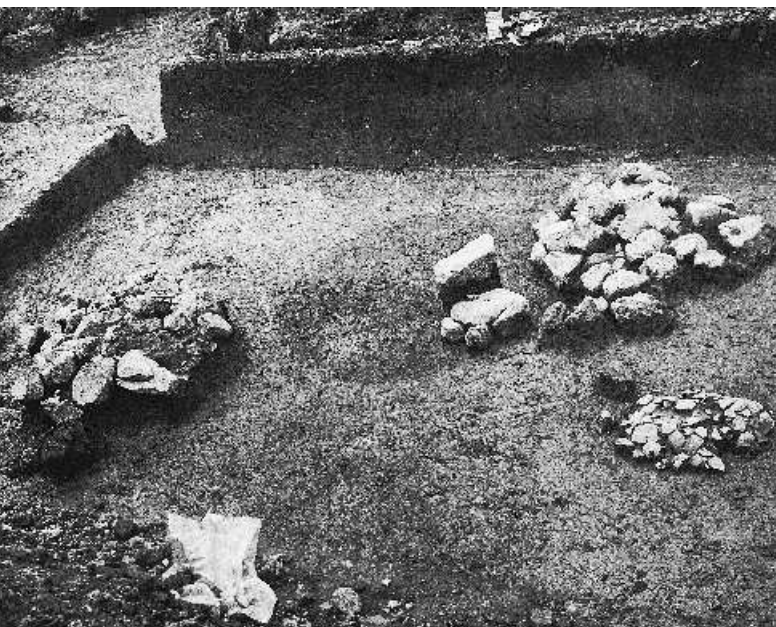


Fig. 27. Late Copper Age grave with stone packing. The discoloured patch of the grave pit can be seen beside the stones. Pilismarót–Básaharc, Boleráz group

thrown into inhumation burials as part of the burial rite. The separate, smaller grave groups can perhaps be interpreted as the burials of one family. Powerful symbols of social cohesion, the burial grounds containing the remains of the ancestors were revered as sacred places by later generations.

These burial grounds contained not only human remains, but also a wide range of pottery, tools, implements and ornaments, as well as animal remains. The clay wagon models used as ceremonial vessels, such as the ones found at Budakalász and Szigetszentmárton, no doubt had a unique function (*cp.* Fig. 4). Cattle were also revered in some form as shown by the cattle burials, found both on settlements and in cemeteries, where they were buried either alongside their owners or in separate graves. One of the graves in the Budakalász cemetery contained the bodies of a man and a woman, as well as two cattle skeletons; the position of the human and animal skeletons suggested that a wooden cart had probably also been placed into the grave. It seems likely that only high status individuals had the right to take these valuable animals with them to the afterworld.

At the close of the Copper Age, we witness the appearance of certain finds reflecting beliefs that can be associated with the appearance of eastern, steppean groups in



Fig. 28. Mass grave from a Late Copper Age settlement. Sármellék–Égenföld, Baden culture

the Carpathian Basin. These steppean nomadic communities lived peacefully with the local Copper Age population of the Tisza region. The Baden communities apparently adopted the custom of erecting stone grave markers (steles) from these eastern groups: the oldest stone stele from Hungary, found at Mezőcsát, was no doubt erected to protect the entire cemetery. This almost two meters high stele was found in the Great Hungarian Plain, a region poor in stone resources (Fig. 30). The transportation of this heavy stone from the Northern Mountain Range called for the concerted activity of many individuals even if we assume the use of wheeled wagons.

The Kurgan people often buried their dead in Baden cemeteries, indicating the joint use and, also, the reverence of burial grounds as sacred areas. The grave pit under the burial mound (*kurgan*) was usually covered with wooden planks; the grave goods included carpets, furs and textiles (Figs 31–32). The presence of red ochre in these burials can also be related to religious beliefs. The colour red had a special meaning in Copper Age beliefs; its use suggests that the deceased were symbolically restored to life before departing to the afterworld.

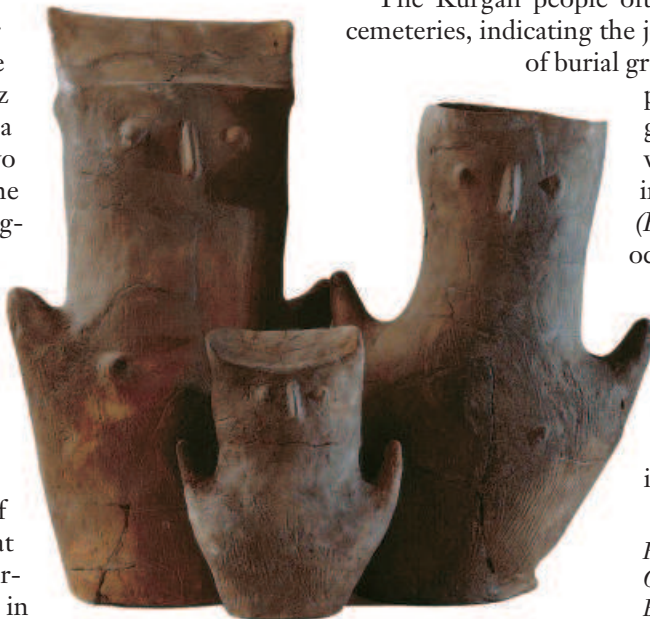


Fig. 29. Anthropomorphic urns. Ózd–Center, Late Copper Age, Baden culture



Fig. 30. Stone stele, during excavation. Mezőcsát, Late Copper Age, Baden culture

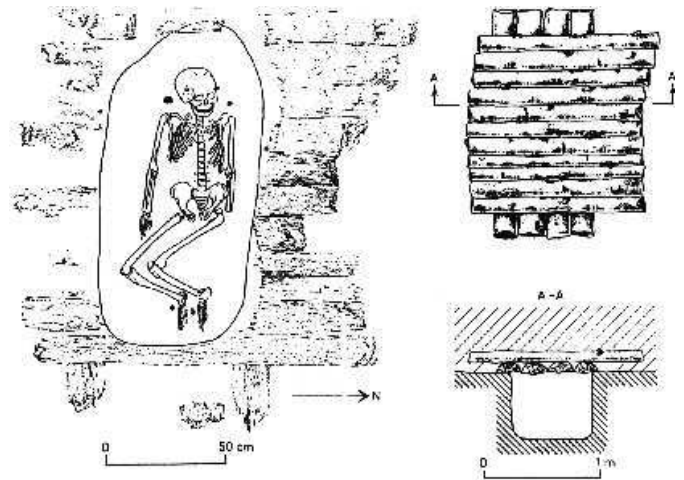


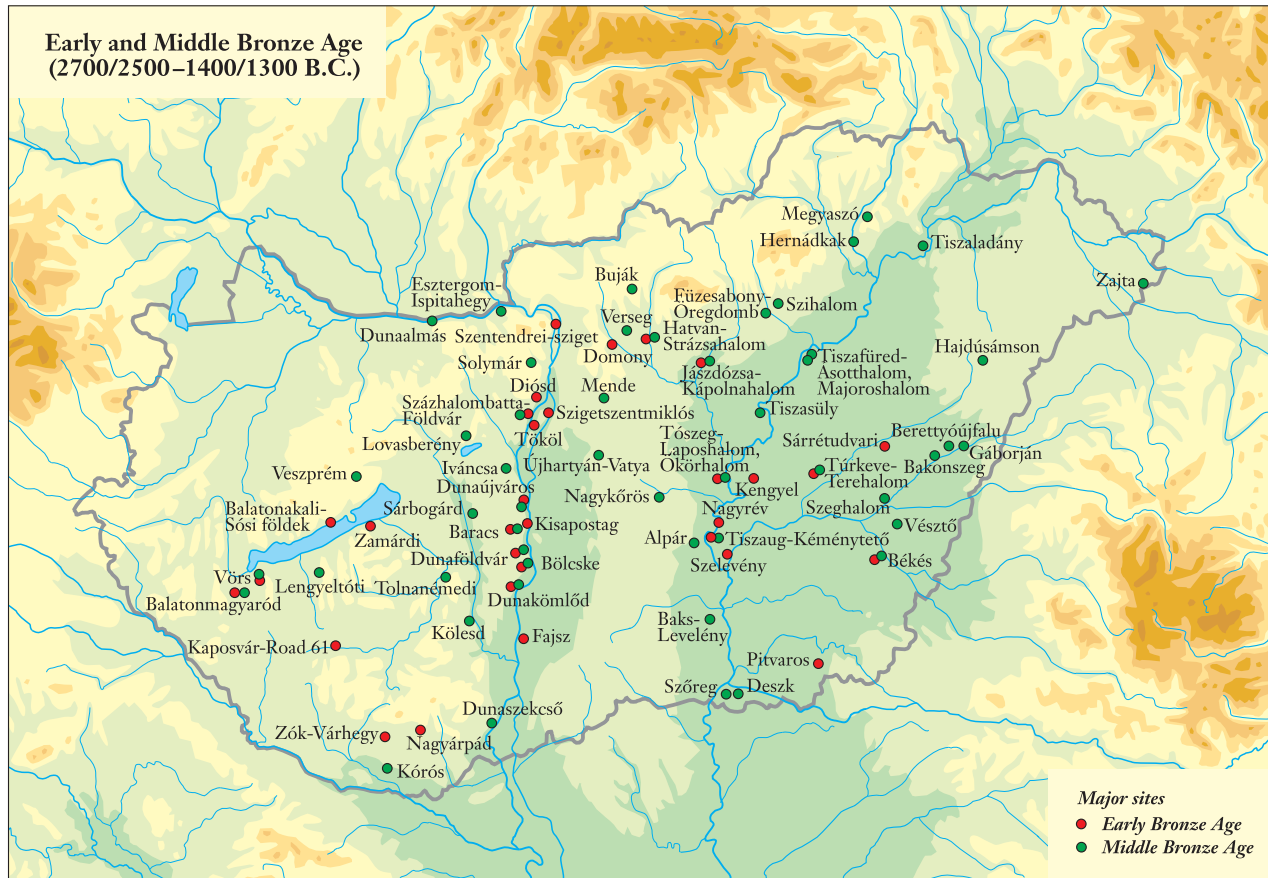
Fig. 31. Burial mound (kurgan), during excavation. Kétegyháza, Late Copper Age

Fig. 32. Excavation drawing of a kurgan burial. Kétegyháza, Late Copper Age

VI. THE BRONZE AGE



**Early and Middle Bronze Age
(2700/2500–1400/1300 B.C.)**



**Late Bronze Age
(1400/1300–900/800 B.C.)**



CHANGES IN THE 3RD MILLENNIUM B.C.: THE DAWN OF A NEW PERIOD

Ildikó Poroszlai, Marietta Csányi & Judit Tárnoki

There is hardly a chapter in Hungary's history that does not in some way reflect the consequences of the country's geographic location. The lives of the peoples living here was shaped by the desire to be part of the high civilizations of distant regions, whether in the west or east, and a receptiveness to cultural influences from their direct environment, as well as from neighbouring peoples – the Bronze Age was no exception in this respect. Although cultural impacts from one region occasionally became dominant to the near exclusion of others and brought a uniformity to the historical, economic and cultural landscape of the Carpathian Basin, these two stimuli usually resulted in a duality that can still be felt today.

Recent studies have convincingly demonstrated that environmental and climatic factors strongly affected the distribution of different cultures since climatic changes could lead not only to the disruption of the previous ecologic balance, but – in some cases – they also played a decisive role in the emergence, shift or decline of certain cultures.

The historical period called the Bronze Age spans the second half of the 3rd millennium and the entire 2nd millennium B.C. The period was named after bronze, a metal alloy of copper and tin, copper and antimony or copper and arsenic. Bronze metallurgy was introduced to the local communities by population groups who arrived from the east and southeast, and brought with them the knowledge of this metalworking technique.

The Bronze Age is traditionally divided into three main periods: the Early, Middle and Late Bronze Age. Radiocarbon dates and the dates provided by dendrochronology show that the Copper Age–Bronze Age transition can be dated to the middle third of the 3rd millennium B.C., while the close of the Bronze Age to around 800 B.C. The boundary between two different cultural worlds ran through the Carpathian Basin during the one thousand years long period of the Early and Middle Bronze Age. The greater part of Transdanubia and northern Hungary were part of the western culture province, while in the *Mezőföld* region and the Great Hungarian Plain we witness the spread of Anatolian–South-East European subsistence strategies and the emerge of stratified tell settlements that bound this region to the Mediterranean world, perhaps in part as the result of the immigration of various population groups. Tell-based communities, who rebuilt their houses over the remains of earlier ones, had already settled in the Tisza region during the Neolithic. Their heritage is preserved in the settlement mounds dotting the Great Hungarian Plain.

THE EARLY BRONZE AGE Gabriella Kulcsár

In contrast to most prehistorians working in Central and Eastern and South-East Europe, Hungarian scholars link the beginning of the Bronze Age to the cultural changes following the decline of the Baden complex and to the appearance of new cultures.

The appearance of a new, distinctively Bronze Age metalworking technology can first be noted on the northern Balkanic and southern Transdanubian settlements of the Vučedol culture, during the early centuries of the 3rd millennium B.C. The bronzesmiths of the workshops producing the distinctive shaft-hole axes, chisels and daggers employed the same metalworking techniques that first appeared in, and spread from, the Pontic and the Aegean. The northernmost settlement of the Vučedol population, whose villages and hamlets usually lie on elevations rising above the surrounding landscape, has been identified at the site of Somogyvár–Kapuhegy in the Somogy Hills south of Lake Balaton. The brown and black polished Vučedol pottery decorated with deeply incised geometric patterns highlighted with white encrustation or, more rarely, with red painting, represented one of the most elegant styles of the period. The decline of this cultural complex, with its well-organized economy, heralded various new changes.

In contrast to the southerly areas of the Carpathian Basin, the plainland of the Tisza region was populated by communities maintaining close ties with Little Poland, the Ukraine and Transylvania. These communities interred their dead under burial mounds (the so-called kurgans). One of the most impressive burials from this period is the Early Bronze Age grave uncovered at Sárrétudvari–Órhalom: the burial contained copper and bronze weapons and ornaments, as well as pottery vessels. Many of the kurgans dotting the Tisza region date from the preceding Late Copper Age (the later 4th millennium B.C.) and can be linked to steppean groups who had already mastered the art of horse breeding. However, much of the history of this population with its eastern steppean traditions in eastern Hungary still lies buried under these kurgans.

In the middle third of the 3rd millennium B.C., the former settlement centres were abandoned; their occupants continued their lives in smaller villages and hamlets. The Vučedol territory was gradually occupied by the Somogyvár–Vinkovci population, a culture blending various elements from the central and southern Balkans; closely allied groups also appeared in the Lower Danube region and Oltenia, as well as in Transylvania and the Körös region (Gлина III–Schneckenberg and Gyula–Roşia group).

New cultures also appeared in other regions of the Carpathian Basin; preserving a number of Vučedol elements, the Makó and, later, the Nyírség culture also drew from many other traditions.



Fig. 1. Early Bronze Age footed bowl from Zamárdi

The archaeological record indicates that the Early Bronze Age was a period of constant change, the most important of which was undoubtedly the spread of metal-working techniques. Beside the rather uniform metal artefacts, various pottery types, such as elaborately decorated footed bowls (Fig. 1) that appeared more or less simultaneously in a number of cultures, too reflect a network of trade relations covering fairly extensive areas. The settlements of the post-Vučedol period are little known: scattered refuse pits and fireplaces have been excavated at several sites, but only two larger timber framed structures have been uncovered so far. It seems likely that houses were built from wood and since their foundations were not sunk into the ground, they left few, if any traces in the archaeological record. These settlements suggest a mobile lifeway and an economy based predominantly on animal husbandry, with crop cultivation as a supplementary activity. This would also explain the absence of large cemeteries: most of the known burial grounds contain a handful of burials at the most. These burials include both inhumation and cremation graves; although we cannot speak of a strict burial rite, it would appear that cremation was more com-

mon in the northern and eastern areas, while inhumation was the rule in the south. The burial mounds in the Lake Fertő region reflect the South-East European traditions of the Somogyvár–Vinkovci communities.

TELL CULTURES OF THE EARLY AND MIDDLE BRONZE AGE

Ildikó Poroszlai

In the Srem, the southern Transdanubian section of the Danube valley and the Sió valley, the early Nagyrév culture emerged in part as a result of continuous cultural influences from the Balkans and in part as a result of Balkanic and local changes. Much of what we know about the early Nagyrév communities comes from the stratified tell settlements that functioned as the major, central villages of this culture. Re-emerging after the decline of the Vučedol period, this settlement form persisted throughout the Bronze Age, although smaller hamlets and farmstead-like sites are also known, such as the one recently investigated near Szekszárd, where a few refuse pits were uncovered. The finds recovered from these pits included the typical, mostly undecorated cups and jugs of this period, together with larger pots and storage jars.

The beginning of the Bronze Age in Western and Central Europe is usually linked to the spread of the Bell Beaker culture. Distributed from Northern Africa to England and from the Atlantic coast to Poland, smaller groups of this rather uniform culture also settled in the Budapest area that thus became a meeting point of northwestern and south-eastern cultural traditions. One fine example is the cemetery uncovered at Békásmegyer: 154 graves of this burial ground represent this period. The finds from the burials indicate that a network covering the greater part of Europe existed for the trade and exchange of metals and other commodities.

The end of this almost five hundred years long period saw the emergence of new cultural complexes in the Carpathian Basin that can be easily distinguished from each other on the basis of their lifeways and strict traditions.

Tell economies that had been restricted to a fairly small area during the preceding Vučedol period now became widespread, as shown by the appearance of tell cultures along the Danube and in the Tisza region (Nagyrév, Hatvan, Ottomány and Perjámos cultures); the emergence of these cultures marked the onset of long centuries of peaceful development based on intensive crop cultivation and animal husbandry, lasting until the end of the Middle Bronze Age.

The villages established near major waterways (the Danube, Tisza, Körös, Maros and Berettyó) were occupied by peasant communities with an excellent knowledge of agriculture and animal breeding. They grew various cereals (wheat, barley, oat, rye), vegetables and fruits (bean, lentil,



Fig. 2. Harnessed horse (reconstruction) and bronze harness. Tószeg-Laposhalom and Füzesabony-Öregdomb

pea, apple, elderberry, blackberry, cornel-cherry, cucumber, mustard seed) and fodder crops (oat, clover), and they raised cattle, pig, goat and sheep, as well as horse as shown by finds of bits with cheek-pieces and strap distributors carved from bone and antler (*Fig. 2*). Beside the major bronzeworking centres, metallurgy was also practiced on larger tell settlements as indicated by finds of crucibles, tuyères, moulds, slag and, obviously, the bronze articles themselves: a wide array of tools and implements, dress ornaments such as pendants, spangles and pins, as well as an assortment of other jewellery.

Aligned along regular streets, the houses on these tell settlements were usually built around a framework of wooden posts and had daub walls. The ovens and fireplaces were used for cooking and baking, and there is also evidence for pottery kilns and bronzeworking on some sites. The net weights, fish scales, antler hooks and harpoons reflect the importance of fishing, while spindle whorls and loom weights provide evidence for spinning and weaving. Grinding stones, large storage jars, spoons, vessels used for curing meat, frying pans and strainers were common household utensils. The refuse thrown out into the streets and into the pits – mostly animal bones and other food remains – are all valuable and eloquent testimonies of everyday life.

These settlements and settlement mounds soon attracted the attention of scholars and of laymen interested in bygone ages. Hungarian prehistorians worked out the first, widely accepted chronology of the Bronze Age in the Carpathian Basin on the basis of the successive layers of the Tószeg tell settlement. One of the main achievements of prehistoric research during the past thirty years was the perfection of excavation techniques best suited to the investigation of the superimposed settlement layers and to the recovery of as much information as possible.

Evidence from more recent excavations suggests that the first major Early Bronze Age tell culture, the Nagyrév culture, appeared on the right bank of the Danube, in the area

between Dunaföldvár and Dunaszekcső. The large Nagyrév tell settlements lie on the loess hills flanking the Danube: the lower, 1–3 m thick levels of the tell settlements at Dunaföldvár, Bölske, Baracs, Dunaújváros and Százhalombatta contain the superimposed occupation levels with the remains of timber framed houses having one or more rooms that were occasionally whitewashed. At Bölske, the 3 m thick deposits represent the entire Nagyrév sequence; other settlements were established during the classical or late phase of the culture.

Crossing the Danube, the Nagyrév population reached the Tisza at Tószeg. Nagyrév communities settled along both banks of the river. Their settlements in the Tisza region include Tószeg-Laposhalom and a number of settlements in the Tiszazug area. In areas where the environment was unsuitable for tell settlements, as for example in the Danube-Tisza interfluvium, smaller hamlets and farmsteads were the norm.

TISZAUG-KÉMÉNYTETŐ: A BRONZE AGE SETTLEMENT IN THE TISZAZUG

Marietta Csányi

Ensnconced between the Körös and the Tisza, the fertile Tiszazug area rich in water and fish provided an ideal environment for settlement throughout prehistory. It is not mere chance that of the eight Bronze Age tell settlements along the Middle Tisza, four lie in this area, at a distance of no more than 10–15 km from each other. These four tell settlements include Nagyrév-Zsidóhalom, the eponymous site of the Nagyrév culture, and the Tiszaug-Kéménýtető site, excavated between 1980–83.

The investigated area of the settlement lay near the floodplain; the 300 m² large excavated area allows an insight into the history of an ancient settlement, the changes in the communities settling here and in the layout of the village. The settlement was first occupied during the Early Bronze



Age, in the Nagyrév period, as shown by the four superimposed occupation levels of this culture. Arriving at the beginning of the Middle Bronze Age, the Hatvan population is represented by a single occupation level.

The early Nagyrév levels yielded a wealth of new information about the culture, especially about the settlement features. The latest occupation level from this period contained the remains of a house, whose walls were covered with elaborate geometric designs (*Fig. 3*), a unique phenomenon from the Bronze Age; the house itself too is an architectural masterwork of the period. This house was destroyed by fire and it is due to this accident – or perhaps an intentional, ritual fire – that the interior furnishings and atmosphere of this Bronze Age building was preserved under the collapsed walls. Similarly to the other residential buildings, this house also had a north to south axis. The 8.7 m by 5.2 m large building was divided into two rooms by a 10–12 cm thick partitioning wall. The larger one functioned as a kitchen: a domed stove was set in one corner and beside this oven stood an open fireplace with a plastered rim. A clay bench ran along the opposite wall, where the family probably gathered on cold winter evenings in the room

Fig. 4. Pottery jugs from the Nagyrév period. Tiszaug–Kéménýtető, level 2

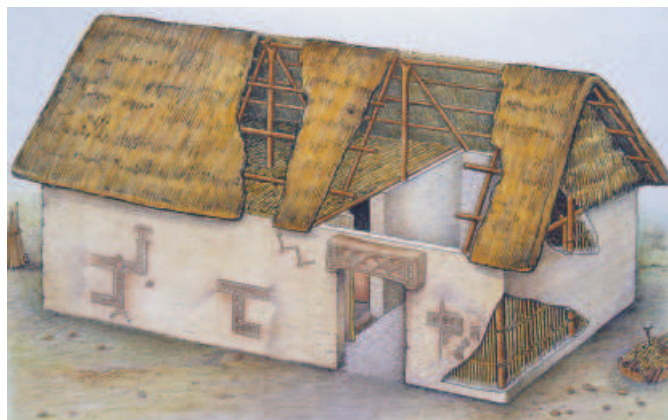


Fig. 3. Debris of a burnt house and its reconstruction. Tiszaug–Kéménýtető, level 2, Nagyrév culture

heated by the stove. The fragments of several large cooking pots lay on the floor. These vessels, together with jugs, pots and mugs fired to a black or orange colour and decorated with appliqué ribs, were all products of potters working on this settlement (*Fig. 4*).

The above finds indicate that the house, although more carefully constructed than the average, was a typical residential building, whose occupants cared for their creature comforts. The clearing of the western wall brought to light another rare find. The thin clay layer covering the outer surface of the wall was burnt in the conflagration destroying the house and thereby preserved the intertwining geometric motifs of an intricate pattern. Since this house stood in the centre of a larger open area, it is possible that its owner had been one of the outstanding, high status members of the community, whose status was also reflected in the outward appearance of his house.

The best preserved occupation level at Tiszaug had six houses that were arranged in two clusters. The uniform north to south orientation, the two groups of three buildings perhaps corresponding to kinship ties and the geometric patterns ornamenting the house walls reflect a strict principle of organization that offer a glimpse into the universal worldview and ethnic-spiritual mindset of the Nagyrév communities. The tangible reality of everyday life, the settlement and the houses was inextricably bound up with the irrational world of beliefs.

BURIALS AROUND NAGYRÉV–ZSIDÓHALOM Marietta Csányi

Settlement and cemetery were two diametric, but nonetheless complementary aspects of the existence of prehistoric man. The excavation of settlements offers a glimpse into the everyday life of vanished communities, while cemeteries allow a better understanding of their beliefs and attitudes. Many cemeteries of prehistoric tell cultures are known, but only in rare instances of archaeological luck

are both the settlement and the cemetery of a given community found. In the case of many prehistoric villages it remains an eternal mystery where the one-time occupants buried their dead. One of the rare exceptions is Nagyrév–Zsidóhalom.

The eponymous site of the Nagyrév culture is an impressive settlement mound on the left bank of the Tisza, on the western edge of the floodplain. The cemetery of this settlement was discovered in 1980 on the sand dunes east of the mound during earth-moving operations. The investigation of this burial ground revealed that the occupants of the Bronze Age village buried their dead farther from the settlement during the early (Nagyrév) period and slightly closer during the later (Hatvan) period. The excavated burials formed four clusters, indicating that this was not a contiguous necropolis; the endless sand dunes bordering the tell in the north and east may conceal several smaller grave groups of six to ten burials.

Twenty-seven burials, forming three distinct groups, date to the Nagyrév period. These grave groups were perhaps the burials of one family and the occasional grave pairs perhaps reflect closer ties within the family.

The Nagyrév burials reflect a wide range of funerary practices. Beside cremation burials, common throughout the Nagyrév distribution, inhumation burials with the deceased laid to rest in a contracted position were also quite common. There were also some differences between the cremation burials: in some graves, the ashes were simply scattered over the floor of the grave pit, while in a few cases they were placed into urns. Food for the journey to the afterworld was placed into jugs, pots, suspension vessels and bowls, as well as other pottery. One grave contained as many as fourteen vessels (*Fig. 5*), and the weapon of the deceased, a dagger with a wide blade, was also placed into the grave among the ashes. Two other burials of the cemetery contained pottery vessels richly decorated with geometric motifs that had a symbolic meaning. Made up of motifs incorporated into more or less identical designs, these patterns occur on vessels found over the entire Nagyrév distribution: zigzag motifs set between two parallel lines, squares and diamonds, as well as motifs resembling upheld arms – the arrangement of these motifs suggests that they were more than simple ornamental elements.

Inhumation burials usually contained fewer grave goods. The deceased were usually oriented east to west, and no more than two or three vessels were placed into the grave, usually beside the head, the feet or the waist.

In spite of the many variations that can be observed in the burial rite, the funerary practices were strictly regulated, depending on the traditions and unwritten laws of the community. The deposition of the deceased or the ashes, the placement of the various articles in the grave, the form and orientation of the grave pit had a strict order that can best be noted in the scattered cremation burials. The vessels were usually closely packed in the northern part of the east to west oriented grave pit with rounded



Fig. 5. Fourteen vessels found in a scattered cremation burial. Nagyrév–Zsidóhalom, trench B, grave 8

corners, while the ashes were usually deposited in the eastern corner of the northern part. This burial mode was observed not only at Nagyrév, but at other sites of the culture, such as Tószeg–Ökörhalom on the right bank of the Tisza, where a scattered cremation burial showed a similar arrangement as the ones uncovered at Nagyrév. This strict burial practice was the rule throughout the Nagyrév distribution and reflects a worldview in which symmetry and regularity were important elements. The intricate set of symbols was the visual expression of the link with supernatural powers.

THE EXPANSION OF THE HATVAN CULTURE

Judit Tárnoki

Named after the Hatvan–Strázsahegy site in northern Hungary where the culture evolved, the Hatvan culture was a neighbour of the Nagyrév culture. The Hatvan culture evolved from the intermingling of earlier local communities and eastern population groups. The earliest upland settlements of the culture are known from the Cserehát Hills, lying between the Hernád–Bodrog–Sajó rivers; the culture later expanded into northern Hungary and the Tisza valley down to the Körös rivers, as well as eastern Hungary, including the Tiszazug area. Over one hundred Hatvan settlements fortified with ditches and/or ramparts, often lying at distances of no more than 5–10 km from each other, were established in the wake of this expansion. The Hatvan communities brought an end to the Nagyrév culture, and rebuilt the destroyed Nagyrév settlements according to their own tradition. The layer sequence of most major tell settlements in the Upper and Middle Tisza region includes Hatvan occupation levels.

JÁSZDÓZSA-KÁPOLNAHALOM: A TELL SETTLEMENT IN THE GREAT HUNGARIAN PLAIN

Jászdózsa-Kápolnahalom is a typical representative of the Early and Middle Bronze Age tell settlements in the Great Hungarian Plain (*Fig. 6*). Rising 6 m above the surrounding land, the oval mound with its flat plateau towers above the surrounding plainland like a fortress. The settlement was protected by two ramparts and ditches: the outer one enclosed the entire extensive settlement, while the other one ran directly around the mound (the remains of the latter can still be made out). These ramparts and ditches were constructed by the first occupants, in other words, the village was protected against possible attacks from the very beginning. An unusual pit, containing the remains of sacrifices presented during construction work, was found under the floor of the 4 m deep ditch. The remains of these sacrifices included a dozen intact animal skulls (brown bear, aurochs, wild boar, deer and domestic pig).

Work on the tell settlement was directed by István Bóna and Ilona Stanczik between 1966–1975. The mound accumulated to over 5 m during the long centuries of occupation; the very last inhabitants of the village lived in a genuine stronghold.

The first occupants of the settlement, a Hatvan community, chose a small elevation rising above the floodplain in the last century of the Early Bronze Age, around 2200 B.C. They carefully planned the location of the houses that were apparently arranged around a central open space. Houses were quite large in the early settlement phase, their length often exceeding 12 m. These Bronze Age houses differed little from

modern peasant houses. They were constructed of simple materials: the plastered daub walls were supported by a wooden framework, the roof was made from reed and wood, the floor was of beaten clay. These houses did not have a sunken foundation: the posts of the wooden framework supporting the walls and the roof were sunk no deeper than 30–40 cm under the floor level. The early settlement was destroyed by a huge conflagration; the houses uncovered during the excavations had without exception burned down since their floors were covered by a thick layer of burnt debris. There were indications that this conflagration was not a simple natural fire. The overall arrangement, size and internal division of the houses changed considerably in next settlement phase. A fundamental change can also be noted in the archaeological finds: the pottery and the various implements both reflect the appearance of a new population. That the arrival of this new group, the Füzesabony culture, was not a particularly peaceful event is indicated by the fact that a rather valuable hoard, placed into a plain pot, was hidden under the floor of one of the houses, never to be recovered again. The hoard included thirty-seven solid gold hair ornaments, two bronze axes, various bronze ornaments, small gold spangles and a necklace of amber beads. The weight of the gold articles exceeds 140 g; the bronze implements and the amber necklace represented a significant value in themselves (*Fig. 7*).

Similarly to other Hatvan settlements, the pottery was dominated by textile and barbotine decorated wares; other finds included cattle, sheep, goat, pig and horse bones, miniature statuettes of these animals, wagon models, small clay wheels and bird shaped vessels. The latter were most likely used during rituals, perhaps for presenting offerings (*Fig. 8*).

Fig. 6. Jászdózsa-Kápolnahalom: the tell settlement





Fig. 7. Gold board. Jászdózsa–Kápolnabalom, level 11

The expansion of the Füzesabony culture can also be observed on other Hatvan settlements in the Tisza region. At Jászdózsa, the archaeological record suggests that even though a Füzesabony group occupied the settlement, the earlier Hatvan community living there was not exterminated and thus the material culture of this population flourished until the very last phase of the settlement.

The houses during this period were smaller (10–11 m by 5–6 m large) and many were divided into two rooms. The alignment of the houses indicates the presence of central open area: the entrances faced this open area and not the narrow streets. This period too was brought to an end by a conflagration destroying the entire settlement (Fig. 9).

The last phase of the settlement was characterized by even smaller, 40–45 m² large houses with a covered porch. The streets became slightly wider. The finds from this pe-

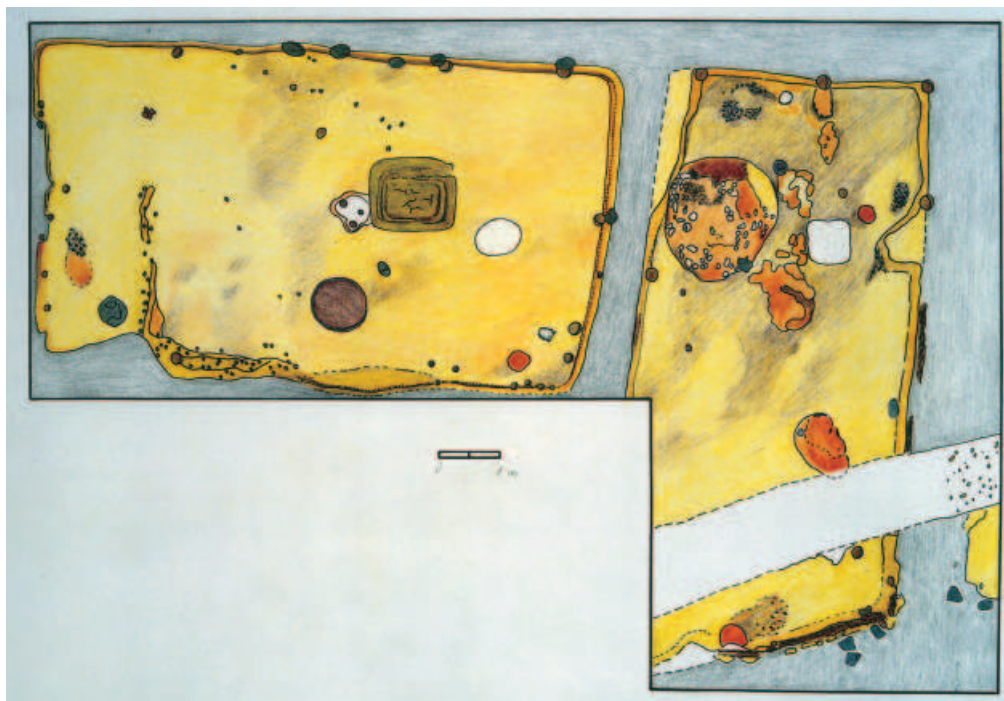
riod date this occupation phase to the Koszider period (close of the Middle Bronze Age). The occupants of the settlement eventually abandoned their village and moved elsewhere.

CEMETERIES OF THE HATVAN CULTURE

Even though some 100–120 large Hatvan tell settlements are known, many of them occupied for several hundred years, we know surprisingly little about the cemeteries of this culture. The number of known burials is less than a hundred, and less than a half of these burials have been precisely observed and described. The reason for this is to be sought in the burial customs of the Hatvan culture. The admittedly scanty evidence indicates that the major tells were surrounded by a



Fig. 8. Animal figurines. Jászdózsa–Kápolnabalom, Hatvan occupation level



*Fig. 9. Jászdózsza-Kápolnabálom.
Drawing of level 6*

chain of smaller burial grounds. Graves have been found in thirteen different locations around the Hatvan–Strázsahegy site, while the largest currently known cemetery of the culture, yielding a total of twenty-six burials, has been uncovered at Verseg.

The Hatvan population cremated its dead. The ashes were scattered onto the floor of the grave pit or placed into an urn. The deceased were always provided with vessels containing food and beverage for the journey to the after-world; often as many as ten or even twenty pots were placed into the scattered cremation burials. It is unclear whether the number of vessels reflected differences in social status since even the most richly furnished burials do not contain truly valuable articles of bronze or gold. Since the deceased were cremated, it is also unclear whether there was any correlation between the quality of the grave goods and the age or gender of the deceased. Similarly, we can only hypothesize that the smaller cemeteries containing a few graves only were the burial grounds of an extended family.

CENTRAL EUROPEAN ECONOMIES: AGRICULTURALISTS IN TRANSDANUBIA

Viktória Kiss

In contrast to the Tisza region, where tell cultures flourished, the same period in Transdanubia did not see the emergence of tell-based cultures. The peasant communities of Transdanubia, engaged in crop cultivation and stock-breeding, occupied their settlements more briefly. They pe-

riodically abandoned their settlements and moved elsewhere after the exhaustion of their fields, drawing new areas under cultivation. Their lifeways differed significantly from the essentially South-East European economies in the eastern half of the Carpathian Basin.

The close of the Early Bronze Age saw the arrival of new, southern population groups to the territory earlier occupied by the Somogyvár–Vinkovci culture. These groups blended with the local population, giving rise to the Kisapostag culture.

Before firing their wares, the potters of the Kisapostag culture decorated them with elaborate patterns using thin wood or bone implements around which they wound a cord; filled with lime, these patterns adorned the neck of urns and cups. The Kisapostag culture occupied all of Transdanubia (with the exception of the western parts of Vas and Zala counties). Their settlements can be found up to the Danube in the north, the Drava in the south, while the western boundary of the Kisapostag distribution is marked by the Rinya, the marshland of the Little Balaton, the Marcal and the Rába in the west, and the Danube and the Sió in the east.

The settlement network of the Kisapostag culture was made up of dispersed, briefly occupied single-layer villages, the typical settlement of the Early Bronze Age. The settlement uncovered at Vörs–Tótok dombja during the rescue excavations preceding the construction of the Little Balaton reservoir differed from the usual type: it was enclosed by a 2.5–3 m deep ditch with a diameter of 50 m (*Fig. 10*). The village could be entered through three smaller, 1.5–2 m wide entrances in the ditch; in the northeast, the waterlogged meadow apparently provided a natural protection since the ditch is “missing” along a 10–12 m long section. The houses of this settlement left no trace in the archaeological record

since the Kisapostag population probably lived in above ground houses that have been destroyed by modern agricultural cultivation and can only be observed under extremely favourable conditions. The debris of these houses was not preserved by other overlying occupation levels as in the case of tells. A comparable enclosure was also uncovered at Balatonmagyaród–Hídvégpuszta. Both sites suggest that the Kisapostag communities sought refuge against hostile attacks in the marshland areas of the Little Balaton. The successive layers observed during the excavation of the ditch suggest that the various household articles were ‘buried’ in the ditch after the abandonment of the Vörs settlement, perhaps as part of a ritual that resembled the intentional torching of the tell settlements in the Tisza region.

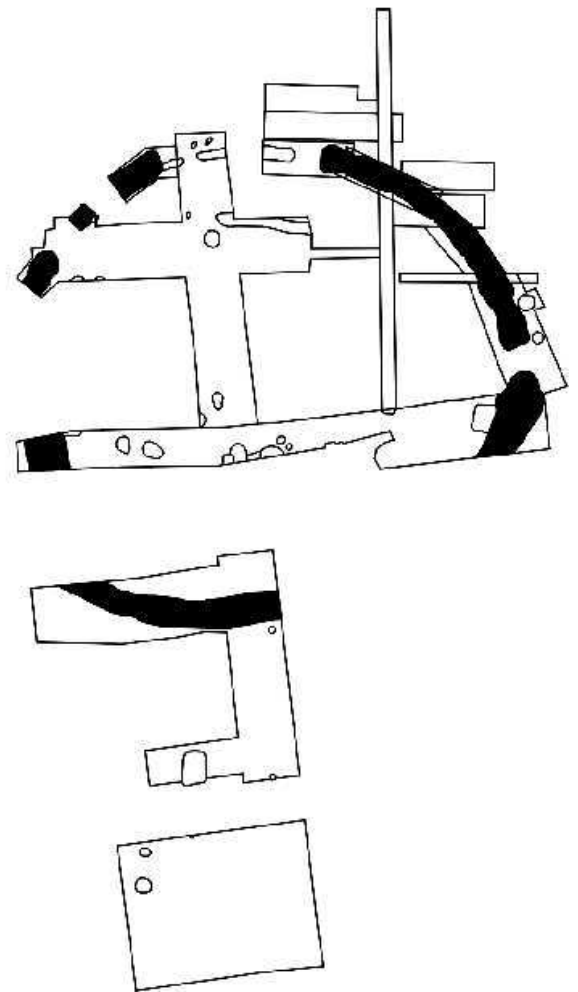
The graves of the Kisapostag culture included both inhumation and cremation burials. In the case of inhumation burials, the deceased were buried in a contracted position laid on their side; they were rarely provided with any grave goods, except for the occasional vessel. Other dead were cremated on a funeral pyre and their ashes were placed into an urn. The reason for this dual rite is unclear since inhumation burials include both graves without any grave goods

and graves with a rich assortment of grave goods. The burial found at Balatonakali, containing two vessels, a gold locking, a bronze arm spiral and heavy bronze weapons can perhaps be interpreted as the grave of one of the community’s leaders.

It is difficult to draw a sharp boundary between the Early and Middle Bronze Age since the layer sequence of certain tells indicates a peaceful and continuous development, although ethnic, economic and historic changes can be noted, as a result of which three major cultural and regional units can be distinguished in the Middle Bronze Age (19th–14th centuries B.C.): the Encrusted Pottery culture of Transdanubia, practicing a Central European economy, the tell cultures of the Tisza region and the Vátya culture – distributed partly in Transdanubia and partly in the Danube–Tisza interfluvium – the latter two both part of the southern cultural *koine*.

The material culture and prosperity of the Bronze Age populations living in this region eclipsed by far that of their Western European neighbours, in part owing to the flourishing economies of these tell cultures and in part to the trade routes passing through the Carpathian Basin.

Fig. 10. Excavated section of the enclosure with a section of the infill levels and plan of the enclosure. Vörs–Tótok dombja



POTTERS IN TRANSDANUBIA

Viktória Kiss

At the commencement of the Middle Bronze Age, the Kisapostag culture underwent a significant transformation; the new archaeological culture succeeding it was labelled Encrusted Pottery culture by Hungarian archaeological research. The culture was named after its elaborately ornamented pottery: the incised patterns, highlighted by white lime, covered almost the entire surface of the jugs, cups and urns. This population occupied most of Transdanubia, its distribution differing only little from its predecessor: in the north it crossed the Danube and its settlements can be found also in southwestern Slovakia, although it was forced to retreat along the eastern shores of Lake Balaton, its eastward expansion checked by the neighbouring Vátya culture. Earlier, only single layer settlements were known; during the construction of the Kaposvár bypass, a 400 m long village was uncovered. The excavation of the site revealed that similarly to the buildings of the tell cultures in the Great Hungarian Plain, the houses in the larger villages were built around a wooden framework with wattle and daub packed between the posts. Other structures in the villages included sunken economic buildings, as well as storage pits and wells.

The lovely encrusted Kisapostag pottery has been recovered from sites lying far beyond the Kisapostag distribution, both east and west of Transdanubia; its occurrence among the finds of contemporary Middle Bronze Age cultures indicates lively trade connections (*Fig. 11*). Intact vessels and pottery fragments decorated with incised patterns encrusted with white lime have been reported from many tell sites in the Tisza region, as well as from sites in the Bihar



Fig. 11. Cup with encrusted ornamentation. Jászdózsa-Kápolnahalom

Mountains and the Transylvanian Ore Mountains; these were probably exchanged for metal ores and finished bronze articles, as well as various commodities made from perishable materials, such as textiles and leather, and perhaps animals. The pottery and bronze ornaments manufactured in Transdanubia were probably exchanged for finished bronze artefacts made in Slovakia, Bohemia and Austria.

BURIALS OF THE ENCRUSTED POTTERY CULTURE

This population was probably made up of smaller family communities; most of the burial grounds contain twenty to



Fig. 12. Vörs-Papkert B, grave LXXXII

FORTIFIED CENTRES ALONG THE DANUBE

Ildikó Poroszlai

The eastward expansion of the Kisapostag population and their interaction with the Nagyrév population resulted in the emergence of the Vátya culture along the Danube at the beginning of the Middle Bronze Age. The mobile Vátya groups expanded their settlement territory dynamically, occupying the previously uninhabited Danube–Tisza interfluvium, the fortified Hatvan settlements along the Tápíó and advanced south along both banks of the Danube.

Their settlements included both single layer and stratified sites, as well as a chain of ‘fortifications’ constructed during the middle phase of the culture that in part protected the settlements and in part controlled the major Danubian fording places. The currently known hillforts were fortified with earthen ramparts and ditches; the settlement layout seems to have been consciously planned on some sites (Lovasberény, Dunaújváros, Alpár). These hillforts also acted as the agricultural and trade centres of a smaller region. Living in an area far from the ore resources, this population owed its prosperity to the fertile loess: agricultural produce and livestock were exchanged for bronze and gold articles. The grave goods from burials reflect the wide range of connections maintained by the Vátya communities: bronze articles were imported from the west (southern Germany and Bohemia), east and south, amber from the north; the import pottery recovered from Vátya

Fig. 14. Storage jar of the Vátya culture. Százhalombatta–Földvár



Fig. 13. Bronze board. Zalasabár

thirty graves and only a few cemeteries with over a hundred burials are known (Ménfőcsanak, Mosonszentmiklós). The deceased were dressed in their finest ornaments and cremated on a funeral pyre, with the ashes and the remains of the pyre placed into the grave. The ashes were either inurned or scattered on the floor of the grave pit; vessels containing food and beverage were set around the ashes (Vörs–Papkert; Fig. 12). Sometimes as many as forty vessels, in some special cases even more were placed into the grave.

The distinctive metalwork of this period, known mainly from hoards (Zalasabár; Fig. 13), suggests some form of social ranking and wealth; the moulds found on some settlements indicate the local production of these bronze articles. The female costume of the Middle Bronze Age in Transdanubia can be reconstructed from the dress ornaments found in these hoards and the female clay statuettes brought to light on sites of related contemporary cultures.

Bird statuettes, bird shaped rattles and a variety of miniature clay objects – some of the latter perhaps toys – can be seen as the reflection of religious beliefs.

sites includes the wares of several contemporaneous cultures in other regions. This reflects the dominant position of the Vátya communities in local and long-distance trade. The most prosperous layer of society was made up by individuals who controlled the trade routes – the hillforts along the Danube were ruled by an aristocracy whose wealth was based on trade. Even so, Vátya society was essentially agrarian in nature, with pastoralism playing at least as important a role as crop cultivation. Compared to the tell cultures of the Great Hungarian Plain, the material culture was considerably plainer and less varied (*Fig. 14*).

The imposing Vátya hillforts caught the attention of archaeological research at a rather early date and a research team was formed for their investigation in the 1960s. Very little is known about their internal layout since the various field surveys and excavations conducted over small areas yielded little information concerning the overall structure and function of a given settlement. A total of thirty fortified settlements have been identified to date: fourteen of these have been excavated, but only the finds from three sites have been fully published (Alpár, Bölcske, Százhalombatta). The core territory of the Vátya culture lay along the right bank of the Danube, where life flourished on the earlier Nagyrév sites (Baracs, Bölcske, Dunaújváros–Kosziderpadlás, Százhalombatta). A number of new hillforts were also constructed during the Vátya period, for example at Mende, Nagykőrös, Alpár and Solymár. These sites usually have a thinner layer sequence and the associated cemeteries are also smaller, suggesting that these villages and hillforts were occupied for a shorter period of time.

Of the major Transdanubian hillforts, Bölcske spans the entire Nagyrév and Vátya sequence with its 6 m thick de-

posits. The finds and the structure of the houses clearly prove the Nagyrév origins of the Vátya culture, as well as the unbroken continuity between the two. Houses were most often built around a framework of wooden posts, they had daub walls, with the clay sometimes plastered over a reed wall, and a stamped clay floor. The changes in the alignment of the houses indicates that the settlement was reorganized around the early and classical Nagyrév transition, although the basic layout of the settlement remained unchanged until the very end of its use-life. The high number of pits is very conspicuous; in the preceding Nagyrév period, the storage and refuse pits, as well as the pits used for other domestic and craft activities were dug outside the settlement nucleus, while in the Vátya period, these pits were dug near the houses and, occasionally, inside them. These large pits, constant features of most Vátya tell settlements, make the excavation of these sites rather difficult. There is hardly an undisturbed house floor and the tracing of the levels above the infilled pits is not a simple task (*Fig. 15*). Agriculture played an important role in the economy (einkorn wheat, emmer wheat, barley, pea, lentil, horsebean), as did stockbreeding (pig, goat, sheep, cattle horse) and fishing. Paint grinding was also an important activity as shown by the paint remains found on grinding stones and cores. The paints included black organic substances, a white substance occurring naturally and red ochre. Ochre was mined locally at the Bölcske site. Local bronze metallurgy is indicated by a mould for a flat chisel recovered from a classical Vátya level, as well as by a number of tuyère fragments and an assortment of wire and sheet ornaments.

The Nagykőrös hillfort stands out among the other similar sites in the Danube–Tisza interfluvium by its unusually



Fig. 15. Middle Bronze Age occupation level. Százhalombatta–Földvár



Fig. 16. Százhalombatta–Földvár. View of the site

large size of over 3 hectares and its rather poor finds. The four occupation levels span the classical Vátya period; the fortification works – an earthen ditch and rampart – were constructed at the end of the settlement's life. The house remains include both single and two roomed structures with daub walls; the imprints of reed mats were observed on the clay floors. It would appear that this large agrarian settlement functioned as a centre for the smaller communities in its environment.

The function of the hillfort at Alpár was to control the central and southern part of the Tisza region. The settlement and the hillfort was separated by an earthen rampart; only the hillfort proper was fortified. The houses in the hillfort and the surrounding settlement had daub walls and clay floors; fireplaces and ovens were found both inside and outside the houses. The large quantities of threshed wheat found in the beehive shaped storage pits indicate that grain was stored inside the settlement.

The Százhalombatta–Földvár site is another well-known Vátya site by the Danube. About one-third of this fortified tell settlement, established on a loess hill, was destroyed by the mining operations of the local brick factory (Fig. 16). The observations made during the excavations revealed that the settlement was founded during the classical Nagyrév period and was abandoned during the Koszider period. A number of bronze hoards and vessel sets were buried towards the end of the settlement's life.

The finds and the stratigraphy of this site have much in common with the hillfort at Bölske. The continuity be-

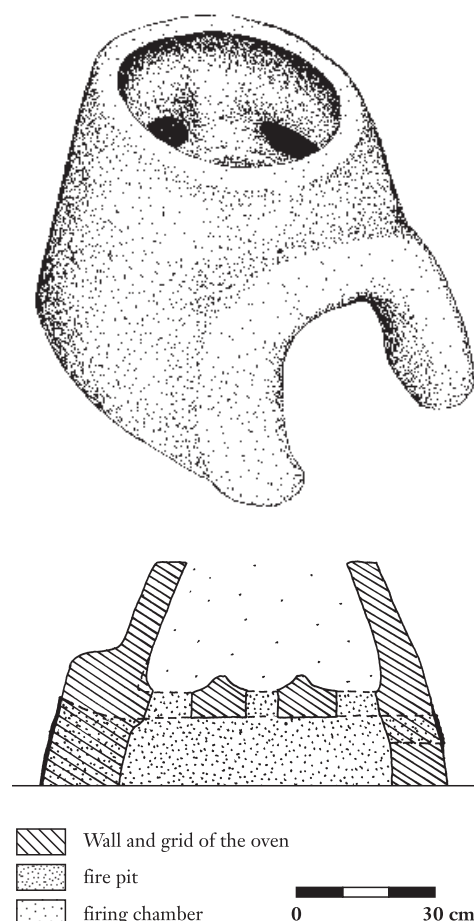
tween the Early Bronze Age Nagyrév culture and the Middle Bronze Age Vátya culture was unbroken, without a thick sterile fill or destruction level between the two. The houses were built over each other, without any significant changes in their structure and construction technique. The multi-roomed houses had rounded corners, daub walls and a clay floor. The Vátya and Koszider levels were characterized by a high number of pits, many of which were used for smoking and grain storage or as refuse pits. One of the pits containing grain also yielded a large vessels with a relief decoration symbolizing femininity that can no doubt be associated with the community's beliefs and a fertility cult. The long peaceful centuries in the life of this community were spent with agriculture, stockbreeding, fishing, bronzeworking and weaving. The number of household and craft implements multiplied during the Vátya and Koszider periods as shown by the strainers, frying pans, spoons, lids, loom weights and a variety of bone and stone implements. The size of the houses and the extent of the hillfort suggest that the settlement had an estimated fifty to seventy houses at any one time in the central village, indicating a population of some four or five hundred people (Figs. 17–18).

The investigation of the central area of the Százhalombatta site was resumed in 1998 as part of a joint Hungarian–Swedish project. The area to be excavated was chosen on the basis of earlier geoarchaeologic soundings in a location where the subsurface probes indicated 6 m thick deposits and an Early Bronze Age fortification ditch. Before beginning the excavation proper, we worked out the sampling



Fig. 17. Clay vessels with unusual decoration. Százhalombatta–Földvár, close of the Middle Bronze Age, Koszider period

Fig. 18. Gridded oven. Százhalombatta–Földvár, Koszider period, layer II



and documentation strategies. The traditional excavation procedures were coupled with the use of a so-called 'total station', an electronic theodolite linked to a computer that in turn was linked to a computerized database, meaning that the data registered during the excavation were immediately entered into the database. The drawings of various features made during the excavation were immediately digitized and presented using GIS modelling. The soil samples were sieved and flotated. This very precise excavation and documentation procedure, combined with various analytical techniques, enables the determination of the function of various buildings, as well as of the activities performed in individual houses. The function of the Vatya pits can perhaps be reconstructed from the sequence of their infilling. Our main objective is to recover as much information as possible about the structure and internal layout of the settlement, its economy, its environment and the social structure of the community. The excavation of the tell was combined with an intensive field survey in the Benta valley and the sondage excavation of smaller sites since we also seek to clarify the interaction between the tell and the smaller settlements in its neighbourhood.

These hillforts were not all abandoned at the same time. Although life came to an end on certain sites already at the



Fig. 19. Dunaújváros–Kosziderpadlás, board III

close of the classical Vátya period (Bölcske, Nagykőrös), their majority was abandoned in the final phase of the Vátya culture, during the so-called Koszider period (Alpár, Solyvár, Százhalombatta). The Koszider period was named after the Dunaújváros–Kosziderpadlás site, where a number of bronze hoards were found in the final occupation level. Since there was no evidence of a violent destruction, it seems likely that these settlements had been abandoned owing to some economic, social and/or climatic change. The occupants buried their valuables (Koszider type bronze hoards, pottery assemblages) because they evidently believed that they would return at some later time to reclaim them (Fig. 19).

DUNAÚJVÁROS–DUNADÚLÓ: BURIALS OF THE VATYA CULTURE Magdolna Vicze

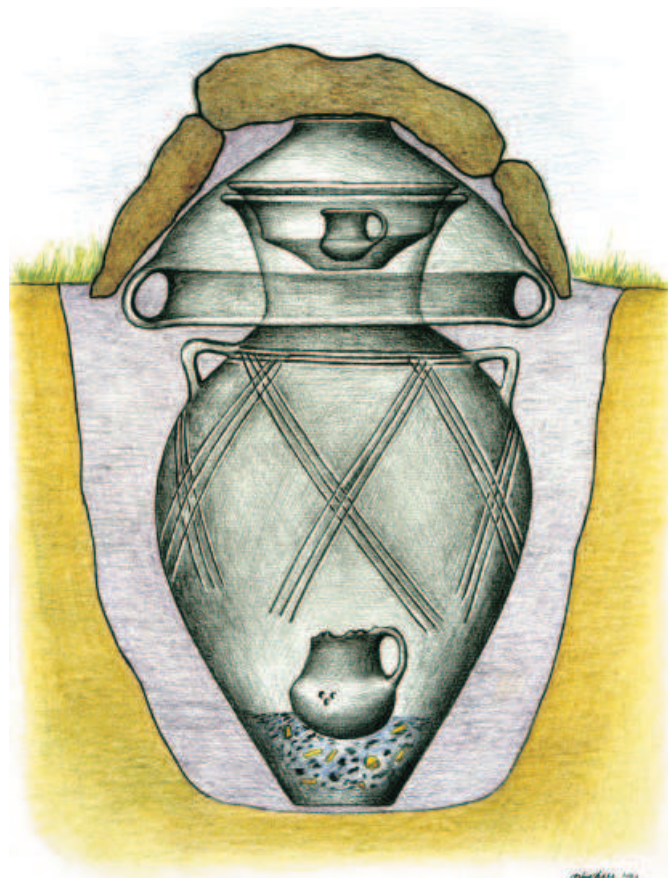
Containing many hundreds of graves, the cemeteries of the Vátya culture reflect the internal development of the culture and are thus suitable for creating a precise internal chronology. At Dunaújváros, for example, the 1600 burials lay in an arc along the western side of the settlement. This arrangement would suggest that the Vátya community took care to ensure that the deceased lie close to settlement, within eyesight of the living. The burials in this cemetery formed distinct clusters. The arrangement of the burials into smaller groups outlining a boat is perhaps a reflection

of an extended family. The growing number of burials also meant that the boat shaped area outlined by the graves too became larger. It seems likely that these areas were the burial grounds of specific social groups. The chronological sequence of the burials in a smaller group corresponded to the overall internal chronology of the cemetery.

Similarly to the Nagyrév and Kisapostag cultures, the Vátya population cremated its dead and placed the ashes into large funerary urns. It could also be observed that the ashes were placed into the urn in an anatomical order, with the leg-bones at the bottom, followed by the bones of the body, with the skull and teeth on top. The remains of rectangular and oval burnt fireplaces found between the grave groups in the cemetery suggest that the deceased were prepared for the funeral rite and cremated in the cemetery. The urn was covered with one or two bowls and a small cup was placed inside or beside the urn (Fig. 20).

The grave goods accompanying the deceased in the early Vátya period often included small suspension vessels that were always ornamented individually. These probably had some special meaning since in many cases the bronze jewellery and dress ornaments were deposited into these vessels. Although only about 5 per cent of the burials were provided with metal at Dunaújváros, these bronze articles showed an unusually great variety. Some weapons and pins were the products of Central European and eastern Alpine metal

Fig. 20. Reconstruction of an urn burial of the Vátya culture



workshops; certain types of bronze pendants, daggers and sheet ornaments reflected eastern and southern metalworking traditions, while amber was imported from the north. The bronze metallurgy of the Vátya culture blended eastern, southern and western metalworking traditions. This is reflected not only by the bronze finds, but also by the pottery from the burials since imports from all the contemporary Bronze Age cultures of the Carpathian Basin occur among them, indicating that the Vátya culture was a cultural complex with rather wide ranging connections.

THE FLORESCENCE OF THE MIDDLE BRONZE AGE IN THE TISZA REGION: THE FÜZESABONY CULTURE

Ildikó Szathmári

The pottery of the communities living in the Tisza region was ornamented with spiral patterns and channelling combined with knobs. These lovely vessels – carefully polished bowls, pots and jugs with sophisticated patterns – reflect the activity of potters who were masters of their craft and had an excellent artistic taste. The same spiral patterns appear on bone tools and implements, weapons and dress ornaments.

Owing to its distribution, the research of this Middle Bronze Age cultural complex, representing a major geographical and cultural unit, is conducted simultaneously in Hungary, Slovakia, Romania and Yugoslavia. The Füzesabony culture appeared in the Middle and Upper Tisza

region and in the Bodrog and Hernád valleys at the beginning of the Middle Bronze Age. After occupying the settlements of the Hatvan culture, the Füzesabony culture also established a number of new settlements.

The eponymous site at Füzesabony–Öregdomb was investigated by Ferenc Tompa who, beginning in 1931, worked here for several successive seasons and uncovered a roughly 1900 m² large area, about one-half of the entire settlement mound. A new control excavation was begun in 1976, directed by Ilona Stanczik of the Hungarian National Museum. Owing to the site's rather bad state of preservation, it was quite difficult to choose a relatively undisturbed area. A 5 m by 10 m large trench and a 51 m long new section offered a wealth of new information about the tell, especially about the lowermost occupation level, and set the findings of Ferenc Tompa into a new perspective. It became clear that the site cannot be assigned to the fortified settlements of the culture and that the 240–260 cm thick deposits accumulated on an open settlement. It also became clear that no other population (Hatvan culture) had occupied the settlement and that the village, with its repeatedly renewed houses, was founded and occupied by a Füzesabony community.

The Füzesabony site was founded during the *floruit* of the culture and its occupants lived there undisturbed until the abandonment of the settlement. The finds from the site suggest that the settlement also functioned as a regional cult centre.

Tompa's excavations offer reliable data for the size of the houses. The simultaneous presence of 4 m by 5–6 m large houses occupied by individual families and of 5 m by 12–14 m large communal buildings has also been observed on

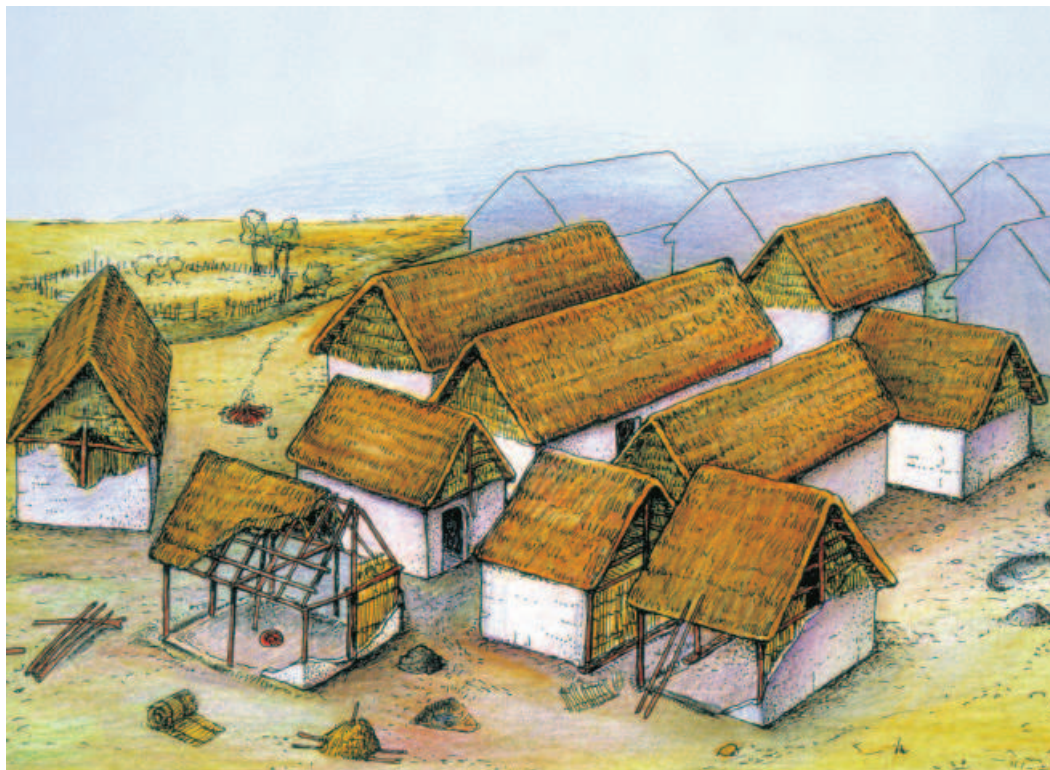


Fig. 21. Reconstruction of a Bronze Age settlement. Füzesabony–Öregdomb

CEMETERIES OF THE FÜZESABONY CULTURE

Marietta Csányi

The Füzesabony culture is perhaps the single archaeological culture whose settlements and cemeteries are equally well known; moreover, the highest number of the currently known Bronze Age burials, some two thousand graves in all, can be assigned to this culture.

The Füzesabony burials are especially important since most of the Bronze Age tell culture populations cremated their dead (Nagyrév, Hatvan and Vátya culture), while the burials of the other cultures are practically unknown (Ottomány and Gyulavarsánd cultures).

The Füzesabony communities buried their dead in smaller clan or family burial grounds lying a few kilometres from the settlement. Three such burial grounds have been uncovered to date: the Mezőtárkány–Kettőshalom cemetery was used in the early phase of the culture, while the one at Pusztaszikszó in the later Füzesabony period. The third cemetery, uncovered at Majoroshalom on the outskirts of Tiszafüred, is of outstanding importance since it spans the entire Füzesabony period. A total of 635 burials were uncovered at this site. This is the single cemetery that could be associated with a settlement that has also been investigated (Tiszafüred–Ásotthalom).

The Füzesabony cemeteries, including the one excavated at Majoroshalom, reflect a strict burial rite. The deceased were laid to rest on their side in a contracted position, with their hands and feet drawn up beside the body, as if they were indeed sleeping an eternal sleep. Men were always laid on their right side, with their head oriented to the south, while women were laid to rest on their left side with their head oriented to the north, ensuring that their face always looked to the east. This strict burial rite was observed even in the case of infants.

A number of smaller grave groups could be observed in the extensive Majoroshalom cemetery: the graves were either aligned in a row or around an imaginary oval area. Each burial was provided with at least one vessel, although some graves contained several. The cups and jugs were usually placed beside the head or the hips, while larger bowls lay by the feet. Implements and weapons were generally placed by the hands of the deceased. Bronze battle-axes, daggers, spears, axes, chisels, awls and stone blades were usually found in front of the face, near the hands. Outstanding among the richly furnished male burials were the graves of warriors, who were equipped with their complete armament (axes and dagger) or with two battle-axes for the journey to the afterworld; the bronze hafting plate of a battle-axe survived in one of the graves (Fig. 23). The metalwork was also lovingly ornamented with finely engraved, flamboyant patterns.

Many of the bronze lumps, the inseparably fused and unidentifiable metal articles recovered from contemporary cremation burials, can be interpreted on the basis of the finds from these Füzesabony graves. One frequent article,



Fig. 22. Bird shaped vessel and rattle

other settlements from this period (Fig. 21). The internal furnishings of these houses usually included round plastered fireplaces, small clay pyramids for heating, footed grills and portable hearths of clay.

The elegant Füzesabony vessels are genuine masterpieces of the potter's craft. These sophisticated, lavishly ornamented vessels with their shiny black polished surface are pleasing even to the modern eye. It seems likely that they were highly valued in the Bronze Age since they were usually kept in a special place or hung on the walls in the houses. The strainers, spoons, vessel lids, pots and frying pans found on tell sites represent the typical household pottery.

The finds from the two uppermost occupation levels of the Füzesabony settlement represent the late phase of the culture. The earlier classical style gave way to more dynamic and flamboyant patterns with plastic surfaces and large pointed knobs.

There is usually little in the way of evidence for metalworking from Bronze Age tells; however, the few conical headed pins, daggers, rimmed chisels, socketed spearheads and, above all, the seven moulds indicate a local bronze metallurgy.

The cult objects from the settlement reflect the beliefs and the creative imagination of the Füzesabony population. The bird symbol occurs in most Bronze Age cultures. The twenty bird depictions found at Füzesabony exceed the number of similar depictions found on any other Bronze Age site. The seventeen intact and fragmented *askoi* were probably used during various rituals; together with the three bird shaped rattles, they were ornamented in the general style of the period (Fig. 22).

The survival of the Hatvan population in the mountainous region and along the Tisza (from the Zagyva to the Körös mouth) is indicated by cremation burials that differ conspicuously from the inhumation graves of the newcomers.

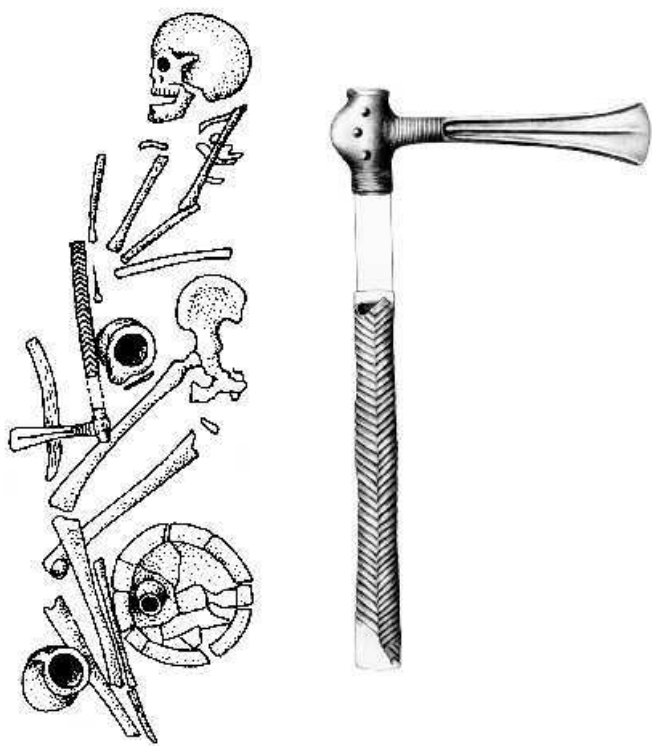


Fig. 23. Excavation drawing of grave B 54 of Tiszafüred-Majoroshalom and its finds

found in both male and female burials, is the plain or ornamented dress fastening pin resembling a large sewing needle. These were usually found by the neck or on the chest, suggesting that they were used for fastening garments. Lockrings, usually made from gold, often lay beside the skull or the shoulders. Women wore necklaces strung of small bronze spiral tubes and larger bronze pendants. The bronze or gold conical and disc shaped plaques with a series of perforations around the edge were used for trimming garments and, judging from their position in the grave, also for ornamenting a headdress, a smaller cap or a veil. A young girl sporting a heavy bronze coil with double spiral terminals on her right ankle no doubt played an important role in the community.

THE MIDDLE BRONZE AGE POPULATION OF THE BERETTYÓ- KÖRÖS REGION: THE GYULAVARSÁND CULTURE

Marietta Csányi & Judit Tárnoki

Related to the Füzesabony culture and bordering it to the east and southeast was the Gyulavarsánd culture. The Gyulavarsánd population occupied the settlements of the preceding Ottomány culture (Gáborján, Békés, Túrkeve, Bakonszeg, etc.) and also established a number of new ones

(e.g. at Berettyóújfalu-Herpály, Szilhalom and Vésztő-Mágor). Their pottery, decorated with elaborate patterns of spiral motifs, knobs and channelling, had much in common with the Füzesabony wares. The running spiral and channelled patterns appearing on the pottery, bone articles, gold discs and bronze weapons reflect southern influences.

TÚRKEVE-TEREHALOM: A TELL SETTLEMENT IN THE BERETTYÓ VALLEY

The southernmost and most imposing tell in the Berettyó valley is Túrkeve-Terehalom, rising above the floodplain on the eastern bank of the Boroszló stream, a tributary of the Berettyó that has since dried out. The north to south oriented oval mound, covering a roughly 100 m by 80 m large area, rises some 6–8 above its environment and is one of the largest undisturbed tell settlements in the Great Hungarian Plain. The 580 cm thick Bronze Age deposits were investigated between 1985–1995.

The Túrkeve-Terehalom site lies in the borderland between the tell cultures of the Middle Tisza region, the

Fig. 24. Section of the Túrkeve-Terehalom tell settlement



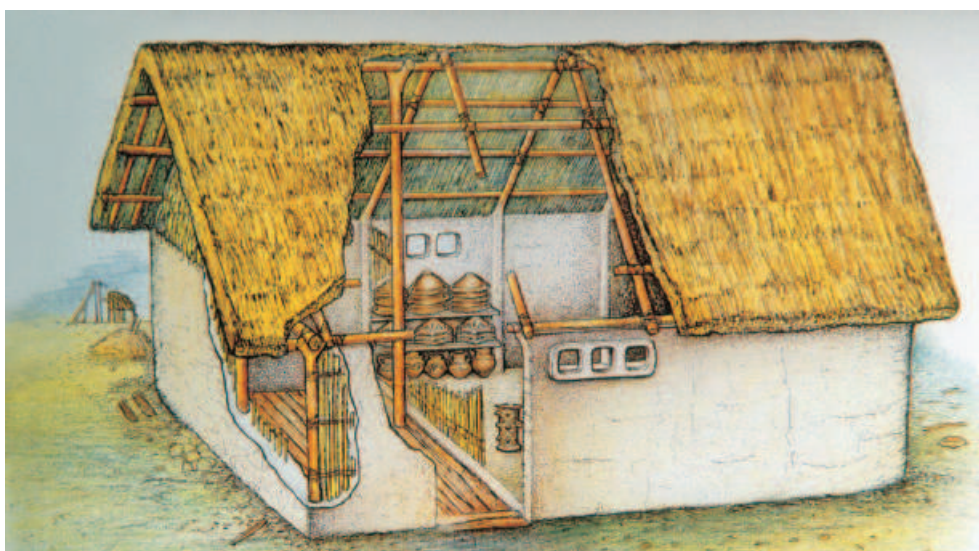


Fig. 25. Remains and reconstruction of a Bronze Age house and a vessel from the floor. Túrkeve–Terehalom, level 2.

Berettyó region and the southern part of the Great Hungarian Plain. The find assemblages from this site indicated that its location in this borderland determined the life of the settlement to a large extent.

The excavation of the settlement was begun by opening a 10 m by 10 m large trench, later enlarged to 10 m by 20 m for the investigation of levels 1–2. Although this area only covers a small section of the site's entire area, it nonetheless yielded a wealth of information about the settlement structure. We may say that a series of genuine “Bronze Age marvels” unfolded before our eyes from the uppermost to the lowermost level, even though we did not find fabulous hoards comparable to Priam's treasure – instead, we found burnt and collapsed buildings, the broken bits and pieces of

a family's tableware, unusual clay structures and the practically undisturbed material relics of a Bronze Age village, preserving the imprints of the day to day life of its inhabitants.

The 6 m thick deposits spanned the period from the Early Bronze Age to the close of the Middle Bronze Age (Fig. 24). Numbered from top to bottom, the uppermost levels (nos 1–2) date to the Koszider period marking the end of the Middle Bronze Age, levels 2/A–3–4–5 to the Middle Bronze Age and levels 6–11 to the Early Bronze Age. The tell was inhabited by a Gyulavarsánd community during the Middle Bronze Age and the Koszider period, and by an Ottomány community during the Early Bronze Age. Even though the various occupation levels followed

each other without a break, the settlement structure underwent major changes during the transition from the Early to the Middle Bronze Age. The change in the settlement structure is reflected in the section of the excavation trench. Of the eleven occupation levels, only the buildings of level 4 were not destroyed by fire. The layout of the settlement in levels 6–11 (Early Bronze Age) shows closely spaced buildings in a chequerboard-like arrangement. The fill between the occupation levels barely amounted to a few centimetres; the house floors were renewed repeatedly and the houses were sometimes also partly reconstructed when their floor was renewed.

The houses all had a northwest to southeast oriented longitudinal axis, most likely conforming to the prevailing wind. These buildings had a beaten clay floor, post-framed walls and gabled roofs. The house walls were sometimes reinforced with additional timbers, especially in the corners, the statically weakest points of these buildings. In many cases planks or additional timbers were laid between the upright posts in the foundation trench of the walls. These foundation trenches could also be observed during the excavation of the Early Bronze Age houses.

Level 2 yielded a very special building of this settlement (Fig. 25). The residential building from this level is one of the most imposing structures of this period, while the ceramic wares reflect a potter's craft developed to perfection. The borderland location of the settlement is best reflected in the finds from this level. Genuine Gyulavarsánd wares occurred together with classical and late Füzesabony vessels and Szőreg pottery in a closed assemblage, with all of them bearing distinctive Koszider traits.

Another interesting building was unearthed in level 4: the collapsed building could be reconstructed from the decayed wood remains that were preserved *in situ*.

A geophysical survey of the site was also prepared in order to gain information about the unexcavated part of the tell settlement. The survey revealed that the settlement had been enclosed by a ditch that was filled with water, depending on the water level. The line of this ditch, outlined also by the lush vegetation contrasting with the rest of the environment, can still be made out in the shallow depression encircling the mound. The finds collected from the surface of the mound and its broader environment, and their comparison with other contemporary sites revealed that the mound was the central, fortified part of a large Bronze Age settlement with an outer settlement surrounding it along the line of the ditch from the north, east and south.

The geophysical survey of the site revealed that a roughly 50 m by 80 m large area of the mound, an estimated 80 per cent of its total territory, was densely built up. The results of the survey were also confirmed by the observations made in the excavated area: the houses were closely spaced in all occupation levels and they were usually renewed over the same spot. The width of the streets rarely exceeded 1–1.5 m. The results of the archaeomagnetic sur-

vey suggest that a similar settlement density can be assumed for the entire area of the central settlement.

The high agglomeration of the 'fort', the strict order of the settlement layout indicated by the excavated area reflects a conscious effort to utilize the available space as best as possible, with the obvious intent that the settlement protected with the ditch and earthen bank be suitable for accommodating as many people as possible. However, it could only fulfil this defensive function if, beside providing a roof over the heads of the occupants, an adequate supply of food was also ensured. Judging from various features, such as hearths, fireplaces, shelves for vessels, and the finds themselves (household vessels, tools and implements, animal bones, etc.), the buildings in the excavated area functioned as residential houses. We did not find any structures that could be interpreted as granaries. The evidence from a house in level 7, in which a 20 cm thick layer of charred grain was found among the house debris, suggests that grain was stored in the loft of the houses, the amount being more or less sufficient to tide the family over in wintertime. The storage of the harvested crops in this manner raises a number of questions concerning crop cultivation. Were the fields cultivated communally, with the crops divided between the families after the harvest – since no remains of communal granaries have been found – or were the fields worked by individual families who then stored the harvested crops in their attic? In the latter case, were there communal reserves? It seems likely that there were larger stocks, at least to ensure the necessary seed-corn stock from year to year. However, we found no traces of such granaries in the rather restricted area of the 'fort', suggesting that together with other economic buildings, these stood somewhere in the outer settlement. Both options suggest a highly organized society that is also reflected in the consciously planned settlement with its regular layout.

TELL SETTLEMENTS IN THE MAROS REGION

Klára P. Fischl

The marshland along the Tisza and the Maros rivers was settled by the Perjámos (or Maros) culture at the close of the Early Bronze Age and during the Middle Bronze Age. The emergence of this culture can be dated to the later phase of the Early Bronze Age and the Nagyrév culture apparently played a role in its formation. The northern boundary of the Perjámos distribution is marked by the burial ground at Mártély and the sites in the Hódmezővásárhely area, the southern one by the southern zone of the Aranka river. In the west, the Perjámos population advanced as far as the Tisza, while in the east as far as Arad in Transylvania.

The Perjámos settlements usually lie on island-like elevations rising above the marshland. Single layer sites can be

found on the chain of smaller ridges (Hódmezővásárhely, Mokrin), indicating briefly occupied villages and a rather mobile population. The archaeological record suggests that the location of the villages, shifted over the same elevation (as at Szőreg), although there is also evidence for the alternation of the settlement and the burial ground (Tiszasziget–Ószentiván). Tell settlements can be found at the Tisza–Maros confluence (Kiszombor, Klárafalva) and in the area where the Maros enters the plainland (Szemplak/Semlac, Pécska/Pecica, Perjámos/Periam).

The stratified settlements at Perjámos and Pécska, dating to the early Perjámos period, were first excavated in the early 20th century using high-standard excavation techniques. The abandonment of these early settlements and the parallel establishment of new ones indicates a major transformation in the life of the culture's population that was also accompanied by the shrinking of the distribution territory, outlined by the chain of Perjámos sites along the Maros at the close of the Middle Bronze Age. The influence of the culture can definitely be demonstrated in the richly decorated pottery of the Koszider period. The Klárafalva–Hajdova site with its 3.5 m thick layer sequence was first excavated by Ferenc Móra in 1931; the investigation of the site was resumed in 1969 by Ottó Trogmayer who separated the successive occupation levels, and in 1987 by John M. O'Shea. The houses of the settlement had wattled walls daubed with clay, their clay floor was periodically renewed. Remains suggesting mortising were also found. On the testimony of the finds, the settlement was established in the later phase of the culture and it flourished during the Koszider period, marking the close of the Middle Bronze Age.

The low number of tells and their concentration in two areas, as well as the fact that there is no evidence for some kind of hierarchy between single layer and stratified settlements suggests that another explanation must be sought for the emergence of tell settlements in this region than in the Great Hungarian Plain. It seems likely that control over the Maros waterway was the main reason that the occupants of the tell sites did not move to another 'island', but remained on the same spot.

The material culture of the Perjámos population, primarily their elaborately ornamented pottery and two-handed jugs, is best known from the inhumation burials in the culture's cemeteries (Deszk A, Deszk F, Ószentiván, Szőreg, Mokrin). Dressed according to their social status (headdress, necklace, belt, armrings, dress fastening pins, tools and weapons), the deceased were laid on their side in a contracted position and provided with food and beverage. Women were usually laid on their right side and oriented south to north, while men were laid on their left side and oriented north to south, ensuring that the face of the deceased always looked to the east. So-called pythos burials, with the deceased placed in a large vessel, also occur in varying frequency in the distribution territory of the Perjámos culture.

THE KOSZIDER PERIOD

Ildikó Poroszlai

The last phase of the Middle Bronze Age, known as the Koszider period, was a period of spectacular technical development. This period shows a colourful mosaic: following the classical period of tell settlements, but before the start of Koszider period proper, some tell settlements were abandoned (Nagykörös, Bölske), some continued to be occupied (Százhalombatta, Tószeg, Dunaújváros, Bárca, Túrkeve), while elsewhere new settlements were founded (Alpár, Buják, Solymár). Although these indicate some sort of change, the traditional historical explanation – the invasion of the Tumulus culture – is contradicted by the fact that there is no destruction layer in uppermost occupation levels of these tells and that the finds of the alleged invaders do not occur on these sites. The reason for the apparent rupture in the previous balance should thus rather be sought in the interplay of economic, social and/or ecologic factors. In spite of a colourful patchwork of regional groups, the Koszider period nonetheless reflects a general tendency towards uniformization in terms of pottery and metal types. The new pottery style is easily recognizable in spite of regional variants, while bronze metallurgy shows a formal and technical uniformity not encountered previously in the Carpathian Basin. The end of the Koszider period also marks the end of the tell cultures and of the Middle Bronze Age (14th century B.C.).

THE ADVENT OF A NEW PERIOD: THE LATE BRONZE AGE IN THE CARPATHIAN BASIN

THE TUMULUS CULTURE: INVADERS
FROM THE WEST
Marietta Csányi

Although the Bronze Age tell settlements of the Carpathian Basin have much in common with their Anatolian and South-East European counterparts, a development leading to urbanization never began: these settlements retained their village-like nature. It is therefore hardly surprising that they were often affected by socio-economic changes and that they were often conquered by new immigrant groups. These tell settlements were abandoned at roughly the same time – although we will probably never know whether the occupants of these settlements fled for their life or simply migrated elsewhere in search of a new livelihood. What can be ascertained from the archaeological record is that at the commencement of the Late Bronze Age, the history of the Carpathian Basin was largely determined by the

new trajectories of contact with the European regions, whose impact could already be felt in the preceding Koszider period. The Carpathian Basin was caught up in the whirlwind of west to east migrations and cultural influences – in the archaeological record these are reflected by artefacts whose best parallels are to be found among contemporary assemblages from Western and Central Europe. Called Tumulus culture after its distinctive burial mode, this new population occupied the entire Carpathian Basin. This culture is known mainly from its burials.

A total of 278 Tumulus culture burials were unearthed at Jánoshida during the excavations between 1974–1979. Similarly to the assemblages from the contemporary extensive burial grounds at Egyek, Tiszafüred, Tápé and Szalka (Slovakia), the finds from Jánoshida differ markedly from those brought to light on Tumulus sites in southern Germany, Austria and Bohemia; together with the regional differences in the burial rite, this suggests that the local Middle Bronze Age populations also played a role in the formation of this culture.

The burials in the Jánoshida cemetery include cremation burials (both inurned and scattered cremation graves) and inhumation burials (with the deceased laid to rest in an extended or contracted position or placed in a pythos). The deceased were deposited in the grave or cremated on the funerary pyre together with their bronze or gold jewellery and weapons. Food was placed into the graves in vessels. The funerary urns were usually covered with a bowl. The inhumation burials were northwest to southeast or southeast to northwest oriented, with the pottery vessels set beside the head, the waist or the feet (*Fig. 26*).

The gold articles deposited in the graves attracted contemporary grave robbers who plundered these burials. The Jánoshida cemetery was systematically robbed: this does not mean that all the graves were plundered without exception, but only the ones that were known to contain valuable articles. The cremation burials were left untouched since the valuables all perished on the pyre. The poorly furnished child burials were also left untouched (only four of the sixty-eight child burials were robbed, one of them apparently at the time of a secondary burial into the same grave), as were the graves of adults with few or no grave goods. The grave robbers knew exactly which burials were worth robbing since they did not even attempt to open graves that did not contain any valuables. The ratio between the plundered and undisturbed graves allows tentative conclusions concerning possible ranking based on wealth in Late Bronze Age society. Fifty of the 143 inhumation burials in the cemetery had been robbed, although discounting ‘incidental’ robbing (in the case of superimposed burials), this number is only forty-one. However, this ratio of 1:3 is misleading since it is most unlikely that child mortality only affected the poorer layer. The same ratio for adult inhumation burials shows that thirty-seven of the seventy-five adult burials had been robbed, indicating that about one-half of the community’s members were in a position to bury their loved

ones with gold articles. It is unclear whether this reflects the genuine ratio of prosperous individuals within the community or simply that inhumation was the preferred burial rite among the wealthier or high-status members of the community, even more so since little is known about the one-time wealth of the individuals who were cremated owing to the burial rite.

What is certain is that the two burial rites co-existed side by side and that their ratio was influenced by the ethnic makeup of the region and, perhaps, by the social structure of the community using the cemetery. Although inhumation was the dominant rite, cremation burials also occur in the original homeland of the Tumulus culture, in Oberpfalz, southern Germany and Austria. It seems likely that the Tumulus population practiced both rites by the time it arrived to Hungary and that the original ratio of the two burial rites was also influenced by the funerary practices of the local population.

Comparing the ratio of inhumation to cremation burials observed at Jánoshida with the data from other burial grounds in the Carpathian Basin, we find that this ratio reflects the extent to which local Middle Bronze Age population groups played a role in the formation of the new culture. The dominance of inhumation in the Tápé cemetery indicates the important role of the preceding Perjámos culture, while the preponderance of scattered cremation burials at Szalka reflects the survival of the traditions of the Encrusted Pottery culture of Tansdanubia. This would suggest that we cannot automatically assume the numerical superiority of the newcomers, in spite of fundamental changes

Fig. 26. Inhumation burial with vessels. Jánoshida–Berek





Fig. 27. Grave 113, with the outline of the grave ditch and the discoloured patch of the robber pit. Jánoshida–Berek

in the material culture and in subsistence patterns – the local population apparently survived the invasion, preserving many earlier traditions, but losing their former influence in shaping the history of this region.

Four burials in the Jánoshida cemetery were encircled by a ditch and the remains of an oval funerary structure were also uncovered (Fig. 27). The deposition of the dead under an artificial mound was a typical mortuary practice of the Tumulus culture over an extensive area, stretching from the Central Danube Basin to southern Germany, Bohemia and Austria. In the Carpathian Basin, however, only a few such tumulus burials are known and this is why the circular grave ditches found at Jánoshida are important. Their significance can be understood in relation to the overall structure of the known tumulus burials in Europe. Most of these tumuli were erected over a circular stone structure, a practice that no doubt reflected a religious belief in an afterlife going back to the early periods of prehistory. The Jánoshida grave ditches can be fitted into this overall picture and they indicate a link with the burial mounds of the Tumulus culture known from other regions. Lying in a region poor in stone, these circular grave ditches can probably be regarded as the local equivalents of the stone rings found under the burial mounds.

The analogies to the rather poor bronze finds from the Jánoshida cemetery, lying far from regions rich in bronze ore deposits and also from the major trade routes, can be quoted from various find assemblages of the Tumulus complex both within and beyond the Carpathian Basin, the only exceptions being the horseshoe shaped pendants that were distributed locally. A glance at the contemporary metal assemblages from southern Germany, Bohemia and Austria reveals that the range of contemporary metalwork was con-

siderably wider, suggesting that only certain types reached the Carpathian Basin during the Tumulus period. The 'leading' bronze types of the period were the disc and convex headed pins, tapering or spiral terminalled armrings decorated with bundles of parallel lines, ribbed armrings of sheet bronze and finger-rings.

The pottery from the cemetery is more varied. Pottery types that were common throughout the Tumulus *koine* represent a small percentage of the vessels, most of which can be traced to earlier local wares. The analysis of the Tumulus culture cemeteries uncovered at Jánoshida and elsewhere suggests that only smaller groups ventured as far as the Great Hungarian Plain. The plainland, a unfamiliar environment compared to the original homeland of the Tumulus population, could not have been particularly attractive. Very few traces of their settlements have survived, no doubt owing to the mobile lifeway of this population. The appearance of the Tumulus population nonetheless marks a turning point in the Late Bronze Age history of eastern Hungary, reflected in the spread of new subsistence and settlement patterns among the local population.

THE EXPANDING WORLD: MASTERS OF BRONZEWORRING IN THE CARPATHIAN BASIN

Gábor V. Szabó

The archaeological heritage of the peoples living in the central area of the Carpathian Basin during the Late Bronze Age reflects the influence of three major European culture provinces. Occupying the territory of the former tell cultures east of the Tisza was the Gáva culture, part of the South-East European cultural complex extending from the Transylvanian Basin to Moldavia and Bukovina, and along the Danube from the Iron Gates to the Pontic. The western part of the Danube–Tisza interfluvium and Transdanubia was settled by regional groups of the Urnfield culture of Western Europe. In the Northern Mountain Range and its foreland we find the Kyjatice culture, representing a fusion of the local Piliny culture, the Lausitz culture distributed in Slovakia and Poland, and of the Urnfield culture of Transdanubia.

The emergence of these three archaeological cultures was closely allied to a process that can be noted throughout Europe, as a result of which increasingly more 'international' traits appeared in the colourful material and spiritual culture of the earlier, more or less regional local communities of the 13th–12th centuries B.C. This marked change cannot be attributed to the immigration of new population groups, but rather to the emergence of an extensive network of interregional contacts and the accompanying 'information flow'. The regular and lively contact between the communities living in different ecologic zones on the continent – and in the Carpathian Basin – was no doubt stimulated by the upswing of bronze production and the use of

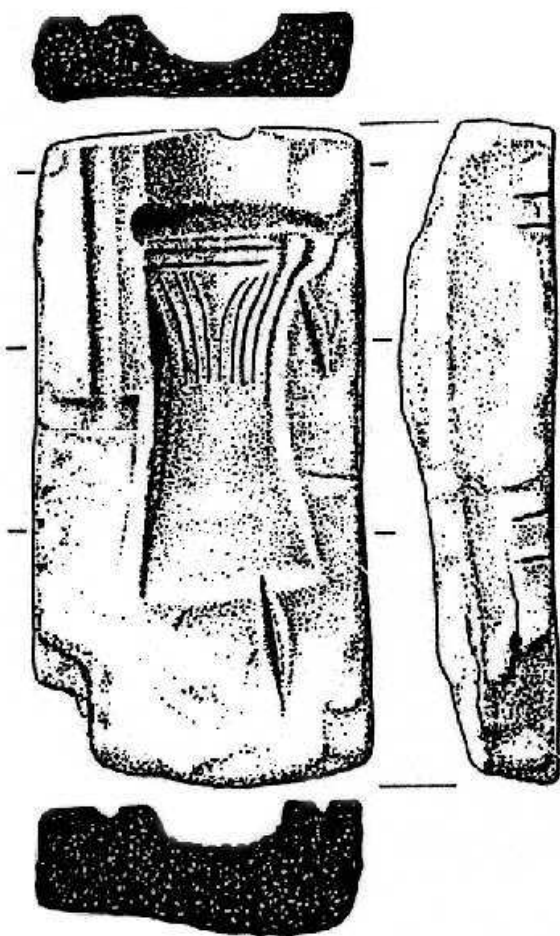


Fig. 28. Mould for a socketed axe. G6r-K6polnadomb, Late Bronze Age, Urnfield culture

metal artefacts, as well as the emergence of metal supply networks.

One eloquent example of the archaeological heritage of this transitional period in Transdanubia is the cemetery excavated by L6szl6 Horv6th at Balatonmagyar6d-H6d-v6gpuszta, investigated during the construction of the Little Balaton reservoir. A settlement ringed by a double ditch and a cemetery with inurned burials, also enclosed by a shallow ditch, was unearthed at the site. The pottery from the four grave groups of the cemetery all included vessels made in the local late Tumulus and early Urnfield tradition.

The same unbroken internal transformation could be observed at a settlement on the outskirts of N6metb6nya that, on the evidence of the radiocarbon samples, existed for some 150 years. The earliest houses yielded Tumulus pottery, while the houses of the later settlement phase contained vessel types of the early Urnfield period.

A similar continuous transition in the Great Hungarian Plain is reflected in the finds from the so-called proto-G6va period, represented by the funerary assemblages from the Csorva cemetery, excavated in the late 1960s, the finds from the T6p6-Kemenesh6t burial ground lying near the

Tumulus cemetery at T6p6 and Polg6r, site 29, a Late Bronze Age settlement investigated as part of the rescue excavations preceding the construction of the M3 motorway, whose clay extraction pits and storage bins yielded pottery bearing both Tumulus traits and the distinctive features of the later G6va culture.

The material and spiritual culture of the Late Bronze Age communities living in the Carpathian Basin shared many cultural traits. The intensive flow of information is reflected in the widespread distribution of metal types and the similarity of vessel forms and their ornamental patterns, made by potters living in regions far from each other.

The use of bronze tools and implements became common at this time. Bronze was no longer used for making prestige items only, but also for producing tools and implements used in day to day life, such as saws, hooks, sickles, socketed axes and awls, that could be acquired by anyone and could be easily manufactured even on smaller settlements, lying far from the major centres, as shown by the moulds for socketed axes and spearheads found at Polg6r, site M-3/1, a settlement of the G6va culture, and the ones for socketed axes, palstaves and arrowheads from G6r-K6polnadomb, a settlement of the Urnfield culture (Fig. 28).

Another major novelty compared to earlier periods is that – perhaps as a result of the widespread use of bronze tools and implements – a number of previously unexploited ecological zones, formerly uninhabited or sparsely populated areas, were colonized beginning with the Late Bronze Age. G6va communities appear in the loess areas with an uncertain water supply lying farther away from major waterways in the Great Hungarian Plain. A similar phenomenon can be noted in the Urnfield distribution, with larger settlements appearing on the sandy hillocks of the Danube-Tisza interfluvium, such as the one dating to the early Urnfield period that was uncovered on the outskirts of Lajosmizse during the construction of the M5 motorway. Five quadrangular houses with daub walls and stamped clay floor were uncovered, as well as a number of pits and a hoard of broken bronze tools hidden in a larger vessel. Urnfield communities also settled in the higher-lying woodland areas of the Bakony Mountains, while a number of Kyjatice groups moved into the mountains and valleys of the Northern Mountain Range, settling in the mountain caves that had remained uninhabited since the B6kk culture of the Neolithic. Many Kyjatice finds have been brought to light from various parts of the Baradla Cave at Aggtelek, where the remains of buildings and burials, as well as a bronze and gold hoard have been found.

The uniformization of beliefs is reflected in the burial mode, with cremation becoming the predominant form of the deposition of the dead. The large cemeteries from this period include the Urnfield burial ground at B6k6smegyer with its 324 graves and the Kyjatice cemetery at Szajla with its 99 graves. Interestingly enough, the single G6va burial ground with 17 cremation graves lay in area that bordered

on the neighbouring Kyjatice distribution (Taktabáj). This conspicuous lack of burials suggests that the Gáva communities followed rather unusual rites for depositing their dead (such as the scattering of the ashes into a river or leaving the body in a sacred grove until it decomposed).

Although the archaeological heritage of the three major Late Bronze Age cultures is fairly well known, considerably less is known about the settlements, the lifeways and the society of these populations.

At the top of the three-tier settlement hierarchy of the Gáva culture were the large villages beside major rivers; these extensive settlements had several houses and economic buildings. A small-scale excavation has been conducted on the one at Poroszló–Aponhát, while another settlement at Baks–Temetőpart was investigated as part of a field survey. A 1–1.2 m thick occupation layer accumulated at the Poroszló–Aponhát site, indicating that the occupants of this settlement pursued a lifeway and a subsistence strategy similar to the Early and Middle Bronze Age tell cultures of the Tisza region. The settlements of the two lower tiers of the Gáva settlement hierarchy, the hamlets, farmsteads and campsites established along the rivers and streams in the Great Hungarian Plain are less known since none have been excavated to date.

The houses uncovered on Gáva sites were built in the same tradition as the earlier Neolithic and Bronze Age houses: measuring 5–6 m by 3 m, they were built around a framework of posts and had walls of wattling daubed with clay. The remains of rimmed fireplaces were usually found on the stamped clay floor, as shown by the house remains uncovered at Doboz and Poroszló–Aponhát.

The efficient agricultural techniques employed by the agriculturalists living in the Great Hungarian Plain is reflected in the sudden increase of large storage jars, coming in a wide variety of forms with varied ornamentation, on most Gáva sites (Fig. 29).

Kyjatice communities settled in the Bükk, Mátra and Börzsöny Mountains. Unfortunately, we know next to nothing about their lifeways, no doubt based on the exploitation of higher-lying areas. Very few zoological and botanical samples offering clues to their subsistence strategies have been analyzed so far. Only four of the over thirty fortified hilltop settlements identified during field surveys have been properly excavated (Bükkszentlászló–Nagysánc, Felsőtárkány–Várhegy, Mátraszentimre–Ágasvár, Szilvásvár–Töröksánc), while rescue excavations over a small surface have been conducted on a dozen other sites.

The settlements protected by a timber framed rampart all lay at a relatively high altitude (between 500–900 m a.s.l.). At some sites, building remains were also identified in the area enclosed by the rampart. At Felsőtárkány–Várhegy, for example, 3 m by 6 m large quadrangular houses with daub walls, a gabled roof and a clay floor with a plastered fireplace were found, while at Mátraszentimre–Ágasvár a log cabin with a floor of planks was found. Various explanations have been proposed for the function of these hillforts,

ranging from protection against enemy attacks to social separation and control over trade routes, but none of these have been confirmed yet.

Although practically all of the fortified Kyjatice settlements have been identified, very few open settlements and smaller hamlets or farmsteads associated with these major centres have been investigated so far. A few settlements protected by a shallow ditch and a palisade or fence of densely set wooden stakes have recently been found at Ludas and Nagyút, among the gently rolling hills in the southern foreland of the Mátra Mountains.

Even though the pottery of the Urnfield culture of Transdanubia was bound with many strands to the Central European Urnfield complex, a number of smaller regional groups can be distinguished on the basis of vessel forms and ornamental style. The most characteristic group appeared in the Bakony region during the early Urnfield period. The communities occupying these uplands areas buried their dead under small burial mounds. These small mounds, each erected over the ashes and the grave goods (vessels and various weapons, such as spearheads and daggers), formed smaller clusters. Often fortified with timber-framed ramparts, the settlement centres were established in the interior of the mountainous region, usually on well defensible peaks and ridges. Smaller hamlets and farmsteads with only a few buildings lay near these larger centres. Gábor Ilon uncovered five buildings of such a smaller settlement and nine burial mounds on the outskirts of Némethánya, all standing on an artificial terrace (Fig. 30). Archaeometric and other analyses revealed that the occupants were primarily engaged in stockbreeding.

Little is known about the internal layout of settlements, even though extensive work has been carried out on a number of sites, such as Velem–Szentvid and Górház over the past three decades. The most fully investigated settlement is the one at Börzsöny–Paphomlók-dűlő, where András Figler uncovered some 160 houses (Fig. 31). The timber framed houses measured 2 m by 3.5 m or 3 m by 6 m; the burnt daub fragments found around these structures revealed that in contrast to the more common wattle and daub, their walls were made of timber posts or thick planks. The settlement was enclosed by a ditch and a fence of wooden

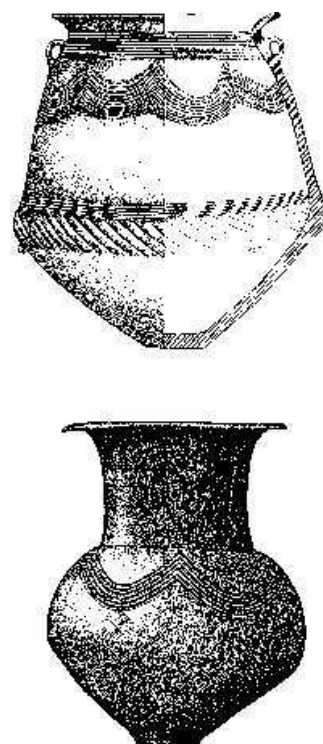


Fig. 29. Vessels of the Gáva culture



Fig. 30a. Late Bronze Age tumulus burials of grave group II. Némethánya–Felsőérdi-dűlő, late Tumulus–early Urnfield culture



Fig. 30b. Tumulus III/4, grave 2, and the east-west section of the tumulus

Fig. 31. Postholes of Late Bronze Age buildings. Börcs–Paphomlok-dűlő

Fig. 32. Late Bronze Age inurned burial from the cemetery. Börcs–Paphomlok-dűlő

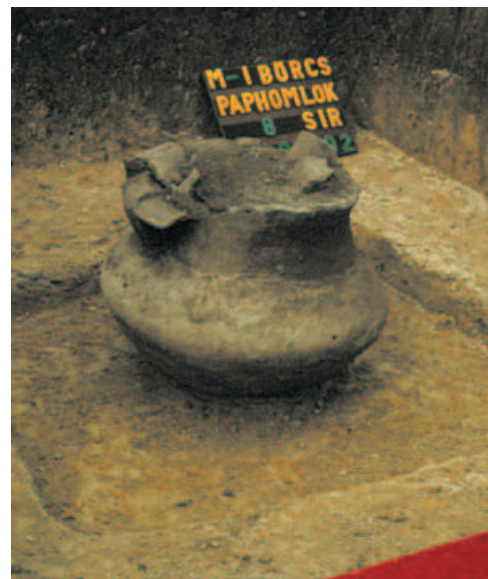




Fig. 33. Scattered cremation burial. Budapest–Békásmegyer, Late Bronze Age, Urnfield culture

stakes. A well lined with wickerwork and fifteen urn burials were found on the edge of the settlement (Fig. 32).

The burial customs of the Urnfield culture can best be studied from the Békásmegyer cemetery, excavated by Rózsa Kalicz-Schreiber. The inurned or scattered cremation burials were furnished with small vessel sets of bowls, cups and storage jars (Fig. 33). The boot shaped ritual vessels and clay amulets perhaps symbolizing the sun and moon deposited in some graves reveal something about the beliefs of this community. Placed beside the ashes of the deceased were the bronze implements used in daily life, such as knives, razors, pins and fibulae; one of the graves also contained an iron knife, indicating a familiarity with this new metal.

BRONZE AGE METALLURGY

Tibor Kemenczei

THE EMERGENCE OF BRONZE AGE METALLURGY

The spectacular advances in metalworking throughout prehistoric Europe began with the discovery that the alloy of copper and tin or antimony produced bronze. The know-how of bronze metallurgy arrived to the Danube–Tisza re-

gion from the northern Pontic and the Balkan peninsula in the mid-3rd millennium B.C. The efficiency of subsistence strategies based on crop cultivation and stockbreeding in both southern Transdanubia and in the Tisza region yielded a surplus that could be exchanged for locally unavailable metal ores. Based on this raw material there emerged a flourishing metallurgy by the beginning of the 2nd millennium B.C.

The volume of gold metallurgy too increased in the bronzeworking centres. Some idea of the volume of the metalwork turned out by the bronze and gold workshops can be gained from the 323 bronze and 32 gold hoards, containing many thousands of metal articles, found in the Danube–Tisza basin. The number of bronze finds recovered from graves also runs into the thousands. On the testimony of the rich inventory of metalwork, Transdanubia and the Tisza region were both major centres of European metallurgy.

Owing to the rich inventory of Bronze Age metalwork from Hungary, a series of articles and books were devoted to the description of the bronze and gold finds from the later 19th century. It is now clear that the beginnings of bronze metallurgy go back to around 2800 B.C. The finds from the copper workshop uncovered at the Vučedol settlement of Zók–Várhegy near Pécs, investigated by István Ecsedy in 1977–78, date to this period. The finds brought to light during the excavations included clay moulds, crucibles, tuyères and the remains of a smelting furnace. The bivalve moulds were used for casting axes and chisels (Fig. 34). The casting techniques reconstructed on the basis of the workshop finds from Zók were employed throughout the Bronze Age.

Cupric sulphide ore, chalcopyrite was processed at the Zók settlement; this ore contains a small amount of arsenic and thus the metal articles produced in the workshops were composed of natural arsenic bronze. In later periods of the Bronze Age, when the turnout of bronze articles was higher, a regular trade network ensured the supply of tin and antimony, the alloys necessary for bronze production. Since there are no copper ore deposits in Transdanubia, the bronze workshops in this region acquired the metal ore from the copper mines in the eastern Alps (Bischofshofen–Mitterberg, Liezen–Schladming) or Upper Hungary (Úrvölgy/SpANIA Dolina, Libetbánya/Lubietova). The sulphide ores (chalcopyrite, fahl ore) mined at these locations were refined at the mines, the metal was then smelted in furnaces and cast into bun, loaf, ring or bar shaped ingots. The pure copper was then transported to the bronze workshops. The alloying of copper with tin or antimony, and the production of the bronze articles was performed in these bronze workshops. Antimony occurs at Szalónak/Schlaining in the Burgenland, as well as in the Börzsöny and Velencei Mountains in Transdanubia, while tin was probably procured from the Bohemian–Moravian Ore Mountains.

Metal was transported to the bronzeworking centres on



Fig. 34. Moulds, crucible and copper axe. Zók-Várhegy, Early Bronze Age

waterways or along them. The Danube, the Drava and their tributaries no doubt acted as major waterways for transportation. The importance of the Kapos river is indicated by the fact that a number of Late Bronze Age hoards have been found in its valley and that Regöly-Földvár, a Late Bronze Age settlement where a number of moulds have been brought to light, also lies by this river.

The hoards found at Fajsz and Dunakömlőd contain the products of early bronze metallurgy in Transdanubia, such as flat chisels and shaft-hole axes. A battle-axe and a dagger blade was recovered from a kurgan burial at Sárrétudvari-Órhalom in the Great Hungarian Plain. The use of copper and bronze shaft-hole axes became widespread in Central Europe during the later 3rd millennium and the early 2nd millennium B.C. Their production on Somogyvár, Makó, Nagyrév and Hatvan settlements is evidenced by a number of moulds found at sites such as Diósd, Domony, Nagyrápád, Szihalom-Földvár, Tószeg-Laposhalom and Túrkeve-Terehalom.

BRONZEWORRING IN THE MIDDLE BRONZE AGE

The gradual spread of bronze metalworking techniques, the regular contact between various population groups at the beginning of the 2nd millennium B.C. resulted in the appearance of new cultures in the Danube-Tisza region. Large villages, occupied over hundreds of years, arose along the Danube and east of the river. These large settlements were also major metalworking centres. In contrast, Transdanubia and the Northern Mountain Range was occupied by communities engaged mainly in stockbreeding with more transient settlements.

Corresponding to the contact networks of the population groups pursuing different subsistence strategies, two major regional units producing different types of metalwork can be distinguished in bronze metallurgy. On the testimony of the grave finds from Battonya, Deszk, Pitvaros and Szőreg, lying in the Maros-Perjámos distri-

bution in the southern part of the Great Hungarian Plain, a style of jewellery adopted from the northern Balkans can be noted in this region: torcs, pins with wired head, wire rings, buttons, spectacle spirals and panpipe shaped pendants of sheet bronze. The Transdanubian bronze workshops procured copper from the eastern Alpine and Slovakian mines and created their own local products. Distinctive types include the short copper daggers of the Bell Beaker culture (e.g. from Budapest-Békésmegyer), as well as bronze racket headed pins, heart shaped pendants of sheet metal, cast lunula pendants, flat sheet pendant ornaments with curled edges, neckrings with rolled terminals and flat chisels. The Ercsi hoard contained many of these ornaments; comparable bronze jewellery was also recovered from the burials in the Kisapostag, Nagyrév and early Vátya cemeteries. The development of local bronze metallurgy is also reflected in the wide range of forms and ornamentations on the products turned out by Transdanubian bronze workshops. These bronze articles included disc and comb shaped pendants, coiled arm-rings, spiral terminalled armrings, spherical and conical headed pins, dagger blades and axes, known from the hoards (Esztergom-Ispitahegy, Korós, Lengyeltóti-Tátárvár, Pusztasárákánytó, Tolnanémedi) and graves (Dunaalmás, Veszprém, Vörs, Zamárdi) of the Encrusted Pottery culture.

The bronze industry of the Tisza region during this period produced spectacular weapons and jewellery. The craftsmen used the raw material imported from Transylvania. The copper and gold deposits in the volcanic ranges of the Ávas, Gutin and Cibles Mountains of northern Transylvania were discovered and mined already during the Bronze Age. A number of Greek bronze and gold metal workshops also imported raw material from these Transylvanian mines. Mycenaean trade relations with the Transylvanian-Danubian region became regular from the second quarter of the 2nd millennium B.C. These trade contacts between the Bronze Age civilization of the Greek mainland and the eastern half of the Carpathian Basin are reflected in the similarities between the spiral decoration on gold finds from the Mycenaean shaft graves and the patterns ornamenting many gold and bronze articles from Transylvania and the Tisza region.

The bronze hoards found at Hajdúsámson, Szeghalom-Károlyderek (Fig. 35), Téglás, Tiszaladány and Apa bear eloquent witness to the technical skills and the creative artistry of the bronzesmiths working in the Tisza region. The delicate spiral patterns on these axes echo Aegean metalwork. These finely crafted articles were not simply everyday weapons, but also insignia of power and rank owing to their high value and uniqueness. The swords produced in the Tisza region were traded over great distances – they have been found as far as Northern Europe, where they were copied by local craftsmen for the local élite.

Beside these hoards, the bronze axes and daggers, as well as the bronze and gold jewellery recovered from the burials



Fig. 35. Bronze axes. Szeghalom–Károlyderék, Middle Bronze Age

of the Maros–Perjámos communities of the Tisza region (e.g. at Herdnádkak, Megyaszó, Tiszafüred–Majoroshalom, Battonya, Deszk, Szőreg) also testify to the prosperity and impressive wealth accumulated by the élite of these communities.

The output of the bronze industry increased significantly in the mid-2nd millennium B.C. and the production of new metal types can also be noted. One of the stimuli to this process may have been the intensification of interrelations between the metalworking centres in the eastern Alps and the Danube–Tisza region that, in turn, can be ascribed to the appearance of the Tumulus culture in Transdanubia. As a result, the fashion of a certain type of weaponry, implements and jewellery spread from southern Germany to the Middle Danube region. A number of hoards have been found in Transdanubia that contain articles of this type, such as the three hoards unearthed at the Middle Bronze Age settlement of Dunaújváros–Kosziderpadlás, the hoard of coiled armrings, bracelets, disc and conical headed pins, openwork heart shaped pendants, rimmed chisels and dagger blades found in a clay pot at Százhalombatta–Földvár (Fig. 36), the daggers, axes and pins from Sárbogárd and Simontornya, as well as the grave assemblages from Iváncsa, Kunszentmiklós, Törtel and Várpalota. These hoards and grave finds reflect the entire range of Vátya–Koszider metalwork in the Danube region.

The workshops in the Tisza region continued to produce ceremonial weapons and insignia of power and rank in this period. A hoard found at Zajta contained three swords ornamented with geometric patterns and a disc butted axe. These ceremonial weapons and insignia were treasured possessions, preserved by successive generations, and very often several centuries elapsed between their manufacture and burial, as shown by the hoards from Téglás and Tiszaladány that contained jewellery and weapons of both the Hajdúsámson and the Koszider metal horizon. The bronze axes and daggers with elaborately ornamented blade deposited in burials (e.g. at Megyaszó and Tiszafüred) indicate that the bronzesmiths of the Füzesabony and Gyulavarsánd communities preserved their individual style for several centuries.

GOLD METALLURGY

Bronze and gold metallurgy developed side by side in the Carpathian Basin. Gold metallurgy flourished not only because of the high technical skills of the bronzesmiths, but also because the Transylvanian mines and the gold panned from rivers provided a constant supply of gold. The first gold jewellery items were manufactured in the Copper Age, in the mid-4th millennium. The earliest gold ornaments of

Fig. 36. Bronze hoard. Százhalombatta–Földvár, Middle Bronze Age



the Early Bronze Age, oval heart shaped lockrings, reached the Great Hungarian Plain from the steppe north of the Pontic. These lockrings remained in vogue during the later centuries of the Bronze Age. Their earliest bronze variants, covered with sheet gold, are known from Sárrétudvari–Órhalom.

These solid oval lockrings were worn for over a millennium in the Tisza region as shown by the finds from various Early and Middle Bronze burials (Battonya, Szőreg, Hernádkak, Tiszafüred–Majoros) and hoards (Jászdózsa–Kápolnahalom, Szelevény).

In the mid-2nd millennium gold lockrings were usually boat shaped and were made from sheet gold. Many of these ornaments have been found in hoards (Baks–Levelény, Kengyel, Tiszasüly, Nagyberki, Uzdborjád/Kölesd) and grave assemblages (Balatonakali, Tiszafüred–Kenderföld). The two gold lockrings found together with bronze articles in the Százhalombatta assemblage illustrate the link between bronze and gold metallurgy.

THE BRONZE INDUSTRY OF THE LATE BRONZE AGE

The superbly crafted individual and unique weapons and jewellery of the Middle Bronze Age were, from the 13th century B.C. on, succeeded by mass-produced bronze articles in the Tisza region. Bronze workshops turned out great quantities of various bronze types, including the tools and implements needed in daily life. This upswing can be explained by a number of local and external factors, one of these being a profound change that can be noted in the Danube–Tisza region during the 14th century B.C. This period saw the cessation of life on most settlements and the abandonment of cemeteries. The dominant cultural complex of the Danubian region in Central Europe, the Tumulus communities occupied Transdanubia and the Danube–Tisza interfluvium, as shown by the bronze jewellery, swords, daggers and axes echoing general Central European forms and ornamentation from the 13th–12th century cemeteries at Keszthely, Bakony-szűcs, Farkasgyepű, Mezőcsát, Tápé, Rákóczi-falva and Tiszafüred. Although a number of changes can be noted in the overall culture and the subsistence patterns of the communities in the Tisza region and the Northern Mountain Range, the finds from the burial grounds of these communities also reflect the survival of certain bronzeworking traditions and beliefs (Piliny, Zagyvapálfalva, Nagybátöny, Hajdúbagos, Berkesz, Csorva). The beginning of the Late Bronze Age is generally correlated with these profound changes.

One major stimulus to the development of bronze metallurgy in the Tisza region was that the metal workshops in this region adopted several artefact types – mainly weapons and implements – from the eastern and western Alpine bronze industry and began their mass production.



Fig. 37. Bronze axes and a spearhead. Ópályi, Late Bronze Age

Another was an increase in the output of Transylvanian ore mining. The strong economic ties between the Tisza region and Transylvania is, from the 12th century B.C. onward, reflected in the great similarity between the pottery, bronze metallurgy and overall culture of the communities living there (Gáva, Reci–Mediaș cultural complex). The skills necessary for bronzeworking, transmitted from generation to generation, the general advances in the technology of metalworking was another major stimulus to the mass production of a wide variety of bronze articles.

A total of 261 bronze and 23 gold hoards dating from the 14th–9th centuries is known from Upper Hungary and the Great Hungarian Plain. The earliest artefacts in these hoards were usually modelled on Middle Bronze Age types. One characteristic product of the Tisza region was the bronze axe that occurs in many hoards: thirty-four such axes were found at Ajak, while fourteen axes were found in association with other bronze articles at Ópályi (Fig. 37). The importance of this weapon in the armament of warriors is shown by the hoard from Rozsály, where gold jewellery was found together with three bronze axes thrust into the ground. Traded as far Lower Austria, Bohemia and northern Germany, these weapons were also valuable prestige items and symbols of power.

The bronze products turned out by the workshops in the Danube–Tisza region were ornamented with patterns recalling the ones used by the bronzesmiths of Northern and Central Europe. These include bird, sun, wheel, star and

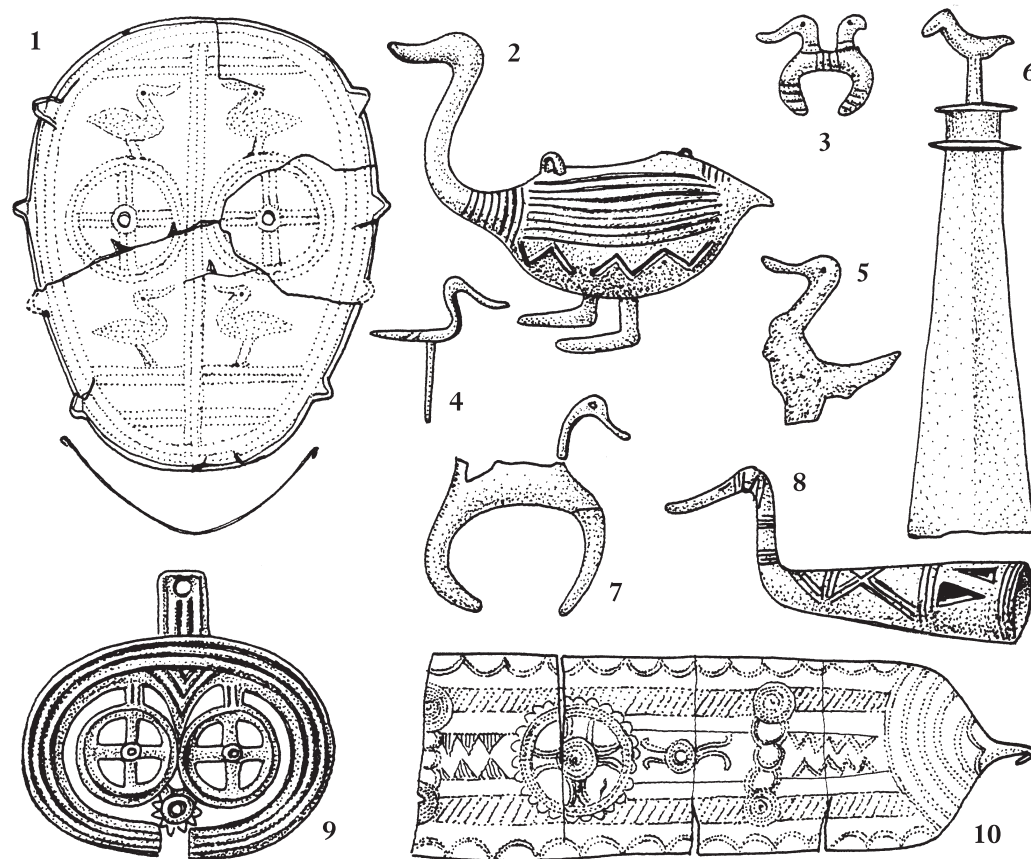


Fig. 38. Bronze articles decorated with bird and wheel motifs.

1. greaves (Rinyaszentkirály),
2. sacrificial vessel (unprovenanced, from Hungary),
3. pendant (Debrecen–Fancsika),
- 4–5. ceremonial objects (Nagydém, Sárazsadány),
6. axe (Pácin IV),
7. pendant (Ópályi),
8. chariot pole terminal (Zsujta),
9. pendant (Kisterenye),
10. belt plate (Vajdácska)

boat motifs, all used to ornament axes, pendants, belt plaques and vessels (Fig. 38), that were also part of the symbols reflecting religious beliefs. These bronze articles also indicate that the depictions expressing the beliefs of the Late Bronze Age communities in Central Europe were in part drawn from the Danube–Tisza region.

Of the many hundreds of bronze articles from the Kyjatice distribution in the Northern Mountain Range and the Gáva distribution in the great Hungarian Plain, special mention must be made of the weapons and vessels. The fine swords from Krasznokvajda (Fig. 39), Recsk and Zsujta date to the 11th century B.C. A total of sixteen swords were found at the first site, seven at the second and eight at the third. Although these swords were fairly common types, used throughout Europe, they were not imports, but manufactured locally in Slovakian workshops.

In the 10th century B.C., the bronze workshops in the Great Hungarian Plain developed various weapon and vessel types that reached as faraway areas as Scandinavia, northern and southern Germany and eastern France. A hoard of magnificent metalwork was brought to light in 1858 at Hajdúböszörmény–Szentgyörgypuszta. According to the finders, they discovered two hel-

met, six vessels and some twenty to thirty swords while digging a pit. Unfortunately, only a few of these finds actually reached museum collections. The two-handled bronze bucket is undoubtedly one of the finest creations of the bronzesmiths of the Tisza region. The vessel shoulder is

decorated with bird head motifs and circles symbolizing the sun, no doubt the visual expression of Bronze Age beliefs (Fig. 40).

West of the Danube, bronzeworking only attained a comparable degree of advancement, allowing the mass-production of various articles, in the 12th century B.C. The Tumulus culture was supplanted by the Urnfield culture, distributed in the entire Upper and Middle Danubian region. Extensive Urnfield cemeteries have been uncovered at Neszmély, Szentendre, Budapest–Békásmegyer, Tököl and Vál. Very few bronze finds, mainly jewellery, have come to light from these graves and thus the overwhelming majority of Late Bronze Age metalwork is known from hoards. The major bronzeworking centres lay in the hillforts protected by artificial terraces and stone or earthen ramparts. Judging from the moulds and bronze finds recovered from various sites, there were bronze workshops active at Pécs–Jakabhegy, Lengyel–Földvár,



Fig. 39. Bronze swords. Krasznokvajda, Late Bronze Age



Fig. 40. Bronze bucket. Hajdúböszörmény, Late Bronze Age

Regöly–Földvár, Celldömölk–Sághegy, Várvölgy–Kis-láz-hegy and Velem–Szentvid. Late Bronze Age settlement finds, stone moulds, bronze implements, jewellery and five hoards were discovered at the Pécs–Jakabhegy site in the interwar period.

The workshop at Sághegy flourished during the 10th–9th century B.C. Its products – various jewellery articles, implements (Fig. 41), bronze vessels, swords, a gold diadem and ornamental discs – appear in the hoards from this period. Metal analyses have revealed that the loaf shaped ingots of pure copper used by the bronzesmiths were procured from the eastern Alpine mines.

The investigation of the settlement at Velem–Szentvid-hegy, one of the major craft centres of the period, was begun in the early 20th century. The excavations brought to light a high number of bronze articles, three bronze hoards and various settlement finds. A gold hoard was also found in 1929. Between 1973–1994, work was continued on the Szentvid-hegy site under the direction of Gábor Bándi and, later, Miklós Szabó. The remains of Late Bronze Age, Early Iron Age and Celtic houses and various other buildings were uncovered at this site. Bronze casting was also practised on smaller sites as shown, for example, by the moulds from Górá (cp. Fig. 28).

The Transdanubian bronze workshops were part of an intricate network that linked the various regional groups of the Urnfield culture in Central Europe. The communication between these communities involved not only the exchange or trade of various commodities, but also contributed to the adoption of technical skills, metalworking procedures and various elements of religious beliefs. This network of contacts explains the widespread use and popularity of similar bronze articles from northern Europe to the Balkans and Italy during the 14th–9th centuries B.C. The Transdanubian bronze industry was part of the eastern Alpine metallurgical province, whose mines provided

a constant supply of copper necessary for alloying and casting. This trade in raw material was well organized: the occupants of smaller settlements gave agricultural products in exchange for the products manufactured in the bronzeworking centres that, in turn, formed part of the commodities exchanged or traded for copper and other metals. Beside the major waterways, the Amber Road was also one of the arteries linking Transdanubia with the neighbouring regions. Passing near Sopron and Velem–Szentvid, this route was named after amber (a fossil resin), transported from the Baltic to northern Italy along the Orava and Morava rivers, through the Moravian gate to the Danube valley and along the eastern periphery of the Alps. The many hundreds of amber beads from various hoards dating to the 12th–11th centuries, such as Kurd, Pötréte and Regöly–Kesziszállás, reached Transdanubia as part of this trade.

The Amber Road was no doubt one of the main arteries of communication along which cultural impacts from the bronzeworking centres of northern Italy reached Transdanubia and inspired local craftsmen. The bird figures and four-spoked wheels appearing on the bronze greaves from Rinyaszentkirály and Nadap echo the ornamental motifs on northern Italian metalwork. It seems likely that the Transdanubian bronze industry was an important intermediary between the south and the northwest and thus partook in the creation of a uniform Central European bronze metallurgy (weapons, jewellery, tools, implements) and its symbolic depictions.

Fig. 41. Bronze axes, sickle, armrings and pins. Celldömölk–Sághegy, Late Bronze Age



LATE BRONZE AGE GOLD METALLURGY

Compared to the high number of bronze finds, relatively few gold articles are known from Transdanubia. The most significant finds are undoubtedly the gold diadem and four ornamental discs found at Velem–Szentvid in 1929. The main decorative motif on these gold finds is the concentric circle representing the sun. Gold vessels and gold discs ornamented with similar motifs are paralleled by finds from regions west of Transdanubia and from northern Europe from the 12th–10th centuries B.C., indicating that as a result of regional interaction, the Bronze Age craftsmen depicted the symbols of the Sun cult, an important element of religious beliefs, in the same manner.

Beside the diadems and discs ornamented in the general European taste (Velem–Szentvid [Fig. 43], Celldömölk–Sághegy, Budapest–Óbuda), the goldsmiths of Transdanubia also created their own distinctive products as shown, for example, by the fourteen neckrings and six discs from the gold hoard found in 1926 in the Late Bronze Age hillfort at Várvolgy–Felsőzsid–Kis-láz-hegy, where five bronze hoards also came to light. It seems quite likely that a gold and bronze workshop was also active at this settlement that still awaits archaeological excavation.

The goldsmiths of the Tisza region crafted jewellery in an entirely different style in the 13th–9th centuries B.C. than the workshops in Transdanubia. Most of these were double spiral disc terminalled armrings and plain rings in various sizes, boat shaped lockrings and oval pendants. One of the outstanding hoards among the depot finds containing such articles (Bodrogkeresztúr, Derecske, Hajdúszoboszló, Nyíracsaád, Ófehértó, Tarpa, Sárazsadány) is the one found at Biharkeresztes in 1932 that contained a spiral disc terminalled armring and five rings (Fig. 42).

The Late Bronze Age gold metallurgy of the Tisza re-



Fig. 42. Gold hoard. Biharkeresztes, Late Bronze Age

gion had a strong economic basis created by the flourishing bronze industry. The gold workshops produced the various jewellery articles in a virtually unchanged form for long centuries. Goldwork in an entirely different style first appeared in the 8th century B.C.

Most of the Bronze Age find assemblages that can rightly be called hoards in view of their one-time value came to light in the late 19th century and early 20th century, usually from deep ploughing and the earth-moving operations during extensive river regulation, when the earth concealing these treasure was first disturbed.

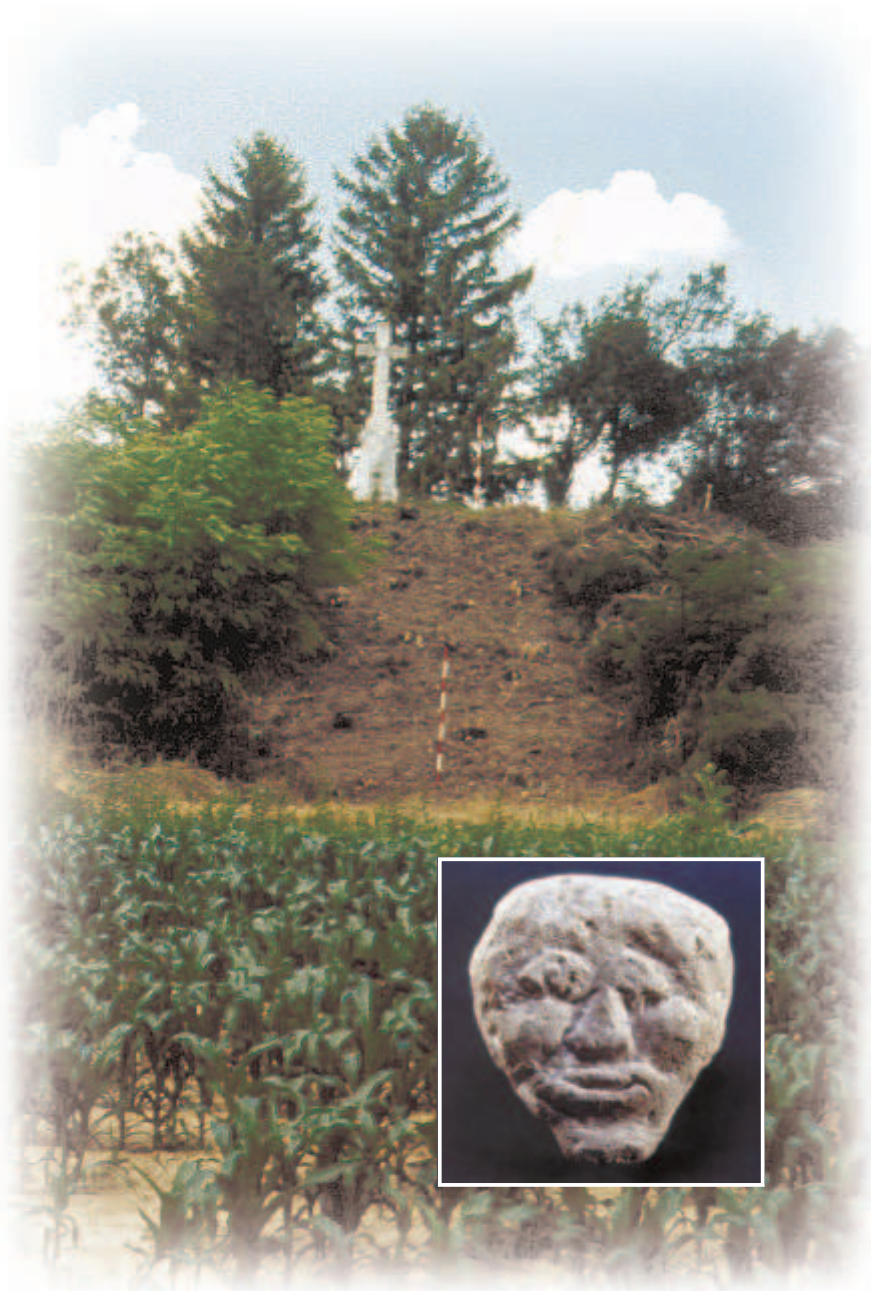


Fig. 43. Gold diadem. Velem–Szentvid, Late Bronze Age

Relatively few hoards have been found during settlement excavations. Some of these can be associated with major metal workshops (Celldömölk–Sághegy, Velem–Szentvid), while others were hidden in the face of some imminent danger (Dunaújváros–Kosziderpadlás, Jászdózsza–Kápolnahalom, Százhalombatta–Földvár, Várvolgy–Kis-láz-hegy, Velem–Szentvid). The overwhelming majority of the currently known hoards were buried in places lying far from the one-time settlements. The reason for their burial or deposition into bogs and marshes can be

sought in the beliefs of Bronze Age man. Both individuals and communities presented these valuable articles as sacrifices or votive gifts to supernatural powers as part of various rituals held in sacred localities. These articles could take the form of both intact and broken jewellery, weapons, implements and vessels, as well as ingots. The custom of sacrificing valuable commodities gradually disappeared from the 8th century on, and the reason for the burial of the few known Iron Age hoards differed from place to place.

VII. THE IRON AGE



**Early and Middle Iron Age
(900/800–450 B.C.)**

Major sites

- Hallstatt culture
- Pre-Scythian period
- Scythian period

Late Iron Age
(450–late 1st century B.C.)

Major sites
● La Tène (Celtic)

THE BEGINNING OF THE IRON AGE: THE PRE-SCYTHIANS

(8th century B.C.)

Tibor Kemenczei

In Europe, iron metallurgy first appeared in ancient Greece, whence it spread to Central Europe, where the use of bronze was gradually supplanted by iron from the early 1st millennium B.C.

Iron ores were mined in two areas in the Carpathian Basin during this period. One lay in western Hungary, in the Alpine foreland and the Somogy Hills, the other in the northern mountainous region, in the Bükk and Mátra Mountains. Owing to the availability of local ore resources, the use of iron became quite common by the 8th century B.C., this being the reason that the commencement of the Iron Age, lasting until the Roman conquest, is usually dated from this period.

In the earlier Iron Age, the areas east and west of the Danube were parts of two separate culture provinces. The eastern variant of the Hallstatt culture was distributed in Transdanubia, while the Great Hungarian Plain and the northern mountainous region was part of the steppean pre-Scythian and, later, the Scythian culture province. The two regions were eventually united under the Celts in the last decades of the 5th century B.C.

At first, the local late Urnfield population of Transdanubia only adopted a few elements of the new culture in the early Hallstatt period. The relation between the two neighbouring cultures is reflected in the pottery finds from the tumulus burials unearthed beside the hillfort at Pécs-Jakabhegy that include vessels made in both the late Urnfield and the eastern Alpine Hallstatt tradition. The communities in southern Transdanubia also maintained close ties with the pre-Scythian population of the Great Hungarian Plain, as shown by a bronze harness set, dagger and iron axe of eastern type recovered from grave 75 of the Pécs-Jakabhegy cemetery.

The 8th century archaeological assemblages from the Great Hungarian Plain differ markedly from the preceding Late Bronze Age finds. Earlier villages were abandoned, the deceased were buried according to new rites and the craftsmen made entirely different artefact types.

Two main find categories, namely grave assemblages and hoards, can be distinguished in the archaeological heritage of the Early Iron Age communities living in the Great Hungarian Plain. Very few settlements are known from this period (Hódmezővásárhely, Kompolt), even though this area of Hungary has been extensively researched, as shown by the settlements from other periods. The reason for the apparent lack of settlements is that the Early Iron Age communities of the Great Hungarian Plain practiced a form of nomadic stockbreeding and their transient settlements left few traces in the archaeological record.

Most of the burial grounds from this period are known from the Mátra and the Bükk piedmont and the southern part of the Great Hungarian Plain. A total of fifty-five graves were uncovered at Mezőcsát, twenty-one at Füzesabony–Kettőshalom, thirteen at Füzesabony–Öregdomb, eight at Sirok and eight at Szeged–Algyő. The finds from these cemeteries and other related assemblages have been labelled the Mezőcsát culture by Hungarian prehistorians.

The Early Iron Age communities of the Great Hungarian Plain buried their dead in small family or clan cemeteries. The dead were laid to rest in an extended or contracted position, with pottery and chunks of cattle and sheep meat placed beside them (*Fig. 1*). Bronze buttons and parts of the costume, as well as antler plaques decorated with geometric patterns were often found in the burials. The wealthier members of the community were buried together with bronze or iron bits, strap distributors (Füzesabony–Öregdomb, Mezőcsát) and iron axes (Doboz).

The bronze and gold hoards from the Early Iron Age,

Fig. 1. Grave 35 of the pre-Scythian cemetery at Mezőcsát

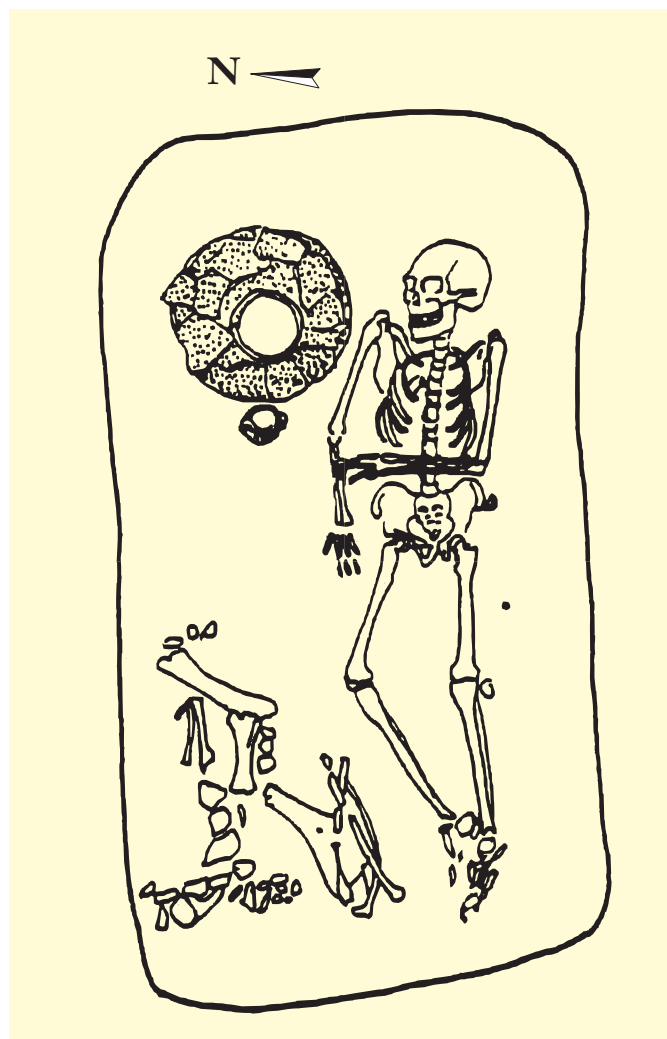




Fig. 2. Bronze bit, strap distributors, mace and dagger sheath from Biharugra

such as the ones found at Biharugra, Fügöd, Prügy, Szanda, Dinnyés, Dunakömlőd, Besenyszög–Fokoru, Budapest–Angyalföld and Pusztagegres, often contained articles that were not the products of the metal workshops of the Tisza region. These artefact types were not developed by local craftsmen since most of them are demonstrably modelled on similar types in the pre-Scythian assemblages of the steppe north of the Pontic.

Prehistorians have since long been aware of the similarities between the Early Iron Age horse harness and weapons from the Carpathian Basin and the steppe. In their study on the pre-Scythian bits from the Carpathian Basin published in 1939, Sándor Gallus and Tibor Horváth noted that these finds were part of the archaeological heritage of an eastern, mounted nomad population. Some prehistorians shared this view, while others believed that these Early Iron Age harness finds reached the Carpathian Basin through trade or as a result of contact between the élites of these two regions.

The Early Iron Age burials from the Great Hungarian Plain provided important new information for settling this controversial issue since the burial rite resembled the mortuary practices of the pre-Scythian period in the steppe. It therefore seems likely that the Mezőcsát communities were not descended from the local Late Bronze Age population, but had arrived to the Great Hungarian Plain from the east.

According to the Greek historian Herodotus (484–425 B.C.), the steppe was inhabited by the Cimmerians, a mounted nomad people, in the 9th–8th centuries B.C.

Some prehistorians have argued that the eastern artefact types and the eastern burial rite of the Early Iron Age in the Danube–Tisza region are proof of the westward migration of a Cimmerian group. However, the Cimmerians were but one of the many groups populating the steppe and thus the identification of this eastern population with a specific steppean people is no more than speculation.

Bronze and iron harness sets and harness ornaments are typical elements of the Early Iron Age hoards from the Danube–Tisza region (such as the one from Biharugra: Fig. 2). The bit type with a mouthpiece of two jointed canons was developed in the metal workshops of the Kuban valley, north of the Caucasus. The bridle ornament decorated with three interlocking bird heads also reflects the artistic spirit of the steppe.

The Early Iron Age weapons – arrowheads (Kunszentmiklós), maces (Biharugra, Prügy), daggers with an iron blade (Mátfa region, Pécs–Jakabhegy), iron axes (Doboz, Pécs–Jakabhegy), spearheads (Dunakömlőd, Pécs–Jakabhegy) and bronze lances (Biharugra, Dunakömlőd, Kakasd) – correspond to the typical equipment of mounted warriors. Each of these weapon types can be traced to an eastern prototype.

On the testimony of the gold hoards, gold metallurgy again flourished during the Early Iron Age in the Danube–Tisza region. The style of this goldwork, however, reflects an

Fig. 3. Gold hoard from Besenyszög–Fokoru



entirely different artistic taste than the ornaments and jewelry of the Late Bronze Age. The diadem of sheet gold and the four ornamental discs of the hoard discovered at Besenyszög–Fokoru in 1877, weighing 2.1 kg, one of the gold cups in the hoard from Budapest–Angyalföld, the winged beads of the Pusztægres–Pusztahatvan hoard are all typical representatives of this new style that exhibits certain traits of Cimmerian art. Other articles in the Besenyszög hoard included fibulae made in the Thracian style of the northern Balkans, as well as armrings and neckrings continuing the local metal-working traditions of the Tisza region (Fig. 3).

Although the Early Iron Age communities of the Great Hungarian Plain occupied a relatively small territory, they nonetheless exerted a considerable influence on the crafts of neighbouring and more distant populations as shown by the countless horse harness finds from late Urnfield and early Hallstatt assemblages in Transdanubia, Austria, Bohemia and southern Germany, as well as the burials of the Villanova–Este culture of northern Italy. These Early Iron Age communities were in command of skills, such as mounted warfare and a developed iron metallurgy, that were new to Central Europe and their spread had a major impact on both economic and cultural development.

THE MIDDLE IRON AGE: SCYTHIANS IN THE TISZA REGION

(7th–5th centuries B.C.)

The mid-7th century marked the beginning of a new period in the territories east of the Danube: the Great Hungarian Plain and the mountain areas. This region became part of the extensive eastern culture province created earlier by the Scythians in the steppe north of the Pontic.

The history of the Scythians is known mainly from the writings of Greek historians. Scythia and the Scythians appeared on the horizon of the Greek world through their contact with the Greek colonies dotting the Pontic littoral

(e.g. Histria, Tyras and Olbia). The names of the peoples inhabiting the steppe are known from Herodotus' writings; his description of their settlement territories would suggest that Transylvania was occupied by the Agathyrsi, while the Tisza region by the Sigynnae. The archaeological record confirms that these areas had indeed been settled by groups with a Scythian culture.

Scythia and the Scythians also played a prominent role in Hungarian historical tradition and in many early theories and ideas about the origins of the ancient Hungarians. The medieval chroniclers of Hungary – Anonymus, Simon de Kéza, Márk Kálty, János Thuróczi and Bonfini – were the first to suggest that the Scythians, the Huns and the Hungarians were one and the same people. These chroniclers ultimately drew from a chronicle written by a certain Regino (d. 915), an abbot in the Prüm monastery, who wove together information from various Greek and Byzantine sources. In these writings, however, the label 'Scythian' was generally applied to any eastern people – Huns, Avars, Hungarians, Cumans – rather than to one specific population group.

The national identity of medieval Hungarian nobility was determined by these chronicles and the belief in an ancestral Scythian homeland and a relation with the Huns. This belief was widely popular in the 19th century, when national Romanticism flourished, and they still colour popular attitudes today.

Since the 19th century, Hungarian archaeologists have published a number of finds that were identified as the heritage of the Scythians. The studies by József Hampel, Nándor Fettich, Márton Roska and Mihály Párducz have shed light on the eastern traits and eastern origins of these finds.

BURIALS

The distribution of finds with a Scythian flavour encompasses the central and northern areas of the Great Hungarian Plain, the Northern Mountain Range and the northern part of the Little Hungarian Plain. Most of the finds were



*Fig. 4. Golden stag from
Mezőkeresztes–Zöldhalompusztá*



Fig. 5. Bronze hydria from Ártánd

recovered from burials. The best known cemeteries from this period are Tápiószéle (455 graves), Csanytelek–Újhalastó (233 graves), Szabadszállás (199 graves), Alsótelekes (183 graves), Orosháza (153 graves) and Szentés–Vekerzug (151 graves). These burials show a colourful variety of burial practices. There were two basic modes of burial: inhumation, with the deceased laid to rest in an extended or a contracted position, and cremation, with the ashes placed in an urn or scattered over the floor of the grave pit. The ratio of these burial modes differed from region to region, depending on whether the community was predominantly of local stock or had an eastern, immigrant ancestry.

The grave goods indicate that the wealthier individuals were buried together with their costume ornaments and weapons. Iron axes, spearheads, knives, daggers, bronze arrowheads, quiver ornaments and whetstones were often placed into male burials and warriors' graves, while women's graves contained gold dress ornaments, bronze or gold lockrings, bronze or iron armrings, pins, glass and amber beads, clay spindle whorls and clay stamp seals. Both male and female burials were provided with clay pots, jugs, bowls and cups. A few burials, no doubt the graves of tribal or clan leaders, were lavishly furnished. The stag shaped golden shield ornaments from Mezőkeresztes–Zöldhalompusztá (Fig. 4) and Tápiószentmárton, the gold jewellery, the bronze Spartan hydria (Fig. 5), the eastern Alpine bronze cauldron, the bronze mail and the iron weapons from Ártánd signal the high status of the deceased.

The graves in these cemeteries lay quite close to each other and there was no grave mound above them. Similarly

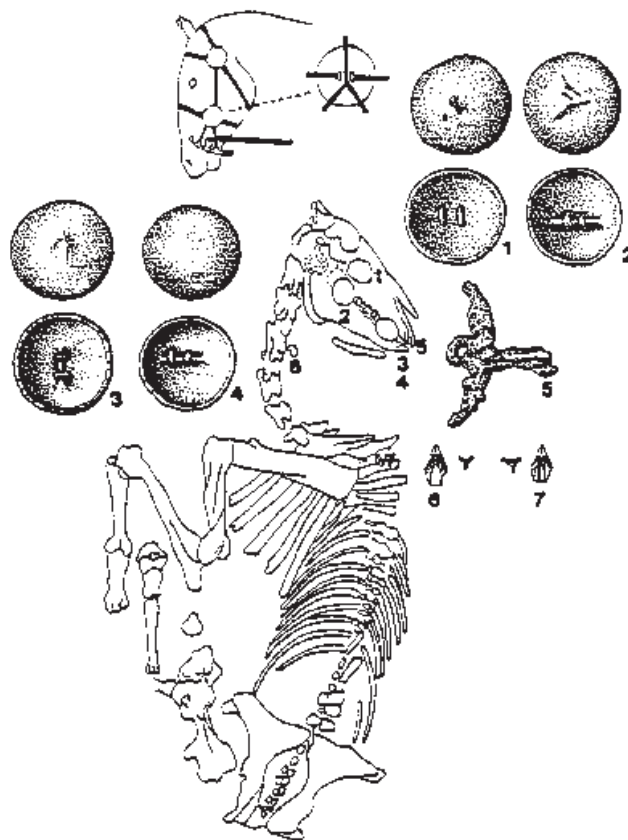
to the steppe region, isolated burial mounds have also been found in the Great Hungarian Plain. The golden stags from Mezőkeresztes–Zöldhalompusztá and Tápiószentmárton were recovered from such kurgans. The wooden burial caskets uncovered at Csanytelek–Újhalastó and the wooden burial chamber containing a rich inventory of grave goods excavated at Cegléd have much in common with the Scythian burials of the steppe.

The burials also shed light on the economy of these communities. The horse burials suggest that horse-breeding played an important role. Fourteen horse burials have been found at Szentés–Vekerzug (Fig. 6), two at Csanytelek–Újhalastó and one at Tápiószéle. The horses were usually buried with their harness; these animals were no doubt the saddle horses of the warriors, buried in a separate section of the cemetery. One of the burials at Szentés–Vekerzug also contained a four-wheeled wagon. The custom of burying horses can again be traced to the east, confirmed also by the fact that the horses belonged to the Asian tarpan species.

SETTLEMENT AND ECONOMY

The settlements and their finds clearly show that the Great Hungarian Plain was settled by communities engaged in agriculture and stockbreeding during the Scythian Age. The excavations at Nyíregyháza–Mandabokor brought to light

Fig. 6. Grave 16, a horse burial, from Szentés–Vekerzug



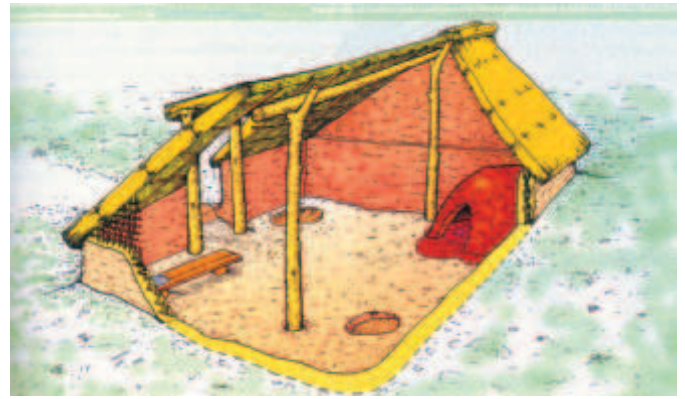


Fig. 7. Excavated remains and reconstruction of a Scythian house. Nyíregyháza–Mandabokor

sunken huts with wattle and daub walls and a thatched roof resting on wooden posts (Fig. 7). Similar buildings have been uncovered at Endrőd and Szolnok–Zagyvart.

Beside crop cultivation, the economy of these communities was based on a highly developed iron metallurgy and horse-breeding. Exploiting the iron ore deposits in the Northern Mountain Range, the workshops turned out weapons and a wide range of tools and implements, catering to the needs of the population of the Great Hungarian Plain.

The trade in iron products and horse allowed these communities to acquire valuable imports, such as the magnificent bronze hydria from Sparta made around 570–560 B.C. found at Ártánd in a princely burial (cp. Fig. 5) and a bronze cauldron, produced in one of the eastern Alpine workshops of the Hallstatt culture.

The various commodities reaching regions east of the Danube include a variety of bronze jewellery and lovely clay vessels. Various products of the metal and pottery workshops in the Great Hungarian Plain were traded from the Balkans to Central Europe. These commodities included iron bits, axes, bronze arrowheads, lockrings, various objects ornamented with animal figures, clay stamp seals and wheel-turned pottery.

Many of the artefact types produced in these workshops originated from the steppe. The Greek wares included the metalwork of the goldsmiths of Olbia, such as the bronze quiver ornaments decorated with animal figures, mirrors and gold jewellery. Many vessel types of Scythian pottery imitated Greek wares and the wheel-turned pottery itself was made using Greek potting techniques.

Trade routes led to the south through the Balkans along the Vardar–Morava valley and along the Lower Danube to the Greek town of Histria. Another route led

through the Upper Tisza region, through the Carpathian passes to the Dniester and thence to Olbia on the Black Sea. An ancient trade route leading along the Danube linked the Great Hungarian Plain with Central Europe and the west.

The workshops in the Great Hungarian Plain and Upper Hungary turned out horse harness, weapons and a variety of artefacts decorated with animal motifs in the Scythian style.

HORSE HARNESS AND WEAPONS

The most important piece of the horse harness was the iron bit with side-bars. Many of these have been recovered from male graves and the associated horse burials (Ártánd, Gyöngyös, Szentés–Vekerzug, Tiszavasvári). This bit type was well suited to controlling and directing horses, this being the reason that the type was adopted by the Thracian and Illyrian tribes of the northern Balkans, as well as by the Hallstatt communities of the eastern Alpine region.

Fine examples of bridle distributors came to light among the finds from grave 16 of Szentés–Vekerzug. The cast bronze discs were covered with gold foil that glittered on the one-time bridle. Ornaments of this type were intended to display the rank and wealth of the mounted warrior.

The most important item of the Scythian warrior's equipment was his bow and arrows. Its significance was also expressed in the burial rite. Many warriors were buried with a quiver and arrows. The highest number of the distinctive Scythian trilateral arrowheads were found at Cegléd and Mátraszele: thirty-five were brought to light at the former site, and twenty-five at the latter.



Fig. 8. Antler hafting plates from Nyíregyháza–Mandabokor

The iron weapons – daggers, axes, spears, lances and knives – include a few handsomely crafted pieces, such as the long dagger, called *akinakes*, the typical weapon of the steppean mounted warriors. Grave 10 at Szentes–Vekerzug and grave 17 at Csárdaszállás yielded short swords whose hilt was covered with an antler plaque carved in the form of an eagle head. Similar antler carvings have been found in one of the pits at the Nyíregyháza–Mandabokor settlement. These finds reflect the spirit of Scythian art (*Fig. 8*).

ANIMAL STYLE ART

Steppean art was dominated by animal figures: deer, rams, panthers, lions, eagles, griffins and horses abound among the ornamental motifs, as do animal combat scenes. The two golden stags of embossed sheet gold represent the most outstanding relics of goldwork in the Scythian style from the Great Hungarian Plain.

A grave assemblage of a golden stag (cp. *Fig. 4*), a gold chain decorated with lion figures, 136 semispherical gold spangles and a gold pendant was found in 1928 on the outskirts of Mezőkeresztes, in an area called Zöldhalompusztá. The excavation conducted at the findspot revealed that these finds had originally been deposited beside the ashes of the deceased under a kurgan burial.

Another golden stag came to light from a burial mound containing a cremation burial excavated at Tápiószentmárton in 1923.

The counterparts of these two golden stags are known from the Scythian princely burials of the steppe. These animal figures were made in the workshops of the Greek colonies dotting the Pontic littoral that also catered to the needs of the Scythian élite. They were shield ornaments, intended to display the power and rank of their owner.

The golden stags were earlier dated to the 5th–4th centuries B.C. However, the discovery of Scythian finds in the same style from Kelermes, a site in the Kuban valley dated to the mid- or later 7th century B.C., suggests the Hungarian pieces can hardly be much later and their date is now usually put in the 6th century.

Fine examples of the Scythian animal style have also been found at Gyöngyös and Nagytarcsa. One of the cremation burials discovered at Gyöngyös in 1907 during vine cultivation contained six bronze rattles, each topped with the figure of a deer. Two similar rattles, ornamented with bull figures, were found at Nagytarcsa in 1964, together with a broken rattle, eight cow-bells and four iron bits (*Fig. 9*).

Several explanations have been proposed for the function of bronze rattles decorated with animal figures, recovered from the steppean kurgans. These range from wagon ornaments to military in-

signia and tent pole ornaments. The ones from Nagytarcsa appear to have been part of the paraphernalia used by a shaman. The rattle was fixed to a wooden handle and the small iron ball inside the openwork rattle gave a clanking sound when shaken. By shaking these rattles, the shaman no doubt created the mystical atmosphere needed for the ritual.

Other relics of Scythian animal art from the Danube–Tisza region include cross shaped quiver ornaments (Buda-jenő, Mátraszele, Mezőlak, Törökszentmiklós), bronze mirrors (Muhi, Piliny, Szécsény), swords (Csárdaszállás, Penc, Szentes–Vekerzug, Veszprém), cheek-pieces (Miskolc–Diósgyőr, Szentes–Vekerzug), bridle distributors (Ártánd, Buj, Sajószentpéter) and lockrings (Csanytelek, Piliny, Tiszavasvári).

The rich assortment of articles decorated with animal figures suggest that the Scythian Age communities of the Great Hungarian Plain and the northern mountainous region did not simply adopt certain elements of the animal style born on the Eurasian steppe, but themselves had a mind-set that inspired this artistic view. These finds also indicate that the craftsmen of the Great Hungarian Plain were fully aware of the symbolic meaning of these animal figures and their use of these figures to ornament various articles was a conscious act.

POTTERY

The Scythian Age communities of the Tisza region can be credited with the dissemination of one of the most important prehistoric innovations in the Carpathian Basin, namely the use of a potter's wheel. Wheel-thrown pottery includes a variety of one-handled jugs, flasks bowls, amphorae, post and urns. The prototypes of these vessel forms can all be traced to the wares produced in the Greek colonies on the Pontic littoral. These vessels and their manufacturing techniques were adopted by the communities with a Scythian culture living in the Middle Dniester region sometime in the later 7th century B.C. The use of the potter's wheel was transmitted to the Carpathian Basin from this region. The high number of wheel-thrown pottery from the 6th century burial grounds in the Great Hungarian Plain indicates that this innovation spread fairly rapidly (*Fig. 10*).

Some of the Scythian period finds show a striking similarity with the grave finds of the 7th–6th century kurgans in the Kuban valley, north of the Caucasus, while others resemble the Scythian finds from the forested steppe of the Dnieper–Dniester region. Russian scholars have convincingly demonstrated



Fig. 9. Bronze rattle from Nagytarcsa

THE EARLY IRON AGE IN TRANSDANUBIA: THE HALLSTATT CULTURE

Erzsébet Jerem



Fig. 10. Wheel-thrown jugs from Tiszavasvári

that by the mid-7th century B.C., the Scythian tribes had extended their rule to the areas west of the Dnieper. This advance eventually also reached the Carpathians and, sometime later, the Danube–Tisza region. The Middle Iron Age population of the Great Hungarian Plain and the Northern Mountain Range was an amalgam of the local population and the newly arrived groups from Scythia. This population created a flourishing economy and craft industry during the 6th century B.C. Their independence came to an end with the Celtic conquests in the late 5th century B.C. The finds from the Celtic period cemeteries and settlements in this region nonetheless suggest that the earlier communities of eastern origin survived, as did many elements of their material and spiritual culture during the centuries of Celtic rule in the Tisza region.

Hallstatt period is the label given to the period between the decline of the Urnfield culture and the arrival of the Celts to the Carpathian Basin, spanning the roughly 350 years between the 8th century and the mid-5th century B.C. In the lack of written sources, the history of this period can only be reconstructed from the archaeological record.

The use of iron artefacts grew conspicuously during the 9th–8th centuries B.C. in Central and South-East Europe. Although the occasional iron article, mostly a piece of jewellery, already appeared during the late Urnfield period, weapons, as well as tools and implements continued to be made from bronze. In the Hallstatt period iron weapons, horse harness and wagon fittings also appear, together with various tools and implements, as a result of the technical advance made in iron metallurgy, reflecting the cultural influence of the urban cultures of the Mediterranean.

NEW RESEARCH RESULTS

The research of the Hallstatt period showed a definite upsurge from the 1970s both in Hungary and in Europe. The finds from a number of earlier excavated cemeteries were published (Vaszar, Somlóvásárhely), several already known sites were re-investigated (Pécs–Jakabhegy, Nagyberki–Szalacska, Regöly, Százhalombatta, Süttő, Tihany–Óvár, Sop-

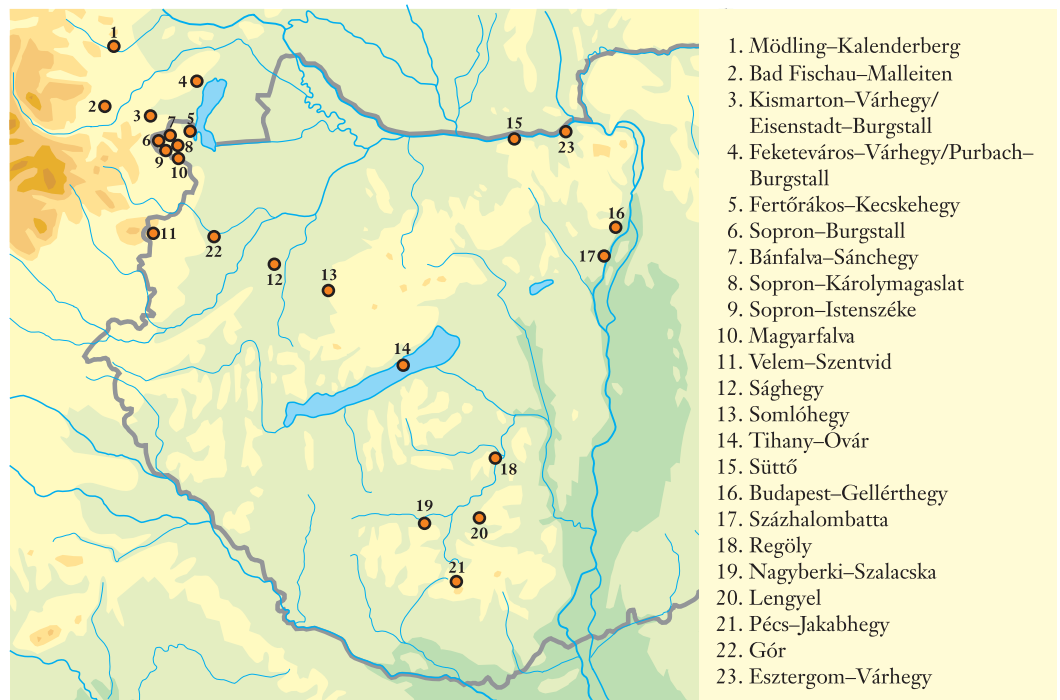


Fig. 11. Fortified settlements of
the Iron Age in Transdanubia



Fig. 12. The Regöly hillfort from the north, with the one-time meanders of the Kapos and Koppány rivers. 1. The rampart, 2. the plateau of the hillfort

ron-Várhely, Velem) together with the excavation of a number of new ones (Fehérvárcsurgó, Vaskeresztes, Sopron-Krautacker, Szentlőrinc). The results of these new investigations were presented at the international conferences held in Veszprém (1984) and Sopron (1994). The two conference volumes and Erzsébet Patek's monograph from 1993 offer a good overview of what we know about the Hallstatt period in Transdanubia. A recent exhibition catalogue presents the most outstanding finds from the 1st millennium B.C.

The upswing in Iron Age studies is indicated by the proliferation of studies on regional groups and their interrelations in Slovakia, Austria and Slovenia and discussions of the finds from the Alpine foreland and the western half of the Carpathian Basin. A new regional and chronological framework for the Pannonian assemblages, based on the study of the relevant finds, is now available.

The earlier chronological framework has also been greatly refined, especially as regards little known and controversial transitional periods, such as the Late Bronze Age–Early Iron Age and the Hallstatt–La Tène transition. Although these transitional periods varied from region to region, there is now a general consensus that there was a continuous, unbroken development between the periods in question.

HILLFORTS AND FORTIFIED SETTLEMENTS

A glance at the Early Iron Age settlements in Transdanubia reveals that the currently known settlements all lie in the uplands and that most are fortified in one way or another; in contrast, plainland settlements are hardly known, especially from the early phase of this period. This can in part be explained by the lack of research on such sites since a series

of extensive flat settlements and their cemeteries, lying at more or less regular distances from each other on river terraces, have been identified and investigated in neighbouring Burgenland and Lower Austria.

The hillforts built along major trade routes or at the intersection of roads and strategically important locations (*Fig. 11*) were protected with a palisade or a ditch and rampart since the Late Bronze Age Urnfield period (*Fig. 12*). These constructions continued in the Hallstatt period, and especially during the later phase of the Late Iron Age, in the 2nd–1st centuries B.C. The construction of outer defenseworks was often coupled with the transformation of the settlement's internal layout (*Fig. 13*). Traces of these rebuildings have been documented during recent excavations, whose main goal was the clarification of the age of these defenseworks (Velem, Sopron–Burgstall, Gőr–Kápolnádomb, Budapest–Gellérthegy).

The construction of these defenseworks suggests that the population was prepared for times of crisis and that these defended sites also acted as places of refuge for the occupants of neighbouring settlements. This latter assumption, however, is at present mere speculation since the exact reason for the construction of these fortified sites and their actual function still need to be clarified in many cases. Although it seems likely that they acted as a central place (*Zentralsiedlung*) controlling a particular region, their nature and function no doubt varied from site to site. The rise of these hillforts and the growth of their importance has more recently been explained by a combination of economic factors and the deterioration of the climate and environmental changes brought on by climatic fluctuations at the close of the Late Bronze Age. This issue cannot be resolved at present since very few of these sites have been extensively investigated; at the same time, the impressive



Fig. 13. Section of the rampart protecting the fortified settlement at Tihany-Óvár

Hallstatt period finds from Velem and Sághegy (Fig. 14) reflect a peaceful industrial activity and an extensive network of contacts with adjacent regions. Social stratification and the desire to acquire valuable commodities, especially prestige articles symbolizing wealth, rank and power, can be demonstrated from the Late Bronze Age on, together with the spread of various customs adopted from the Balkans, central and northern Italy and Slovenia. This is reflected in the burial rites and in the various depictions appearing on vessels, even if the number and quality of Mediterranean imports falls far behind those reaching the western Hallstatt province.

BURIAL MOUNDS AND RELIGIOUS BELIEFS

The roads leading to some of the hillforts, such as the one at Sopron-Burgstall (Fig. 14), Sopron-Warischberg, Somló-hegy, Sághegy, Süttő, Tihany, Százhalombatta, Tátika, Szalacska and Pécs-Jakabhegy are flanked by cemeteries, most of which contain many hundreds of tumulus burials in

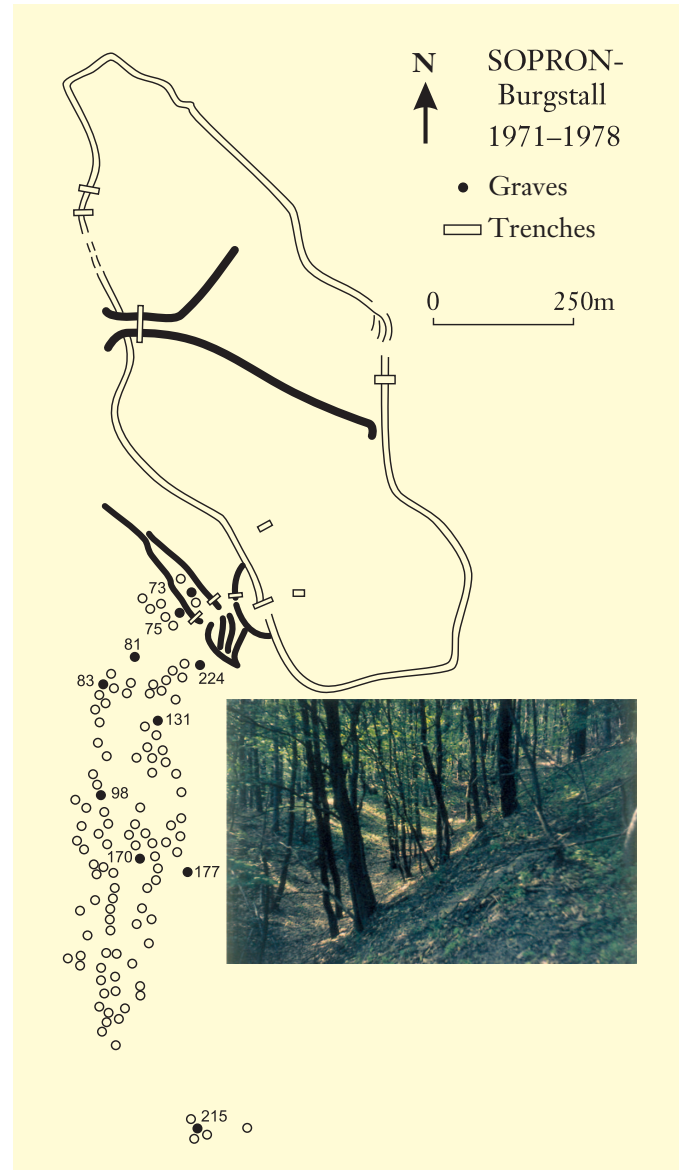
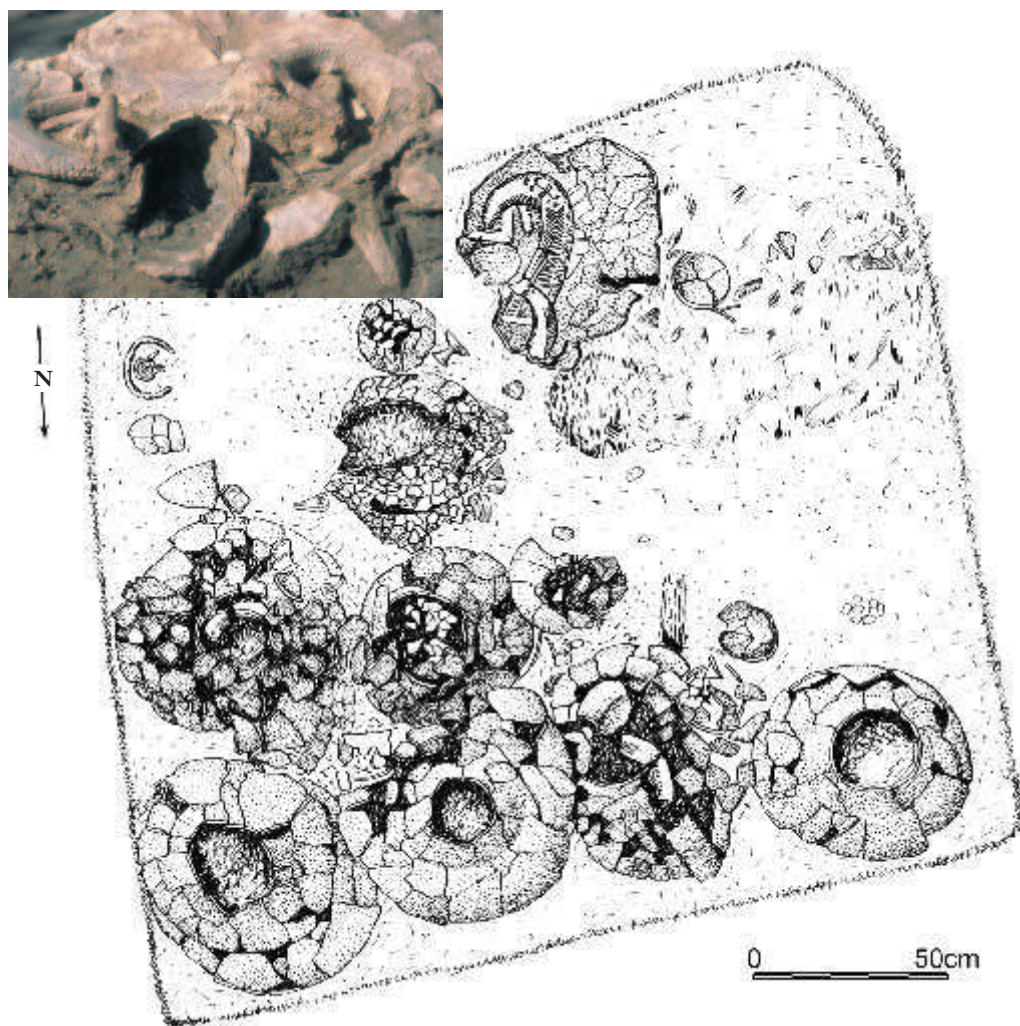


Fig. 14. The hillfort and the tumulus burials at Sopron-Burgstall



Fig. 15. The hillfort at Sághegy, viewed from Mesteri



*Fig. 16. Sopron-Burgstall.
Detail of grave 131 during
clearing and the drawing of the
grave*

which the occupants of these settlements were laid to rest. Even though the number and size of the burial mounds, as well as the funerary rite and the chronology of these burials varies, they do indicate a certain uniformity in the beliefs concerning afterlife (*Fig. 16*).

In the first half of the Early Iron Age (Ha C and early Ha D), the deceased were first cremated on a funeral pyre and the ashes were deposited into the grave. This rite

gradually gave way to inhumation at the close of the Ha D period. A closer look at these burial mounds reveals that their construction, the number and composition of the grave goods in them varied considerably even within a single cemetery. The graves were constructed of stone or wood, or a combination of both, and an earthen mound supported by a ring of stones was then raised over the burial (*Fig. 17*).

Fig. 17. Tumulus burial and the reconstructed grave chamber at Százhalombatta



INURNED BURIALS

Beside tumulus burials, plainland cemeteries with inurned burials were also used in the Hallstatt period. In addition to the urn containing the calcinated bones, these burials also contained a number of smaller vessels and metal articles; in some cases, the ashes were not placed into an urn, but simply scattered over the ground. The urn burials were often covered with large stone slabs or with a stone packing. The pottery and metal finds are similar to the grave goods from tumulus burials, although these burials are conspicuously poorer. It was earlier believed that these inurned burials could be associated with the 'commoners' and that the two different burial rites reflected social differences. The generally favoured explanation today is that these inurned burials are the graves of the surviving Late Bronze Age communities who clung to their traditional mortuary practices.

The biritual cemeteries of the 6th–5th centuries B.C. reflect more stable social conditions, irrespective of the funerary rite. The number of vessels deposited into the graves declined: a bowl, a cup and a flask or a pot (perhaps a drinking set) was the standard pottery assemblage. Beside various costume ornaments and jewellery, the grave goods include weapons in male burials and spindle whorls and knives in female burials. The finds also testify to the lively trade connections of this period. Cemetery analyses allow a number of conclusions concerning beliefs about the afterworld and the society of the one-time communities.

WEAPONS, HORSE-HARNESS, COSTUME: THE FINDS FROM MALE BURIALS

The most important weapon of this period was undoubtedly the lance. Richly equipped burials contained at least two, but sometimes more lances, some of which were provided with a protective cover or a sheath. These weapons were placed into graves until the end of the Hallstatt D period and they have also been recovered from

Fig. 18. Bronze helmet with riveted iron band from Csöngé



Fig. 19. Boar tusk bit from tumulus 114 at Százbalombatta

inhumation burials, although the latter usually contained one specimen only. The other weapon type often placed into graves was the double-edged (winged) axe, known also from various depictions, that served as an insignia of rank and power. Socketed axes also occur quite frequently, but these can be regarded as tools, rather than weapons. Offensive weapons, such as swords and daggers, are extremely rare, and the currently known specimens were without exception stray finds; none have been recovered from excavations. Bronze and iron arrowheads are also rare finds, and they are usually found in later, 6th–5th century burials. The range of defensive weapons is much poorer: a single helmet (*Fig. 18*) and a bronze shield can be assigned here. Male burials usually contained horse harness and, more rarely, wagon fittings. Although the harness sets are often incomplete, the presence of a bit and its fittings, strap distributors and bridle ornaments reflects the importance of horse-breeding in times of both war and peace (*Fig. 19*). The rimmed iron discs, iron hoops and nails from the tumulus burials of Nagybaráti, Somlóvásárhely, Vaszar, Csöngé and Boba were all that remained of the axles and iron tyres of the wagons deposited in these graves. Male costume accessories included bronze and iron pins (such as the so-called *Mehrkopfnadel*), the occasional fibula (iron harp fibulae) and the suspension rings attached to the belt, from which the whetstones and the tanged iron knives were suspended.

FEMALE COSTUME AND JEWELLERY

Female burials yielded a variety of personal jewellery and dress ornaments, as well as the occasional tool. Beads made from glass paste, bronze, iron and clay became quite popular by the Hallstatt C period; amber beads and beads made from precious metals appear at a later date,



Fig. 20. *Velem type fibula from Sopron-Krautacker*

together with ocellus beads. Cowrie shells, believed to possess apotropaic properties and regarded also as symbols of fertility, were sometimes strung among the beads. Neckrings and bronze chains were also found in some female graves, together with a variety of pendants that were worn around the neck.

Most valuable in terms of dating are the fibulae, an important part of female costume during the Hallstatt period. The arc fibulae were followed by a wide variety of boat fibulae. The so-called Golasecca fibula with a ribbed bow, originating from Italy, has been found at fewer sites; its use can be dated to the late 7th and the 6th century B.C. Another rare fibula is a Balkanic arc fibula type of which only six specimens have been found to date. The latest variants of the boat fibulae were succeeded by Certosa fibulae, fashionable from the early 5th century to the mid-4th century or even later.

The Early Iron Age finds from the Sopron-Burgstall settlement and cemetery date to the 6th century B.C. The unusual bronze fibula decorated with an animal figure testifies to the craftsmanship and artistic imagery of the metal workshops in northwestern Transdanubia, as do the Velem type fibulae (Fig. 20) and the animal headed Certosa crossbow fibulae, distributed in the southeastern Alpine Hallstatt province and the northern Alpine periphery. Fibulae of this type have also been recovered from burials and settlements in the Sopron area (Fig. 21).

The so-called astragalus belt of cast bronze links fixed to leather and held together by a buckle also served for fastening garments. There is only scanty evidence for the use of belts ornamented with bronze plaques. The bronze plaques and rosettes provided with small perforations and ornamented with a variety of embossed and other patterns, as well as the bronze and iron spangles and buttons recovered from cremation burials suggest that female costume was lavishly ornamented.

Together with necklaces and neckrings, bracelets were also highly popular pieces of jewellery. Closed and open varieties of bronze

Fig. 21. *Eastern Alpine animal headed Certosa crossbow fibula from Balf*



Fig. 22. *Breast ornament decorated with human figures from Balf*

and iron bracelets occur in girls' and women's graves. Spindle whorls symbolizing weaving, an important activity performed by women, were often placed into the grave. The most attractive specimens of these spindle whorls date from the Hallstatt period. Bronze sceptres have only been found in female burials; together with votive statuettes, these no doubt played a role in various rituals.

The most eloquent example of the centuries long unbroken development is a breast ornament (Fig. 22) whose prototypes are known from central Italy, although the ornamental technique and the depiction itself link it to the metalwork of northern Italy and the Sulm valley. The 5th century B.C. was characterized by lively cultural and trade connections, reflected also in the variety of the finds. This period saw the emergence of a Celtic culture rooted in local traditions, reflected also by the appearance of new settlements and cemeteries from the Bavarian Danube region to Transdanubia.

MASTERPIECES OF THE POTTER'S CRAFT

Nothing has yet been said about pottery, the perhaps most important corpus of finds from the Hallstatt period. This impressive body of finds, with its wide range of forms and

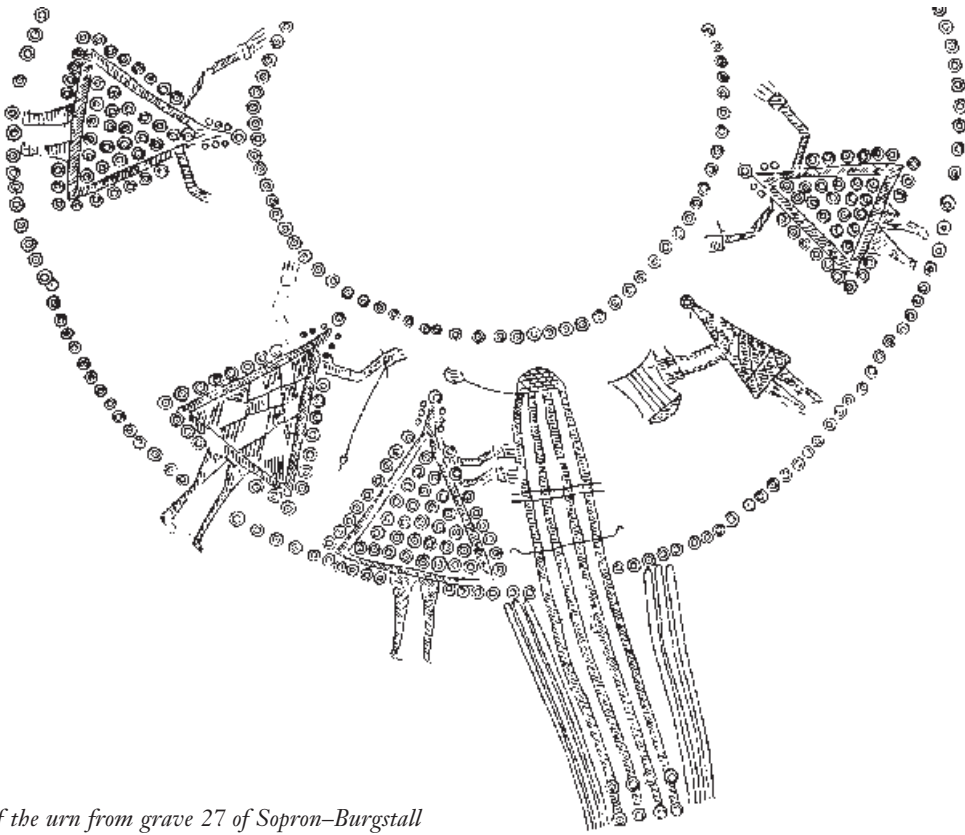


Fig. 23. Decoration of the urn from grave 27 of Sopron–Burgstall

ornamentations, calls for a more detailed overview. The overwhelming majority of the pottery finds comes from burials; this needs to be emphasized since some of the vessels deposited into the graves were made specifically for this purpose (grave pottery). This is reflected in the poor quality of these vessels and the symbolic depictions on them that

can be associated with the funerary cult. Of the vessels found in the burials, only one or two served as urns for the ashes of the deceased. The deposition of vessels into the grave can be associated with the custom of providing the deceased with food and drink. Most of the grave pottery can be regarded as part of drinking sets, made up of larger liquid

Fig. 24. Urn with relief decoration from Süttö



Fig. 25. Decorated urn from a Hallstatt period tumulus at Nagyberki–Szalacska





Fig. 26. Small kantharos shaped vessel from Szentlőrinc

containers, small dippers and various cups. Another part of these vessels – such as wide bowls, urns with plastic animal heads or stylized animal figures, lids, vessels with incised human and animal representations – and the fire-dogs were placed into the burial because of the religious beliefs concerning afterlife.

The Iron Age sites in the Sopron area, especially the Burgstall and the Warischberg sites, owe their renown to the pottery with figural representation recovered during late 19th century excavations. These symbolic depictions, rooted in Late Bronze Age traditions, were enriched with new elements, many of which reflect cultural influences from northern Italy and the eastern Alpine Hallstatt province. Harking back to classical Greek and Etruscan prototypes, the depictions on bronze *situlae* were transplanted in a manner that allows the interpretation of individual motifs and the mythological background of the scenes. The scenes evoking epic narratives, festive processions, sacrifices and offerings presented as part of the funerary ritual, as well as depictions concentrating on a single detail with a symbolic meaning – such as the woman with upheld arms in the classical praying posture, a scene with a horse and wagon, a man or woman playing the harp – can be regarded as expressions of a coherent set of beliefs (Fig. 23).

Dating to the later Hallstatt period (Ha C₂/D₁), these human and animal depictions allow a glimpse both into everyday life and the realm of religious beliefs. The frequent appearance of female figures – perhaps representing goddesses – can perhaps be interpreted as symbols of life, death and fertility. The female figures depicted with a spindle, a loom and scissors or a knife (Sopron–Burgstall, grave 27) evoke the classical goddesses of fate who spin, weave and cut the thread of life.

The *symposiums* were occasions not only for festive meals and meetings, for dining and wining with the ‘gods’ and for presenting animal sacrifices, but also for sport races, music and dancing. The depiction of such scenes recurs regularly on the cultic bronze vessels (*situlae*) containing liquids, but also on the urn from grave 28 of Sopron–Burgstall, accompanied by hunting scenes and the depiction of a wagon.

Although only fragments of the vessel from grave 80

have survived, the presence of the ‘praying’ woman, the horse and the wagon suggests a scene with a meaning resembling the above. The scene with the stylized Tree of Life – resembling a similar painted scene on a vessel from a Slovakian burial – is especially striking since it can be regarded as yet another portrayal of the goddess as the mistress of life and death, as well as a symbol of fertility. The lyre and cithara are both characteristic motifs of the Sopron group of the Hallstatt complex.

The Hallstatt period pottery reflects contact with many different regions. The traditions of the Urnfield culture undoubtedly played an important role in its emergence (Fig. 24). The closest links, however, are visibly with the finds from the cemeteries in western Slovakia, Lower Austria and the Burgenland: the graphitic pottery and the urns decorated with bull heads of the Kalenderberg group. Together with meander and spiral motifs, the bucchero-like ornamentation can be traced to eastern Alpine and northern Italian traditions (Fig. 25). The late Hallstatt D period saw the adoption of new vessel forms and decorative motifs, as well as the increasing cultural influence of the Drava–Sava region in the south (Fig. 26); another new element is a demonstrable similarity with finds from northwest Bohemia and Slovakia, indicating yet another direction of cultural contact.

RURAL SETTLEMENTS

Lifeways and mortuary practices can best be reconstructed from the evidence gained from the excavation of settlements. Although our knowledge of settlements remains extremely scanty, it is clear that the Hallstatt period population lived in timber framed, sunken huts with wattle and daub walls. Many of these houses had smaller benches and pits inside them, with the fireplace positioned in one of the corners or in the centre. Storage bins and other pits lay directly beside these houses. In addition to pottery sherds and animal bones, the fill of the sunken part of these houses usually contained loom weights and spindle whorls, suggesting that spinning and weaving were everyday activities. Very few agricultural implements have been found; the few bone artefacts indicate that the appearance of iron tools did not automatically replace the wooden, bone and stone ones. Iron knives no doubt played an important role in food preparation since they are often found near fireplaces. The high number of domestic animal remains indicate that stockbreeding played at least as important a role as crop cultivation.

The Sopron settlement had smaller timber framed, sunken huts with wattle and daub walls in the 6th–5th centuries B.C. The entrance to the houses usually lay on the southeastern side, protected from the wind. Cereals, fruit and meat were stored in large beehive shaped pits or in large storage jars placed into cellar-like roofed structures. Various tools and implements, as well as costume orna-

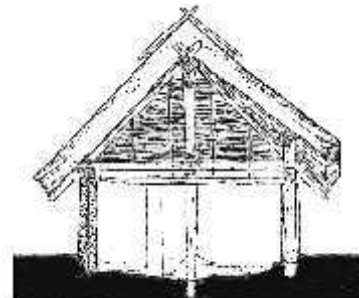
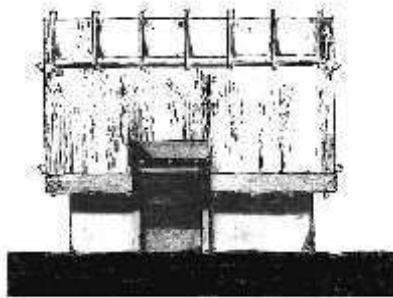
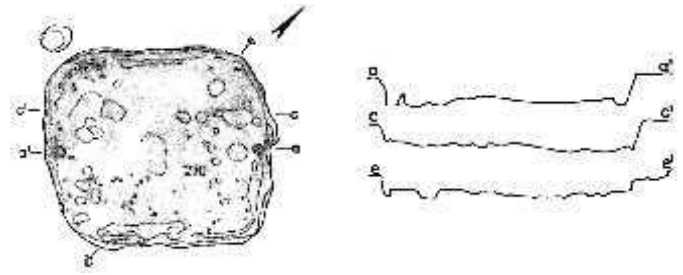
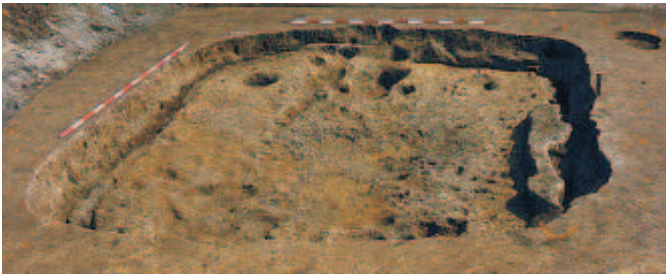


Fig. 27. Excavation and reconstruction of an Iron Age house. Sopron–Krautacker, house 270

ments and the occasional lost jewellery was found together with pottery and animal bones in the houses and the pits. A comparison of the beads, dress fastening pins, bracelets and anklets from settlements and burials often enables a more precise dating. Articles made of organic materials, such as wood, leather and textile, and the interior furnishing of houses only survive under exceptional conditions. The spindle whorls and loom weights found in the houses indicate that spinning and weaving were daily activities at the Sopron settlement (Fig. 27).

CRAFTS AND INDUSTRY

Pottery manufacture visibly attained a high level of craftsmanship, and in spite of firing at a relatively low temperature, the potters created magnificent wares, characterized by a wide range of forms and sophisticated decoration. The use of stamps to decorate pottery can be noted from the very beginning of the Hallstatt period; the incised

and stamped patterns were often filled and enhanced with a light paste. The use of graphite for ornamenting pottery, initially as a variant of painting and, later, by mixing it into the clay (to ensure heat retention) also sheds light on trade relations. Metalworking is indicated by moulds and semi-finished products, found for example at Velem, Sághegy and Keszthely–Apátdomb, although it seems likely that metalsmiths were also active on smaller settlements. Iron articles were probably produced in various Transdanubian workshops since the weapons and horse harness finds show a rather uniform picture both as regards their types and their technical standard. Jewellery and other metalwork include various imports, as well as pieces that were clearly modelled on foreign prototypes. The distribution of certain artefact types can only be explained through trade relations. This trade was conducted along more or less permanent trade routes, outlined by the finds themselves and the sites on which they were found; most of these roads are known from the description of various classical authors.

THE LATE IRON AGE: THE CELTS OF THE LA TÈNE PERIOD

Erzsébet Jerem

NEW ADVANCES IN THE RESEARCH OF THE CELTS

The international Celtic conference and the accompanying exhibition organized at Székesfehérvár in 1974 represented an important milestone in Celtic studies that showed an impressive revival after World War 2. Not only did the most important finds from the Carpathian Basin finally come to the notice of international scholarship, but a new generation of Hungarian researchers of the Celtic period joined the mainstream of European research. Combined with modern analytical procedures, the stylistic and technological study of distinctive Celtic find types, such as swords, stamped and relief ornamented pottery, as well as pseudo-filigree jewellery, most certainly contributed to a re-assessment of earlier findings in this field. A number of trade and cultural contacts were set in a new perspective, together with the nature and chronology of cultural influences from the classical world. The research of the transition between the Early and the Late Iron Age in the 6th–5th centuries B.C. too received a new impetus and resulted in the identification of the earliest La Tène A assemblages in northwestern Transdanubia and along the Danube. Many aspects of the Romanization of Pannonia were also clarified, as were problems of the survival of the native Celtic population into the Roman Age. The various tribes forming separate political and administrative entities retained their independence until the Flavian age or even longer in the interior of the province. The research of Celtic settlement patterns gained a new impetus from regional field surveys, large-scale excavations and the rescue excavations preceding the motorway constructions. Settlement finds were earlier only known from a few smaller sunken houses; recent excavations in various parts of Hungary have brought to light extensive settlements, enabling observations on the environment of villages and smaller hamlets or farmsteads that, in turn, enriched our knowledge on the economy of this period. The two volumes of a new series, the *Corpus of Celtic Finds*, have made accessible the finds from hitherto unpublished cemeteries and settlements in Transdanubia and northeastern Hungary. Miklós Szabó's pioneering studies on the synchronization of historical data and the find assemblages, the creation of a modern chronology have been summarized in a synthesizing monograph published in French. The finds from Hungary presented at major international exhibitions and the accompanying catalogues have made the Celtic assemblages known to international scholarship and the wider public; the conferences accompanying these exhibitions have provided excellent opportunities for setting these finds in a new perspective and for their re-as-

essment. The joint, Austrian–Hungarian publication of a volume of Celtic studies and the lavish catalogues accompanying the exhibition of Hungarian Iron Age finds in France and Germany can most certainly be seen as the fruits of continuous work in this field of research.

HISTORY OF THE CELTS

Some of the changes in the prehistory of the Carpathian Basin at the turn of the 5th–4th centuries B.C. are also mentioned in the written sources. With the appearance of the Celts, the Danube region caught the interest of the writers of antiquity, and even though the relevant passages of their works have mostly survived in later abridgements, they are immensely helpful in complementing the archaeological evidence.

The influence of the La Tène culture can be felt from the early 5th century B.C. in eastern Austria, on both sides of the Lajta Mountains, in the Fertő Basin and in southwestern Slovakia. The late Hallstatt settlements and cemeteries indicate a continuous occupation, with some surviving up to the La Tène B₂/C₁ period, i.e. the 3rd century B.C. The 'immigrant' Celts, the people of the 'flat cemeteries' first appear in the early 4th century B.C., a date corroborated by the both the written and the archaeological evidence. According to Justin's abridgement of the lost works of Pompeius Trogus, a historian of Celtic origin living in the later 1st century B.C., Italy and Pannonia were occupied at roughly the same time; the main drive behind the Celtic expansion was no doubt overpopulation. The same event is recounted by Livy, according to whom Ambigatus, king of the Bituriges, sent his cousins, Bellovesus and Sigovesus into battle with an army of 300,000 Gauls. Most of these troops headed for Italy and advanced as far as Sicily, as shown by a series of battles and the sack of Rome in 388–87 B.C.

The names of the Celtic tribes settling in Hungary are not known. The distribution of early La Tène sites suggest that the conquerors came from the west, with smaller groups advancing along the river valleys, primarily along the Danube and its tributaries in northern Transdanubia to Lake Balaton and the northwestern corner of the lake, including the Zala valley where there is a dense concentration of these early sites. It seems likely that the Celts reached the north–south section of the Danube and crossed the river in the earlier 4th century B.C. as shown by a number of La Tène B cemeteries in the Danube Bend and northeastern Hungary (Fig. 28). Transylvania too came under Celtic rule. The La Tène B cemeteries in northwestern Transylvania and in the Transylvanian Basin offer ample evidence for this rapid expansion. The study of the finds and their origin revealed that additional immigrants from Italy, Champagne and the Upper Rhine region can be reckoned with during the 4th century B.C. This period is characterized by dynamic migrations,

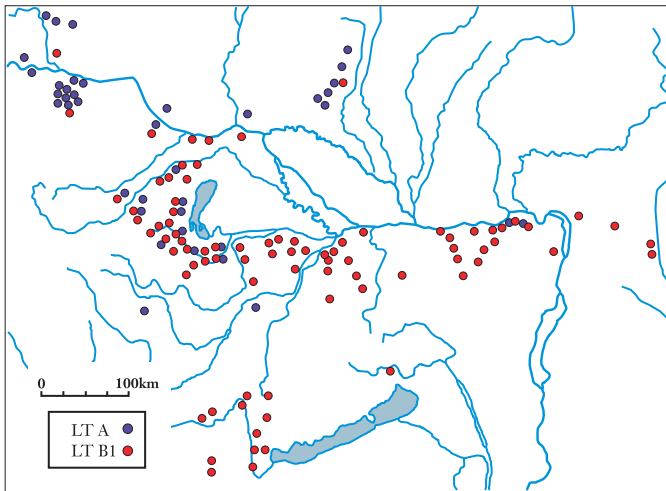


Fig. 28. Distribution of early La Tène sites in Transdanubia

reflected in the great diversity of the find assemblages. No finds predating the La Tène B period have yet been reported from southern Transdanubia and the adjacent areas (Steiermark, Carinthia and Slovenia). According to Pompeius Trogus, the Celts waged a war against the native population of these areas for many years, implying that the communities living south of Lake Balaton resisted the Celtic advance and preserved their independence for almost a century. The communities of the Great Hungarian Plain had no reason to fear an imminent Celtic conquest at this time. This situation changed in the late 4th–early 3rd century B.C., when tribes from the Middle Rhine region set out to conquer new territories in the south. They first fought a series of battles in northern Thrace and then marched against the Balkans under Belgios and Brennos; defeated in 279 and 277 B.C., they were forced to retreat and after breaking up into smaller bands, they looked for new homelands. The sudden and conspicuous increase in the number of sites in southern Transdanubia, northeastern Hungary and the Great Hungarian Plain implies that these areas too came under Celtic control. Celtic graves appear in the Scythian cemeteries of the Great Hungarian Plain from the mid-3rd century B.C., while settlements features yielding distinctively Celtic finds can be dated to roughly the same time, suggesting that the Celtic expansion was relatively peaceful and did not meet with a particularly great resistance. The Scordisci under Bathantatos settled in the Drava–Sava interfluvium and founded Singidunum, the ancestor of modern Belgrade. The Scordisci successfully defeated the Dardani, the Pannonian and the Moisi tribes in the 2nd century B.C.; their rule was first shaken by a defeat suffered from the Romans in 156 B.C. The Celtic rule in the Carpathian Basin was first weakened by the Cimmerian attack in 114 B.C. The political situation became a bit complicated at this point. The northern part of the Carpathian Basin was ruled by the Boii, the southwestern regions by the Taurisci, while the southern ones by the

Scordisci. The northern Transdanubian, northeastern Hungarian and southern Slovakian territories occupied by the Boii formed a loose confederation of some sort, with a centre in Pozsony (Bratislava). In 88 B.C., the Roman army led by Scipio Asiagenus dealt a crushing blow to the Scordisci – their defeat marked the onset of the Pannonians' expansion.

In the earlier 1st century B.C., the powerful Dacian Kingdom ruled by Boirebistas inflicted a crushing defeat on the Scordisci and, some time later, on the Taurisci and the Boii. The Dacians advanced as far as the Tisza region and even occupied a part of Slovakia, pressing forward to the Danube in the west.

From this time on, the written sources only mention the names of the regional tribes: the Boii in the northeast, the Eravisci in the Danube Bend, the Hercuniates (Hercunias?) south of Lake Balaton, the Osus and the Cotinus east of the Danube, and the Anartius and the Taurisci on the eastern fringes of Transylvania.

With its loose political and military organization, the Celtic population did not pose a serious obstacle to the Roman conquest. Although the Celtic population was organized into *civitates* after the conquest of Pannonia, their tribal territories were left untouched, and even though Romanization affected their culture, the Celts of Pannonia preserved their earlier lifeways, workshop traditions, religion and names for many hundreds of years. The Pannonians proved tough adversaries, who revolted repeatedly against the aggressive Roman expansion – Agrippa and Tiberius fought many bloody battles with them in the last two decades of the 1st century B.C. The Pannonian–Dalmatian revolt, led by the Breucus and Desidiates tribes east of the Drava, broke out in 6 A.D. and it took Rome three years to finally crush it.

CELTIC CEMETERIES AND BURIAL CUSTOMS

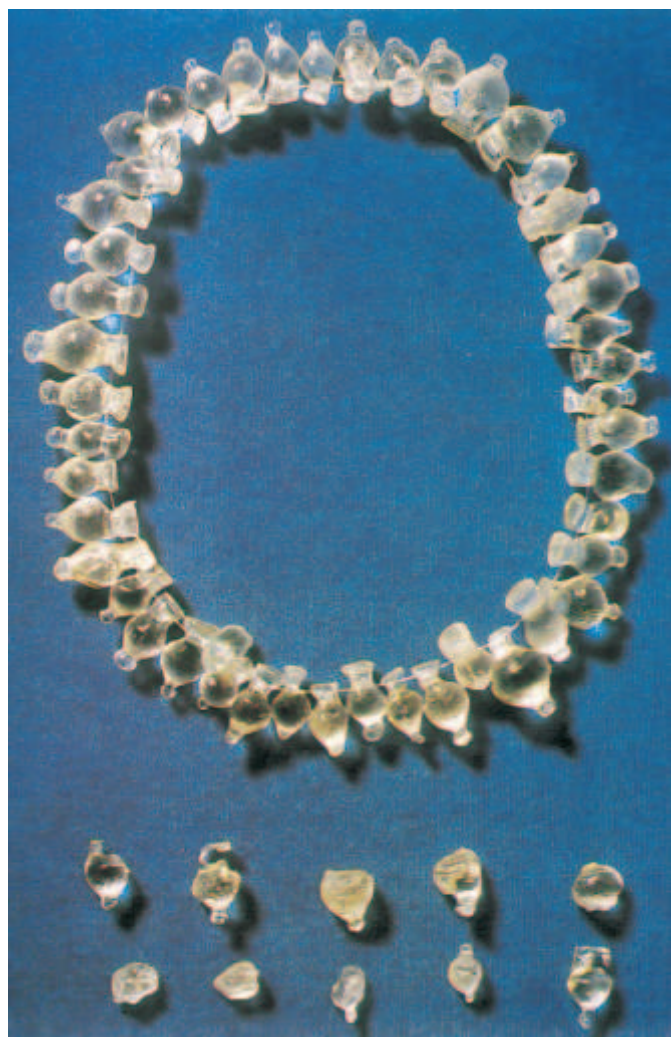
Beside the narratives of the historians of antiquity, our knowledge about the Celtic tribes settling in Hungary comes from the archaeological finds. The excavated settlements and cemeteries offer a fairly accurate picture of the everyday life of the Late Iron Age communities.

Burials are an especially important source of information since the Celts regarded death an important rite of passage, believing that afterlife was on par with life in this world. This attitude is reflected in the composition and arrangement of the grave goods. The available corpus of finds has greatly increased in the wake of new excavations, even if in many cases the excavation techniques and documentation practices fall below the required standards, owing in part to the lack of adequate funding and the necessary infrastructure, and in part to the circumstances under which many rescue excavations are conducted. The determination of the exact date and internal chronology of many cemeteries is often hindered by the

lack of traditional anthropological analyses, especially in the case of cremation burials. Although a variety of sampling techniques and archaeometric analytical procedures for dating and furthering our knowledge about this period are now available (such as the analysis of food and beverage remains, organic materials, plant remains, the determination of tree species, etc.), unless these procedures become a routine exercise, we can only rely on the relative chronology based on the uncertain, and often subjective, comparison of the finds themselves.

The determination of the genuine number of burials in a cemetery, i.e. the actual size of the community that used the burial ground is hindered by the lack of completely excavated burial grounds. While it is true that earlier it was rarely possible to completely excavate a burial site, today this is chiefly impossible owing to objective difficulties (belated notification about the discovery of finds, the site is ploughed up, the site is built over). According to our present knowledge, a number of new cemeteries were established from the mid-6th century B.C., accompanied

Fig. 29. Amphora shaped glass beads from an early Celtic inhumation grave. Pilismarót-Basaharc, 4th century B.C.



by the transformation of burial practices and the spread of inhumation. The first burials in the early cemeteries can be assigned to the later part of the Hallstatt D period, the latest ones to the early La Tène B period, although some communities used the same burial ground until the 2nd century B.C. The number of graves in La Tène B cemeteries obviously varied; although a number of smaller burial grounds with a few graves only – probably used by a single family – are known from this period, the Pilismarót cemetery conclusively proves that larger ones with fifty to sixty burials can also be reckoned with (*Fig. 29*). Some cemeteries were established in the early or late La Tène B period and remained in use until the end of the La Tène C period. The 150–180 years spanned by these burial grounds contained the graves of several successive generations, indicating the permanent settlement of a smaller or larger community. Other cemeteries, used over a briefer period of time and containing fifty to eighty burials, were opened in the 3rd century B.C. and reflect the higher population density during the heyday of Celtic rule in the Carpathian Basin. Relatively few cemeteries are known from the decades immediately preceding the Roman conquest. The lack of burial grounds that can be associated with fortified sites is especially striking; it seems likely that the change in funerary practices can be traced to changes in the historical circumstances and other factors. The flat cemeteries of the Celtic period are fairly well documented; in contrast, the only references to tumulus burials come from reports on excavations conducted by enthusiastic laymen, but even so, their existence cannot be wholly rejected. The determination of the distribution of inhumation and cremation burials, as well as their chronological relation to each other is one of the most important tasks of future studies since this may also shed some light on the ethnic background of the Celtic period. A comparison of the cemeteries excavated earlier (Sopron-Bécsidomb, Győr-Újszállás, Csabrendek) with the evidence from systematically and professionally investigated burial sites (Rezi, Ménfőcsanak, Sopron-Krautacker, Pilismarót, Kosd, Vác, Muhi) indicates that the two rites were practiced simultaneously in the earliest cemeteries. It seems likely that concurrently with the appearance of flat cemeteries containing inhumation burials throughout Europe, the custom of inhumation also spread in northern Transdanubia and that cremation burials reflect the survival of earlier traditions. Inhumation and cremation burials were both covered with stones or were marked with a single stone; in some cases, a ditch was dug around the grave, a custom that has also been observed in the contemporary cemeteries of Austria and Slovakia. The majority of the inhumation burials have the deceased laid to rest in an extended position, sometimes with one of the arms folded across the chest. A slightly contracted position is rare and usually occurs in graves without any grave goods.

The orientation of the burials varied, with a south to

north or north to south orientation being more frequent than an east to west orientation. There are few observations concerning unusual or unique forms among the grave pits or on the use of coffins. Scattered cremation and inurned burials occur until the very end of the La Tène period, often within the same cemetery.

GRAVE GOODS AND COSTUME

A study of the known burials in terms of gender, age and grave goods (and their regularly occurring combinations) can enrich our knowledge of the Celts and their society in many ways. Many male burials contained weapons. The sword and its fittings were always laid on the right side, spears were found on both sides of the body, usually beside the head and, more rarely, by the feet (*Fig. 30*). Early graves often lacked a sword. The burial of the deceased with one or more spears suggests a different type of armament. Helmets are extremely rare finds, suggesting that only warriors with outstanding prowess were worthy of wearing one and it is likely that helmets also signalled status. More recent finds have also demonstrated that in contrast to earlier assumptions, shields were used from the end of the La Tène A period. Belts and suspension rings, as well as sword chains were also part of the male costume. A large fibula fastened the cloak at the shoulder, although smaller iron fibulae were sometimes also used for this purpose. There is also evidence for torcs and armlets, worn on the left arm, or an armring worn on the upper arm, as well as for anklets.

The finds from women's burials indicate the wear of two to three or more fibulae, as well as of armrings and anklets. Other pieces of jewellery included neckrings, bead necklaces, rings and belts. Pairs of fibulae linked by a chain, such as the ones from Sopron-Bécsidomb, Ménfőcsanak and Litér, occur from the early La Tène period and have their counterparts among the finds from the Traisen valley, the Burgenland and southwestern Slovakia. These fibula pairs were used for fastening garments at the shoulder, while a third fibula was usually found on the chest (*Fig. 31*). The right to wear a torc was apparently linked to social rank or status within the family. Sets of armrings and anklets, as



Fig. 30. Iron sword with its scabbard, decorated with a pair of dragons (zoomorphic lyre). Kosd, grave 15, earlier 3rd century B.C.

well as belts were the most characteristic pieces of jewellery worn by Celtic women. The grave goods from female burials also included simple tools and implements, mostly spindle whorls.

The custom of depositing food and beverage into the grave, and of animal sacrifices as part of the funerary rite is indicated by the vessels and the animal bones, most of which came from pig, sheep and poultry. The carefully documented burials show that a scissor or a knife lay beside the animal bones, implying that these implements were used for carving up the meat. The deposition of the vessels also followed a specific pattern since most were



Fig. 31. Pair of linked, animal headed bronze fibulae from Sopron-Bécsidomb



Fig. 32. Situla shaped vessel, with a Waldalgesheim style incised pattern on the shoulder. Alsópél, later 4th century B.C.

found either on the right side, or in a group by the head or feet. The usual combination was a so-called *Linsenflasche*, a flask with globular belly, two or three bowls and the occasional pot (*Fig. 32*).

Child burials are characterized by amulets – beads, bronze pendants, shells, snails and animal teeth – and a variety of fibula and ring ornament (*'Ringschmuck'*) sets (*Fig. 33*).

The finds also reflect the wide circle of contacts main-

tained by these communities. The assemblages dating from the 5th–4th centuries B.C. offer many clues as to the ultimate origin of certain artefact types, while locally made products betray cultural influences from the earlier local population. Other influences can be traced through various import articles, reaching the Carpathian Basin through trade or with new immigrant groups. Copies of these articles were then turned out by local workshops in the Carpathian Basin. The heyday of Celtic craftsmanship in this region can be put in the late 4th century and the 3rd century B.C., when the finest swords with elaborate, engraved patterns and bronze belts with enamel inlay were made together with an assortment of other articles reflecting the cultural impact of 'Scythian' culture. The concentration of the population on fortified settlements from the 2nd–1st centuries B.C. gave rise to mass-production and the emergence of new product types. Pottery manufacture, ironworking and coinage were the most important among these (*Fig. 34*).



Fig. 33. Masked bead. Vác, grave 29, later 3rd century B.C.

Fig. 34. Celtic pottery kiln and its products. Sopron–Krautacker, earlier 3rd century B.C.



SETTLEMENT HISTORY

Our knowledge of the settlement history of the Celtic population of the Carpathian Basin has been greatly enriched during the past few decades. The La Tène period settlements uncovered in adjacent regions and the field surveys and excavations conducted in Hungary all point to the fact that the Celts did not particularly like upland regions. This is all the more understandable since their economy was based on crop cultivation and animal husbandry, both of which called for settlement near water and arable land. This also explains why small farmsteads and hamlets, *vicus*-type settlements occupied by a few families, occur beside villages. The largest open settlement known to date was investigated at Sopron–Krautacker (Fig. 35). The observations made on this site and on

smaller settlements excavated elsewhere (Iván, Lébény, Keszhtely–Úsztató, Regöly–Fűzfás, Acsa), as well as the findings of the rescue excavations preceding the construction of the M3 motorway (Polgár, Sajópetri) allow a glimpse into the everyday life of the Celts. The sunken oblong houses, measuring 2–3 m by 4–6 m, had a pitched roof resting on timbers aligned along the short side of the house. Smaller huts were probably roofed with thatch or wattling; the postholes and the daub fragments with twig impressions suggest that the walls were of the wattle and daub type (Fig. 36). Benches, smaller pits, fireplaces and the occasional oven made up the interior furnishings of these houses that were ringed by pits on the outside, some of which were used for the extraction of clay, while others functioned as storage bins or refuse pits.

A variety of agricultural implements made from iron



Fig. 35. Late Hallstatt and La Tène period settlement. Sopron–Krautacker, 6th–1st centuries B.C.



Fig. 36. Remains of an L shaped Celtic house with the floor level. Sopron–Krautacker, 4th century B.C.



Fig. 37. Remains of a pig and cattle sacrifice on the floor of a Celtic house. Sé-Doberdó, house 2

– ploughs, spades, sickles, scythes – made land cultivation more efficient than ever before. Cultivated species included wheat, barley, rye and millet, as well as various vegetables and vine. Stockbreeding also played an important role. The rich animal bone samples collected at Celtic sites indicate a wide range of domestic animals and are, at the same time, proof of a sedentary lifeway. Animals were kept for their draught power, as well as for their meat and milk, as shown by the high number of cattle, sheep, goat and pig bones. The food offerings placed into graves were usually prepared from the meat of these animals.

The ratio of hunted animals – aurochs, red deer, roe deer and boar – varied from site to site. Hare was not hunted solely for its meat. Antler and bone were used as raw material for tools and implements; pig, deer, dog and horse played an important role in funerary and other cults (Fig. 37).

MASTERPIECES OF CELTIC CRAFTSMANSHIP

The occupants of the major settlements no doubt included various craftsmen, engaged in the production of iron, bronze, leather, wood, bone and clay articles needed for day to day life. Although none of the metalworking centres of the early La Tène period have been identified, the known iron ore deposits and the occurrence of iron slag suggests that iron smelted from bog iron and meadow ore was used for the manufacture of weapons and other articles in north-western Transdanubia. Iron imported in the form of bars

was also used. Evidence for bronzeworking is similarly scanty, but since the ornaments and pieces of jewellery rarely include imports from faraway regions, we may assume that their majority was made in the Carpathian Basin, a supposition supported by the fact that the known types show the survival of local traditions (Fig. 38).

The most experienced metalsmiths worked as weaponsmiths. Spearheads and knives with engraved decoration, daggers with anthropomorphic and pseudo-anthropomorphic hilt, the punched sword blades and engraved scabbards are genuine masterpieces of their craft. The stamped blades enable the determination of individual craftsmen and workshops, as well as the regional and cultural contact of these workshops.

The other major and exceptionally sophisticated craft practiced by the Celts was pottery manufacture. Potting had reached a degree of development by the Hallstatt period that allowed not only the adoption of new pottery making techniques, but also the creation of vessels suited to the



Fig. 38. Crucible from a bronze workshop. Sopron-Krautacker, 4th century B.C.

Fig. 39. Flask with stamped decoration from an early Celtic male burial. Sopron-Bécsidomb, early 4th century B.C.



Celtic taste. A workshop producing vessels with elaborate stamped ornaments was active in the region of Lake Fertő, perhaps at Sopron, in the early La Tène period. Pottery with stamped decoration retained its popularity until the very end of the Celtic period, its influence surviving until the 2nd century A.D., even if the ornamental repertoire and the vessel forms changed over time (Fig. 39).

With the exception of the most common types, the pottery from sites in the Great Hungarian Plain differs from the Transdanubian wares both in form and ornamentation, no doubt as a result of the local traditions from the preceding Scythian period.

One outstanding group of vessels had handles decorated with human and animal heads or human figures (Fig. 40). These vessels reflect cultural impacts from various regions.

From the mid-2nd century B.C. a part of the population moved to the fortified hillforts (Velem, Sopron-Burgstall, Tihany-Óvár, Balatonföldvár, Nagyberki-Szalacska, Regöly, Százhalombatta, Budapest-Gellérthegy, Esztergom-Vár, Bükk-szentlászló; Fig. 41). The reason for this migration can in part be traced to the conflict and armed clashes between the various tribes and in part to



Fig. 40. Kantaros shaped vessel with ram head terminalled handles. Csobaj, grave 1, 3rd century B.C.

some imminent external danger. Be as it may, the craft centres now lay in the defended hillforts; one result of the concentration of craftsmen to a few major settlements was that mass-production began in earnest and that new craft industries also appeared.

The improvement of ironworking is reflected in the wide range of tools and implements manufactured in these hillforts. The efficiency of these tools and implements is proven by the fact that the basic types changed little over the ensuing centuries.

Celtic minting was also practiced on these fortified settlements, functioning also as tribal centres, from the 2nd century B.C. (Fig. 42). These coins, mostly silver mints intended for inter-tribal trade, were copies of a silver tetradrachm known as the Philippeus. Gold coins are rare and by the turn of the millennium even silver coins were replaced by bronze ones. Concurrently with monetary debasement, a change can be noted in the coin design. The coinage of the Boii and the Eravisci usually has a legend with Roman letters, reflecting the influence of Roman prototypes.

Fig. 42. Audoleon type silver coins hidden in a vessel with stamped decoration. Egyházasdengелеg, earlier 3rd century B.C.

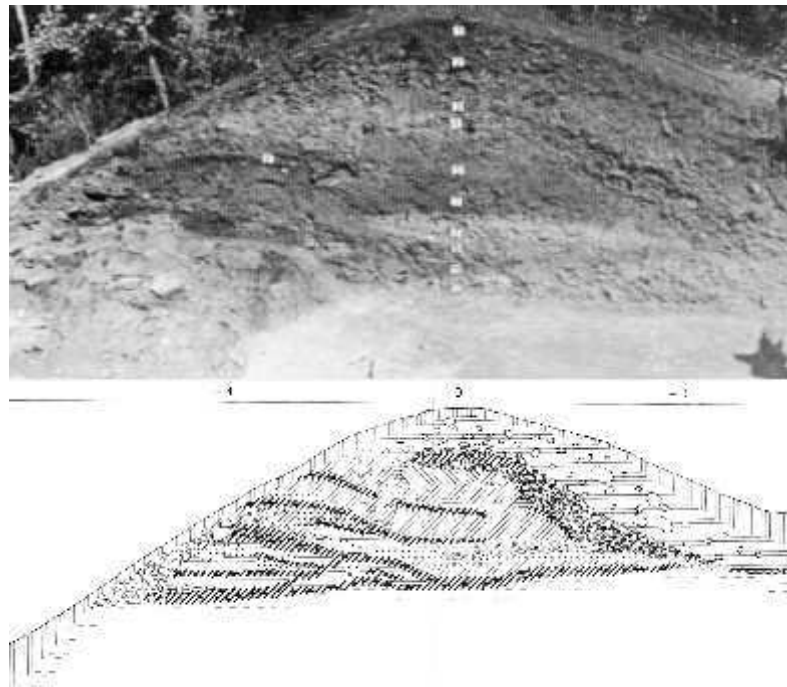


Fig. 41. Northwestern section of the rampart at Sopron-Burgstall

The pottery workshops continued to turn out good quality vessels on a mass scale, although the repertoire of forms was greatly reduced. Decoration took the form of smoothed-in, geometric and painted patterns (Fig. 43).

Glass articles, such as beads, rings and armrings, including some truly magnificent pieces, were also produced locally.





Fig. 43. Vessel with painted decoration. Budapest–Gellértbegy, Tabán, 1st century B.C.

RELIGION

The hillforts were not only economic, industrial and trade centres, but also the settings for various ceremonies and rituals. Although there is little archaeological evidence for these practices from Hungary, we know that there were special sacred precincts for cult life in the Celtic oppida or their immediate neighbourhood.

The hoard found near the Regöly hillfort was probably deposited as part of a votive gift in the bog between Szárazd and Regöly (Fig. 44). Animal depictions can usually be associated with totemistic beliefs or some sort of fertility cult. The boar statuette from Báta is one of the outstanding creations of Celtic small sculpture in terms of its artistry.

Aside from a monumental stone relic, the Janus-head from Badacsony–Lábdi, Celtic art in Hungary is represented by a wide array of imaginative and superbly crafted small objects.

The Celtic tribes living in Hungary can be credited with the introduction of important technological innovations, such as the mass-production of wheel-thrown pottery and the development of lasting iron tool sets, as well as with laying the foundation of urban civilization and a road network linking distant areas that became permanent from the Roman period.

One of the most important Celtic sites is the settlement and burial ground lying on the northwestern outskirts of Ménfőcsanak, on an ancient terrace of the Rába river. The

finds from the cemetery, a total of ten Celtic and seven late Roman burials excavated by András Uzsoki, have been published in Volume I of the *Corpus of Celtic Finds*. Uzsoki was certain that the one-time burial ground extended beyond the area he had investigated. The Celtic graves were all inhumation burials, graves 4 and 10 were double burials. The warriors' graves were equipped with spears, swords and knives; one grave also contained the iron mounts of a wooden shield. One of the female burials yielded a lavish set of jewellery: a torc, a necklace, a pair of armrings and a pair of anklets. The investigation of the site has recently been resumed as part of the excavation projects preceding the motorway constructions.

THE CELTIC SITE AT MÉNFŐCSANAK

Andrea Vaday

An 80,000 m² large area was investigated in 1993–94 preceding the construction of the Ménfőcsanak bypass between Road 83 and the M1 motorway.

A section of the cemetery lying on an elevation in the floodplain of the Old Rába fell into the investigated area. The earliest Celtic graves from Hungary were uncovered in this burial ground (Fig. 45). It was earlier believed that the Celts only occupied the Burgenland and Transdanubia in

Fig. 44. Gold hoard. Szárazd–Regöly, earlier 2nd century B.C.



the 4th century B.C. Now, however, the date of the Celtic occupation can be put earlier in view of the finds from Ménfőcsanak. The bead necklaces worn together with or without a torc and the fibula pairs for fastening the upper garment from women's grave indicate an early costume type. The later graves of this cemetery usually contained a third fibula that was most often found lying on the chest. The finds from the earliest burials have their best analogies among the assemblages from Jogasses, Dürrnberg bei Hallein (late 6th–early 5th century B.C.), Hlubýne (later 5th century B.C.) and the so-called Marne horizon of Epernay (later 5th century B.C.).

The grave assemblages include both old and new artefact types, often in the same burial, indicating that the immigrant Celts adopted many elements of the local material culture. The military nature of the cemetery is reflected in the numerous weapons placed into the graves: the male graves yielded an assortment of large shields with metal mounts, double-edged swords and spears (Fig. 46).

Many burials were enclosed by a rectangular grave ditch, a

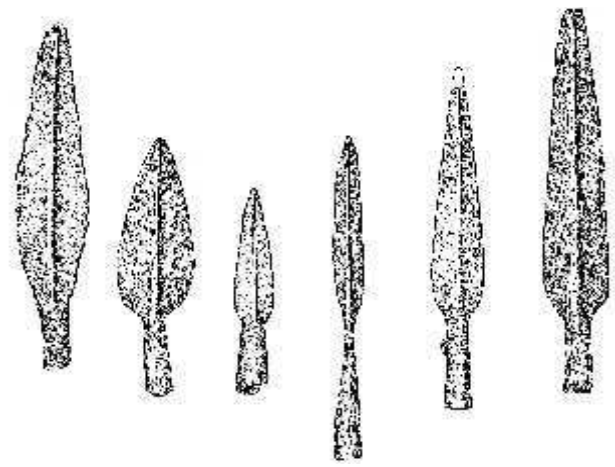


Fig. 46. Spear types from the Celtic cemetery at Ménfőcsanak

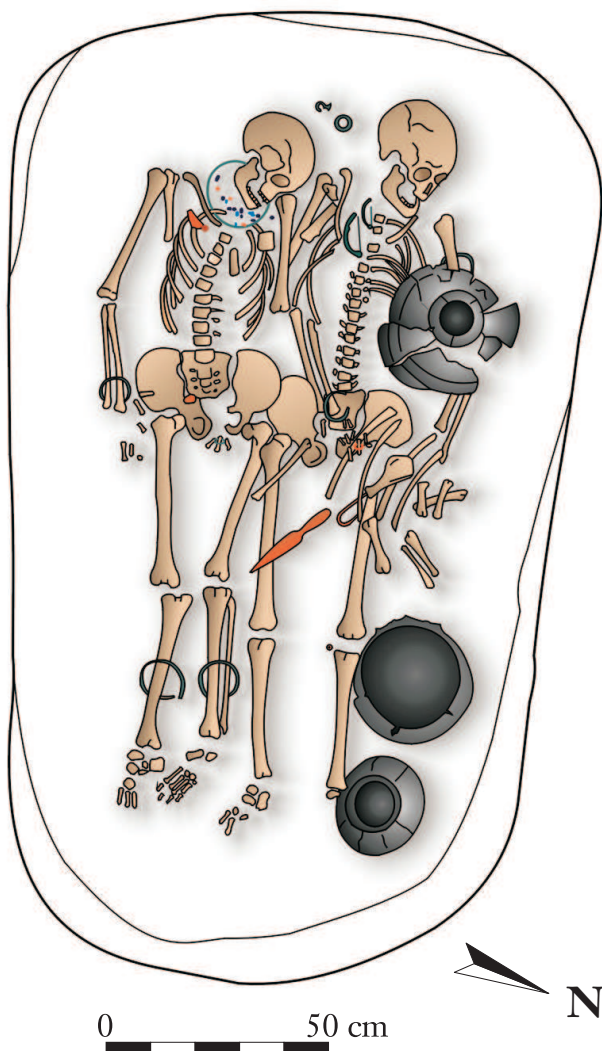
phenomenon known also from other Celtic cemeteries, such as the one at Franzhausen in Lower Austria from the 5th century B.C., where graves with single and double burials were similarly enclosed by rectangular or circular ditch. The Franzhausen cemetery also resembles the Ménfőcsanak one in that it was biritual, containing both inhumation and cremation burials. Graves enclosed by a ditch are also known from Champagne and from other Celtic burial grounds of the Marne region, as well as from eastern Yorkshire. At La Perrière, a cemetery dating from the 3rd century B.C., a row of 'unmarked' graves lay between the ones enclosed by a rectangular or circular ditch. Comparable graves have also been reported from Malé Kosihy and Dubník in Slovakia.

The Ménfőcsanak cemetery was used by several successive generations. The early graves can be dated to the period preceding the Celtic expeditions against the Balkans, while the late ones to the transition between the early and middle La Tène period. Many graves were double burials. This phenomenon has also been documented in other Celtic cemeteries, for example at Münsingen–Rain and Dürrnberg. Some graves were marked with a stone, a practice observed also at Sopron–Bécsidomb, Kosd and Csereszegtomaj.

The internal chronology of the Ménfőcsanak cemetery is fairly clear. The graves enclosed by a grave ditch form distinct groups, with the unmarked burials lying between them. A family member was sometimes later interred in one of the already existing graves. The relative chronology of the burials can be established on the basis of the various features and the finds using the Harris matrix. Of the Celtic cemeteries in the Carpathian Basin, only the forty-seven burials of the Chotin cemetery in Slovakia have been analyzed using this method that enabled the identification of the several generations buried there.

The area investigated at Ménfőcsanak also included the section of an extensive Celtic settlement, whose excavated features could be dated to the La Tène B₂–B₂/C₁ period (Fig. 47). The survival of the native Celtic population could be traced until the Severan age. The settlement features

Fig. 45. Double burial in the early Celtic cemetery at Ménfőcsanak



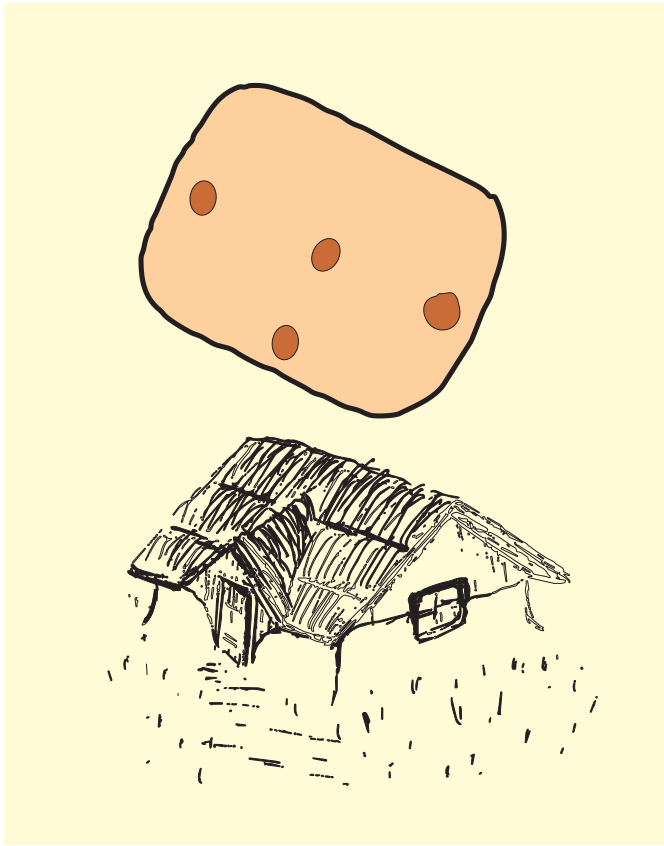


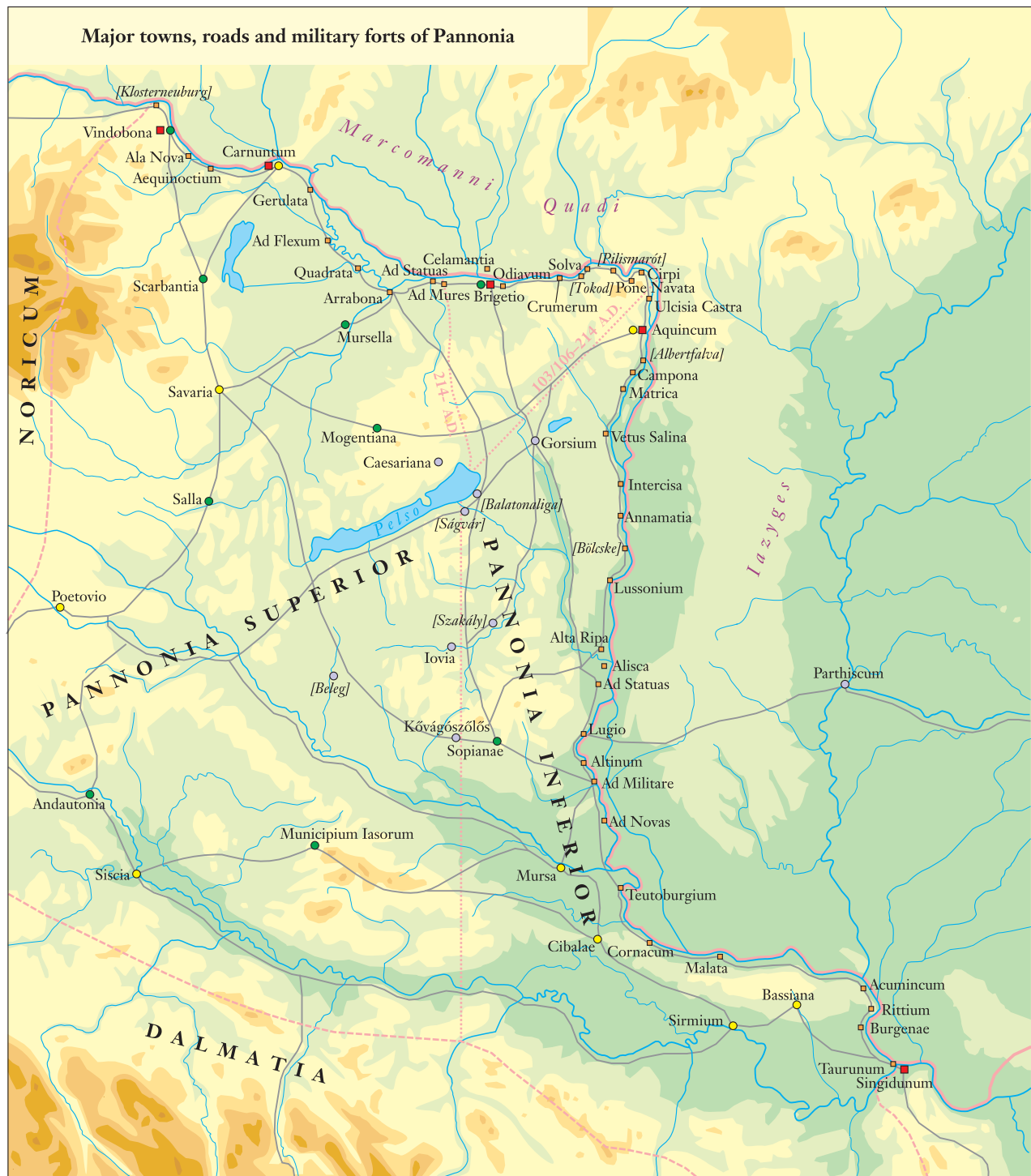
Fig. 47. Groundplan and reconstruction of a Celtic house

included sunken houses, storage and refuse pits, ditches and fences, and a well with an oakwood structure. The exact date of the well could be determined from the dendro-chronological analysis of its wood. Smaller structures, used for storing raw materials, such as blocks of graphite, were also found. Raw graphite was from the 5th century B.C. on imported by the pottery workshops lying far from the graphite sources. The presence of these graphite depots at Ménfőcsanak indicate trade relations with the west. Local metalworking is indicated by the remains of a stone-lined smelting furnace, together with iron slag and raw iron bars. Iron too was imported from the west, from Austria.

The analysis of the pottery finds showed that the Ménfőcsanak settlement maintained close ties with Sopron-Krautacker in the late 4th and early 3rd century B.C. and with the Celtic potters of Čataj in Slovakia during the 2nd century B.C. The best analogies to the vessels ornamented with stamped and radial patterns can be quoted from Balf, Écs, Koroncó, Hidegség and Sopron, as well as from other sites in the Fertő Basin (Mörbisch, Oggau, Pötsching).

On the testimony of the written sources, Boirebistas, King of the Dacians defeated the Celtic army led by Kri-tasiros in the mid-1st century B.C. and made the territory of the Boii, who had arrived sometime around 60 B.C., a wasteland (*deserta Boiorum*). It would nonetheless appear that the Celtic Boii of Ménfőcsanak, the occupants of the latest phase of the settlement preceding the Roman conquest, survived well into the Roman period.

Major towns, roads and military forts of Pannonia



- Frontier of the Roman Empire
- - - Border of the province
- Roman road
- Legionary fort
- Auxiliary camp
- Colonia
- Municipium
- Other settlements

Quadi Peoples

HISTORICAL OUTLINE OF THE ROMAN PERIOD

Jenő Fitz

THE NATURE OF RESEARCH

The period between the 1st century and the 5th century A.D. brought a sharp break in the preceding, continuous development of Transdanubia. In the Roman period, Transdanubia became part of the vast empire ruling the Mediterranean that absorbed the outstanding achievements and cultures of antiquity and created a radically different cultural environment for the region's inhabitants within the framework of a well-organized state than ever before or for a long time afterwards.

The radical change is also reflected in the archaeological record. Although earlier traditions survived for a long time on the settlements of the native population, the new immigrant population and especially the provincial government worked with technologies unknown in the past. The use of cement fundamentally changed the nature and size of buildings. Primitive sunken huts were replaced first by adobe and, later, by stone houses constructed on firm foundations and provided with heating systems. Huge edifices were erected, such as amphitheatres, theatres, palaces, temples, public baths, market halls, villas, military forts, bridges and aqueducts that carried water to the towns from distant sources, and many amenities of urban life were introduced: paved roads, sewers, water pipes, floor heating, etc. A network of roads was constructed for the army, the postal service and the commerce that reached even the remotest corner of the vast empire. Consciously planned towns with public buildings, regular blocks of houses, town walls and works of art replaced modest rural settlements.

The archaeological record is not our only source of information for the study of the Roman period. Many events, catastrophes and changes in the province's life are recorded and described in the historical sources, while the epigraphic material contains information not only on the construction and rebuilding or renovation of various structures, as well as the name of their commissioners, but also offer an insight into the beliefs and the life of the people, and allow the reconstruction of individual careers. Many government officials are known by name, as are the important stages in their career: these include the successive proconsuls, the commanders and officers of the army – and their outstanding military feats – and the soldiers serving in the army, whose social and ethnic background can usually be reconstructed. The huge number of coins that have survived is useful not only for dating archaeological finds: when hidden as hoards, they indicate military invasions (many of which are mentioned in the written sources, although some cannot be linked to a known event) and the size of the affected area. The analysis of coins also reveals much about the prosperity

and decline of a particular region, while the designs on their obverse are often an illustration of imperial policies and the programme of individual emperors. The changes in traded commodities are a good indication of the nature and the changes in the economy, as well as of the needs, the taste and the wealth of different social groups. Works of art, statues, reliefs, wall paintings, mosaics, the applied arts and the successive artistic styles, revealing the aesthetic taste of the period, offer an insight into the activity of artists and workshops, and reflect the survival of the legends and narratives of antiquity. The richness and the diversity of the surviving evidence provides a wealth of detail about this period of the past that can hardly be compared to earlier ages or the centuries following the Roman rule in Pannonia.

PANNONIA

Together with the Vienna Basin, the Burgenland, the Drava–Sava interfluvium in Slovenia and the northern areas of Bosnia, Transdanubia was part of an administrative unit, a province called Pannonia. The province was divided into two parts (Lower and Upper Pannonia) for political and military reasons at the beginning of the 2nd century. Caracalla modified the boundary between the two parts in 214; the province was further subdivided into four administrative units at the turn of the 3rd and 4th centuries (Pannonia Prima and Secunda, Valeria and Savia). The borders of the province were again redrawn during the last reorganization, when Poetovio/Ptuj was incorporated into Noricum Mediterraneum. With its mixed population of Celtic and Illyrian groups, Pannonia had never formed a geographical, historical or political unit in the periods before the Roman occupation. The province was named after the Pannons when Illyricum, the former large province, was carved up into smaller parts. The majority of the Pannons lived in the southern part of Illyricum (called Dalmatia after the division). As a matter of fact, the Romans themselves did not regard Pannonia as a unit before they occupied it. This region was conquered in four phases between 35 and 46–49, corresponding to the military policies of the Empire. The territory west of Lake Balaton was occupied at an early date, in 15, when Rome annexed the zone of a major trade route – the so-called Amber Road, leading from Italy to the Baltic – to the Kingdom of Noricum (lying in present-day Austria). The eastern part of Transdanubia was occupied half a century later under Claudius, when the border of the Empire was extended to the Danube in the entire Danubian region.

ROMAN ADMINISTRATION IN PANNONIA

The Roman occupation followed the same successful scenario as the conquest of the small, central Italian city-states. The conquest meant not only the presence of the army, but also the irreversible occupation of the territory as well. The

native population was divided into tribal areas or districts called *civitates*, first under the authority of the army and, later, of magistrates elected from their own ranks. A tribal district usually corresponded to the already existing settlement territory of a conquered tribe. Larger tribes considered to be unreliable were re-settled in different districts. Military and political considerations often led to the major disruption of earlier conditions. In the Roman period, the known settlements and find assemblages of the native population show a rather dense distribution in the frontier zone along the Danube and a looser one in the inland areas of the province, as for example around Lake Balaton. This no doubt reflects a conscious settlement policy designed to strengthen the frontier zone and reserve the more protected inland areas for the large estates.

The creation of tribal districts for the native population also meant that the greater part of the new province's territory came into the ownership of the conquerors. The forts and watchtowers of the army and the settlements beside these forts were established in these territories. Pastureland for the mounted troops and other military areas, road stations and custom houses were carved out from these areas. The greater part of this area was populated according to a conscious settlement policy. New population groups arrived in the wake of the Roman conquest, a process that had already begun before the Roman occupation proper with the settlement of Italian tradesmen and the representatives of Italian firms along the busy Amber Road. The number of 'new' inhabitants who swelled the ranks of Pannonia's population as a result of this conscious settlement policy was much higher than the number of individual immigrants. In addition to the immigrant groups who arrived from northern Italy, the veteran soldiers discharged from the army stationed in the province made up the largest part of this new population. The veterans received generous grants of land on their retirement. They were settled on land allocated to them near a military fort or in the area of major crossroads. These settlements were granted the rank of a town as the number of their inhabitants grew and urbanization progressed. The state also founded new towns, called *coloniae* (such as Savaria) for the retired legionary soldiers. The first immigrants were mostly Italians or arrivals from neighbouring provinces. After gaining Roman citizenship, the latter adopted the Roman lifestyle and spoke Latin. Lured to the Danube region by the prosperity at the beginning of the 3rd century, the number of Orientals – Greeks, Syrians, Jews and Egyptians – also rose, while the towns attracted the native population with their promise of a better livelihood. The native population came to be the dominant element among the town-dwellers and the *ordo* of the towns founded at later date, a tendency that became more striking when a settlement was granted the rank of *municipium*. The promotion to urban rank usually meant the dissolution of the earlier tribal districts, with the villages of the native population placed under the authority of the municipal council.

The overall number of native population groups was low in Inner Pannonia, as was the number of settlements that eventually grew into towns. Quite a few villas, residences of large estate owners decorated with frescos and mosaic floors and surrounded by economic buildings, are known from the area around Lake Fertő, in the area north of Lake Balaton and in the Mecsek Hills (e.g. at Balácsa). The names in the inscriptions suggest that their owners were families of Italian origin.

The lower echelons of society, the slaves and the freedmen, are known from inscribed monuments and tombstones. Some of them were soldiers who had been taken prisoner in various wars, but most were slaves brought to Pannonia from the East and from Africa. They were put to work on the large estates, in commerce and in private households. Bright and gifted slaves were liberated after some time or were able to buy their freedom. These freedmen often rose to a prominent position in local commerce, industry or in certain professional bodies. Many of these former slaves were employed by the state in various economic offices and at the customs.

The administration of a province was a relatively simple affair. Power was wielded by the governor, the legate representing the emperor who, in the first three centuries, was also commander of the provincial army. In the 4th century, the civilian and military administration was separated, the former placed under a *praeses*, the latter under a *dux*. Separate organizations headed by *procuratores*, whose authority usually extended over several provinces, were responsible for economic matters (the Danubian provinces formed a single customs territory).

THE CHANGE IN LIFEWAYS

Following the Roman occupation, Pannonia was integrated into a world empire. A modest craft industry catering to local demand (pottery, iron and bronze metallurgy) continued its activity for a fairly long time in the regions inhabited by the native population. The immigrants and the army, however, were supplied by freshly settled new craftsmen and the empire's commercial network. The appearance of an Italian lifestyle also brought a regular flow of wares and commodities that had earlier arrived but sporadically to the Danube region. Oil and wine imported from Italy and Hispania were part of the provisioning of towns and military forts. High quality pottery, the most common types of which were the red *sigillata* wares, were first imported from the major Italian workshops and, later, from southern and central Gaul, as well as from Africa in the imperial period (*terra sigillata chiara*). Bronze vessels were imported from Italian, Gaulish, Balkanic, Anatolian and various eastern workshops. Local workshops later began the production of wares in the Roman taste: for example, *sigillata* wares were also produced in local workshops, such as the ones in Aquincum and Gorsium. Household pottery and simpler

articles were mass-produced on the industrial settlements that grew up beside towns and military forts. The spread of the Roman lifestyle also brought a demand for artwork. The interior furnishing of public buildings, the palaces of the proconsuls, the villas in the centres of large estates, the temples and the public baths conformed to the general standard throughout the empire. The decoration of these buildings, the colourful wall paintings, the mosaic floors, the statues in the sanctuaries and home shrines were rarely made in local workshops. Stone carving was the single exception: these were produced in local workshops. Of the tombstones erected over graves – a custom that became common in the Roman period – only a few can be linked to stone carvers or workshops in Italy, Noricum or the East.

PANNONIA'S ROLE IN THE ROMAN EMPIRE

The significance of Pannonia for Rome was primarily determined by Italy's defence. While the Alps provided a natural protection for the central areas of the Roman Empire in the west and the north, it could be easily approached by a hostile army marching along the Amber Road. This threat was no idle speculation: from Augustus' time, the Romans regarded the Marcomanni and the Quads, Germanic peoples who had for long centuries settled in the Bohemian Basin and Upper Hungary, their most dangerous Barbarian enemies. The forts of the *limes*, the defence line built along the Danube, were from the early 2nd century garrisoned by the troops of one of the Empire's strongest armies that repeatedly played a decisive role not only in the wars fought against the peoples beyond the borders, but – as a large army stationed close to Rome – also in the civil wars of 69, 193–197 and the decades after 249. Aside from the few civil wars, the centuries of Roman rule brought a long period of peace and prosperity lasting for many centuries for the inhabitants of the inland provinces of the empire. This was not the case in the border provinces, such as Pannonia. The Germanic and Sarmatian peoples on the left side of the Danube lived under considerably worse circumstances than their contemporaries on the other side of the river, and the prosperity of the province was a constant temptation to stage raids and looting expeditions even in times of peace. The army stationed in the province fought the first war with the neighbouring peoples and the Dacian state between 86 and 106. Trajan's victory on both fronts brought a period of peace to the Carpathian Basin. The next, even more taxing war, the so-called Marcomannic War, in which practically all the peoples of the Danubian region joined forces against the Empire, was fought by Rome under Marcus Aurelius' reign between 167 and 180. One indication of severity of this war was that the Sarmatians were forced to set free a hundred thousand prisoners of war when peace was concluded. The next ordeal in the life of the Roman army stationed in the Danube region began in the middle decades of the 3rd century. Under the pressure of eastern population groups, the Goths who had migrated to the

Ukraine were pushed towards the Danube delta in the 230s and thus set in motion the successive population movements of peoples dislodged from their homeland. Fought with varying success until the Goths were finally exhausted, this war eventually forced Rome to surrender Dacia in 270. Although these wars rarely affected Pannonia until Dacia still existed, the province suffered the greatest catastrophe in its life during this period, when the pretender Regalianus' army controlling the Danube region was dealt a crushing defeat in 260 by the Sarmatian Roxolani who had earlier settled in the Danube–Tisza interfluvium. The numerous coin hoards from these years and the extensive destruction layers observed on most settlements suggest that the greater part of Pannonia was plundered and that many towns and military forts were completely destroyed.

PANNONIA IN ANTIQUITY

Pannonia never enjoyed a peaceful and continuous development similar to the flourishing provinces and towns of the empire's inland provinces owing to its military role, the great wars and the devastation brought by recurring raids. Pannonia differed from the more fortunate provinces of the empire not only because of the repeated need to start life afresh. The consolidation of the province, a process lasting for some eighty years, came at a time when Italy's importance began to wane within the empire. Even though the Italian element was strong in the western part of the province, their presence, culture and taste never gained a foothold in those areas of the province that were conquered later. A degree of Romanization, disseminated by the army, can be demonstrated in these areas also. At the same time, the Romanized population included increasingly less landowners, traders and craftsmen of Italian origin. The majority of the Romanized population was made up of soldiers who had settled in the towns after their retirement from the army. Most of these soldiers had been recruited from the native population living in the shelter of the chain of forts and they only acquired a superficial Romanization during their twenty-four years of military service. The young men recruited from the peoples living in other parts of the empire were no different from the average native of Pannonia who usually married a girl from a neighbouring village. A uniform peasant-military society proud of its military prowess, but characterized by a superficial Romanization, emerged in the frontier zone. Except for the belt of the Amber Road and certain areas in the Drava–Sava Interfluvium, the towns lying farther from the border remained insignificant in the lack of fresh Italian immigrants. Even setting up a municipal council in these towns often proved quite difficult. The historian Ammianus Marcellinus noted that Valentinian, his contemporary, who had been born in Pannonia, did not speak Greek – considered the sign of a cultivated mind – and that he even had difficulties with Latin. It is therefore hardly surprising that not one single renowned artist or scholar of antiquity

came from Pannonia; in contrast, the inscriptions and biographies have preserved the names of countless excellent soldiers and outstanding military feats.

The moderate level of Romanization in Pannonia can in part be associated with the economy of the province. It was not a particularly rich province, lacking major industrial centres and large enterprises whose products were exported to distant territories. This was also reflected in the province's social make-up. There were fewer representatives of the two leading social classes of the empire, the senators and the Equestrian Order (who played a prominent role in the economy) in the entire province than in a larger town of Gaul, Hispania or Africa. The first Pannonian individual to join the ranks of the senators was a certain M. Valerius Maximianus, an excellent soldier and military leader in the Marcomannic wars, who killed the king of the Naristi with his own hands.

CHANGES IN THE 4TH CENTURY

The great wars of the 3rd century that brought destruction to the Danubian region and the front on the Rhine, as well as the Tigris and the Euphrates region, coincided with a major crisis of the empire. The precarious economic balance of the 2nd century was shattered by the Marcomannic wars, by Commodus' reckless overspending, the five years of civil war between 193 and 197 and the significant raise of the soldiers' pay under Caracalla. A rapid inflation can be noted in the 3rd century, reflected by the disappearance of silver coins and the debasement of bronze coins. The unsuccessful military campaigns led to successive civil wars that disrupted the administration of the empire for decades. The government of the Augustan period that had in essence adjusted the administration of the Republic to the needs of a world empire while preserving the local governments of the towns, had become ineffective and could no longer be maintained. Diocletian introduced a series of radical measures that changed the administrative system and the division of power, leading to the abolishment of all forms of independence and the creation of a rigid central administration. Another major change in this period was the victory of Christianity that is also reflected in the archaeological record, for example in the temples, the burials, wall paintings, mosaic floors, symbols, etc. Lying between the western and eastern half of the empire, Pannonia lost the former military and political significance it had enjoyed in the 3rd century and in consequence of the weakening of the western part of the empire, the province proved unable to check the successive waves of population movements and migrations.

QUESTIONS OF SURVIVAL

Roman rule in the Carpathian Basin ceased in the early decades of the 5th century. The border forts were unable to hold back raiding groups and the mobile field army was

transferred to Dalmatia. In accordance with the terms of an agreement, in 430 Rome ceded the eastern part of Pannonia (Valeria province) to the Huns. The written sources containing a wealth of detail on the Roman period in this region again fall silent. The archaeological finds and the products of local workshops rarely enable an ethnic attribution. Even assuming that the greater part of the population left the province for westerly and southwesterly regions, we cannot speak of the absolute cessation of Roman life. A survival was possible in the forts enclosed by walls and in the towns of Valeria (the most likely candidates being Sopiana/Pécs and Herculia/Szabadbattyán). West of Lake Balaton down to Slovenia, where the toponyms of the Roman period survived until the Hungarian Conquest period (e.g. Sala/Zala and Arraba/Rába), the flourishing of the so-called Keszthely culture indicates the survival of the population of the Roman period, while the name Valeria Media suggests the unbroken existence of the population and its assimilation into the freshly arrived Slavs. Judging from the council held here during the Carolingian period, we may also assume the survival of Christianity.

THE BORDER DEFENCE OF PANNONIA

Zsolt Visy

The study of the border defence of Pannonia and of its archaeological remains and history has been one of the main concerns of Hungarian archaeology for generations. The initial enthusiasm sparked by investigations in other areas of the one-time Roman Empire conducted in the early 20th century was followed by debates, rather than actual research projects. The situation did not change later and there were always scholars who regarded the advances made in the study of the *limes* the yardstick of the archaeological research of the Roman period in Hungary. The initial dream of a research project comparable to the *limes* studies in Germany or Austria and the regular publication of findings in this field of research have still not been realized. The regular *limes* congresses, especially the one held in Hungary in 1976, gave a fresh impetus to this research, as did the major construction projects in the cities that now overlie the settlements along the one-time Pannonian border and the plans of the Danube dam that called for large-scale rescue excavations before the construction was begun. These excavations yielded a wealth of new finds and information; their publication will no doubt modify our current knowledge. Even so, there still remain a number of areas, where research has barely started: these include the Pannonian *limes* section south of Paks and other areas, where our knowledge of the network of the military stations along the *limes*, the *ripa Pannonica* is rather incomplete.

Two legionary forts and many auxiliary *castella* lie in the Hungarian territory of Pannonia (Fig. 1). It is impossible to

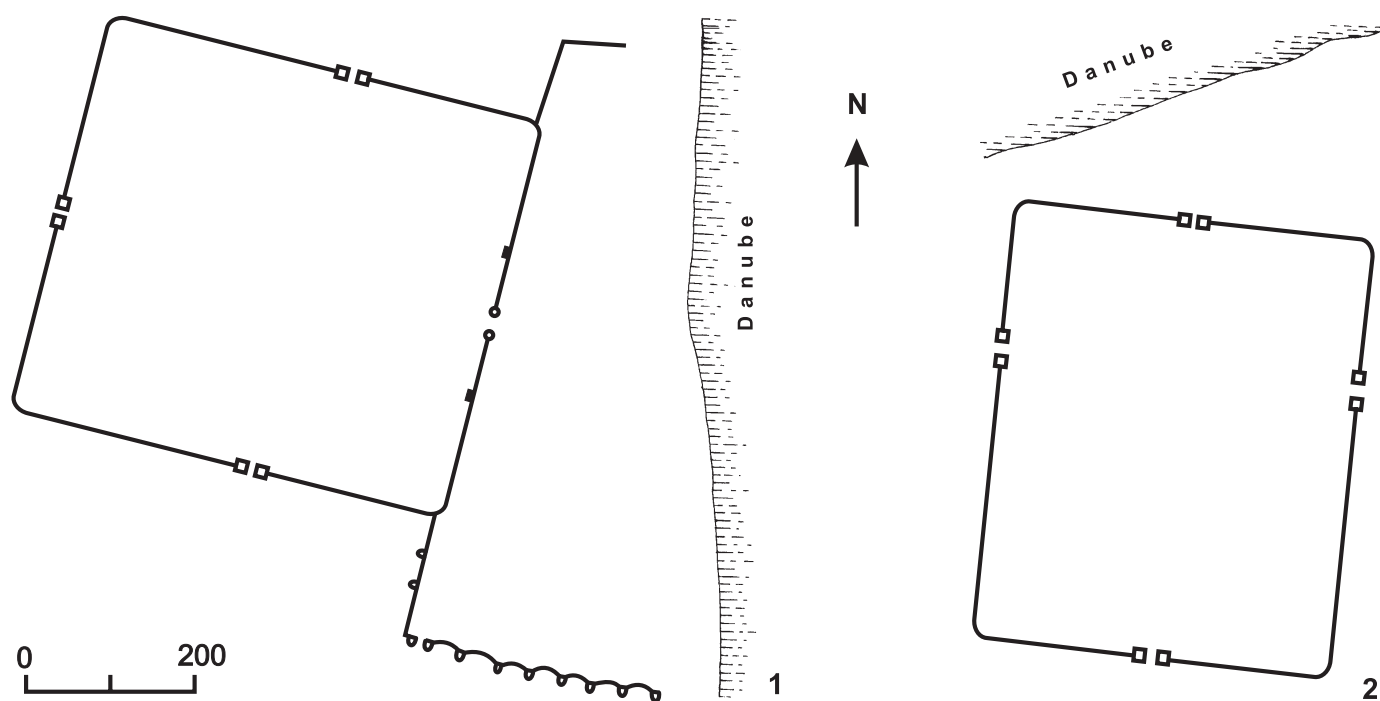


Fig. 1. Legionary camps. 1. Aquincum (Óbuda), 2. Brigetio (Szőny). There is a late Roman fort on the eastern side of the Aquincum camp and a similar fort can be assumed on the northern side of the Brigetio camp

precisely determine the number of *castella* since many of the ones lying in the inland areas of the province or along the *ripa* have not been identified yet. The discovery of new auxiliary camps can be expected at Tokod–Erzsébet-akna, Bölcske–Szentandrás-puszta and in the Szekszárd area. Moreover, some of the known forts have not been excavated yet; in other cases, the findings of a few already excavated forts are rather controversial and it is impossible to determine which of these forts had been used continuously, which had been founded at a later date and which had been abandoned earlier, even if only temporarily. A number of new forts were constructed in the late Roman period, some of which followed the traditional groundplan, while others, built on mountain peaks and atop steep hills, were adjusted to the local terrain. The latter form a rather dense chain compared to the preceding period, especially in the Danube Bend. As a result of more recent investigations, the number of known watchtowers has nearly doubled and the *limes* road can sometimes be followed along 30–40 km long stretches.

FORTIFICATIONS

The fortifications system created along the *ripa* in the 1st and 2nd centuries was the result of a more or less linear occupation. The early camps of the legions and the auxiliary troops that were later rebuilt into proper forts all lie along the Danube, the frontier river of the province and, also, of the Roman Empire. This linear border defence system, conforming to the general defence policy of the Roman

Empire, was obviously adapted to local conditions and the strategic necessities. The river border, the *ripa*, provided a rationale for the genuine military occupation of the frontier. This linear defence system remained unchanged even when Pannonia was carved up, first into two and, later, three frontier provinces.

The local terrain was taken into consideration both in the organization of the defence system on a provincial level and in the siting of individual forts. The diagonal roads leading to the Danube rarely stopped at the river, but continued into the Barbaricum on the other side. The rivers flowing into the Danube were natural and excellent transport facilities on both sides of the river. It has since long been noted that the army troops were at first concentrated in these locations along the Danube and that the early camps were established by the major crossing places.

Even though there is little archaeological evidence in this respect, we know that in Augustus' and Tiberius' time troops were stationed in the region of Carnuntum and near the mouth of the Sava by the Danube. It is unclear whether these were permanent camps or temporary deployments linked to a particular campaign or diplomatic manoeuvring (6–9 and 17). The first legionary camp of Carnuntum was built in Claudius's time and the earliest auxiliary camps at Arrabona, Brigetio, Budapest–Viziváros, Lussonium and Lugio too date from the same period. It is also quite certain that several auxiliary troops were stationed near the mouth of the Drava and the Sava in the region of Mursa and Sirmium during this period, even though there are no archaeological finds to confirm this. Moreover, in the case of Vetus Salina (whose



Fig. 2. *Aquincum, the southern gate of the legionary fort, from the west*

foundation date is uncertain), we can hardly speak of the Danubian terminal of an important road.

Most of the auxiliary troops were transferred to the Danubian *limes* under Vespasian and Domitian's reign. The earliest legionary camp of Aquincum and a number of camps for auxiliary troops were also built at this time (Fig. 2). However, in many cases very little is known about these forts owing to gaps in the archaeological record and because the finds from the forts that have already been investigated are unsuitable for resolving problems of chronology. Troops were installed in Solva, Cirpi, Aquincum and probably in Intercisa along the Hungarian border section under Vespasian; the first auxiliary camps at Albertfalva and Adony were constructed at the same time, if not earlier. The camp at Campona may have been founded in Domitian's time, but if so, the later stone fort was not built over the earlier palisade fort since the stockade uncovered under the former can be dated to Trajan's reign. The Aquincum legionary camp was established in Domitian's time, in 89. A number of problems concerning the camps established under Domitian still need to be clarified: one of these is that while the epigraphic evidence indicates a significant rise in the number of auxiliary troops during the 80s, this is not reflected in the foundation of new camps.

The full and permanent occupation of the frontier zone was completed under Trajan. The legionary camp at Brige-

Fig. 3. *Auxiliary camps: 1. Quadrata (Barátföldpuszta), 2. Ad Statuas (Ács-Vaspuszta), 3. Azaum (Almásfüzitő), 5. Ulcisia Castra (Szentendre), 6. Matrica (Százhalombatta); late Roman forts: 4. Tokod, 8. Lussonium (Dunakömlőd)*

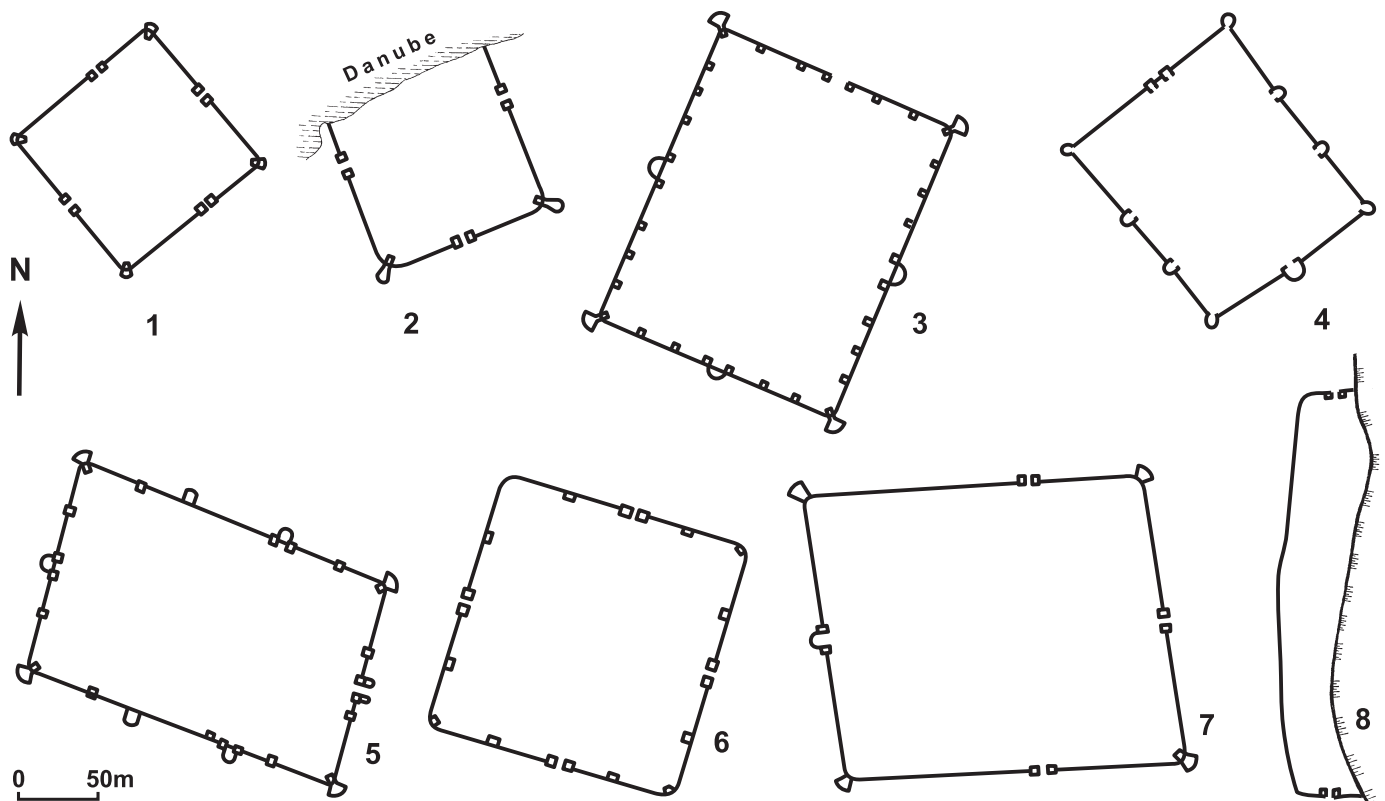




Fig. 4. Brigetio, marching camp



Fig. 5. Intercisa, the southern gate of the auxiliary camp, during the excavation in 1975

tio was founded during his reign, sometime around 100. The other known auxiliary *castella* too were built during this period, suggesting that the border defence system of the two Pannonias that remained virtually unchanged for two centuries had been established by the beginning of Hadrian's reign at the latest. The new auxiliary forts dating to Trajan's time were Ad Flexum, Quadrata, Ad Statuas, Azum, Ulcisia Castra, Campona – if there was no earlier palisade fort here – and Matrica (Fig. 3).

In some cases the fort was relocated. It is also quite likely that a number of early palisade forts that were abandoned and replaced by another fort in its vicinity or somewhat farther will be discovered in the future. In the case of Matrica we cannot speak about the relocation of the fort, as was assumed earlier, while this seems to have been the case at Intercisa. A ditch with a V shaped section, suggesting the existence of an early fort, was found south of the *castellum*. A similar relocation of the camp also seems likely at Lussonium.

The recently discovered auxiliary fort near Sárszentágota was also a palisade fort that, judging from its size, was built by a *cohors*. Although there is nothing either in the archaeological record, or in the epigraphic material to confirm this, its location and distance from the Danube suggest that it can be dated to the mid-1st century, i.e. the Flavian period.

The same uncertainty surrounds the fort at Tokod-Erzsébet-akna. Although there is no archaeological proof for an early Roman camp, Italian *sigillata* fragments and other finds characteristic of early Roman military camps were found together with a rich assemblage of wares produced by the native population, a stamped brick of the *ala I Britannica* and the military diploma of a soldier serving in the *ala Frontoniana* issued in 110. These finds indicate the presence of an early fort in the area.

The auxiliary fort near Bem Square in Budapest is slightly different. Recent excavations have uncovered Roman buildings with several occupation levels; the early wooden constructions can be assigned to the mid-1st cen-

tury on the basis of Italian *sigillata* finds. It is unclear whether the later rebuilding of these early structures, suggesting the presence of a military fort, served military or civil purposes.

The military forts discussed above were, with few exceptions, all palisade forts. The structure of the palisade could be reconstructed in some cases. In cases when there was no evidence for posts arranged into one or two rows, the earthen bank was most likely buttressed with mud bricks. Palisade forts were built even after Trajan's reign.

Several new forts have been identified in the Brigetio area, many of them from the aerial photos made by Otto Braasch. Some of these lie in Pannonia and some in the Barbaricum on the other side of the Danube (Fig. 4). A total of eighteen temporary earthen forts (marching camps and perhaps practice camps) have been identified to date and the line of a ditch enclosing a Roman camp was discovered near Horvátkimle as well. Although the date of these camps remains uncertain until the evaluation of the finds collected during field surveys and excavations, the findings of Slovakian excavations suggest that the majority of the forts at Brigetio were founded at the time of the Marcomannic wars.

While the legionary forts built along the Pannonian *limes* section lying in Hungary were stone constructions by the end of the 1st century, the auxiliary forts were not. It is possible that the rebuilding of the auxiliary camps of Solva, Ulcisia Castra, Albertfalva and Vetus Salina in stone can be dated to Trajan's reign. In many cases, this rebuilding was only begun under Hadrian; many of these reconstructions came to a standstill during the Marcomannic wars and were only continued or finished under Commodus.

The *castellum* of Intercisa was rebuilt in stone in Commodus' time. The southern gate was protected by a simple wooden tower and the walls of the fort extended only to the gate itself. The two gate towers were built later and a section of the wall was pulled down to make place for the towers. The bedding trenches survived inside the

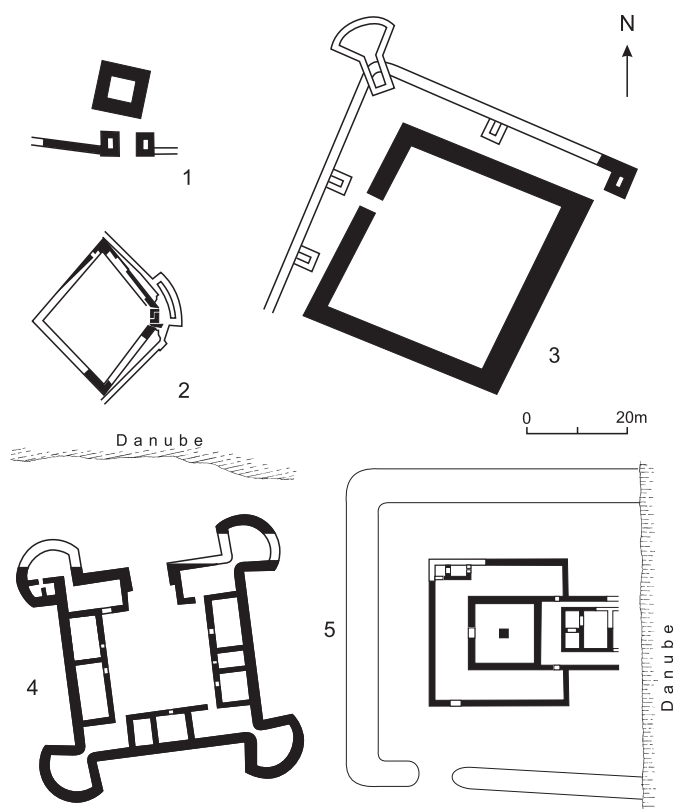


Fig. 6. Late Roman small forts: 1. Lussonium (Dunakömlőd), 2. Cirpi (Dunabogdány), 3. Azaum (Almásfüzitő), 4. Visegrád-Gizella telep, 5. Solva 19 (Pilismarót-Malompaták)

towers. The towers were rebuilt in stone at a later date, probably in Caracalla's time, but most certainly before Gordianus III's reign (Fig. 5). The same could be observed at the fort of Quadrata.

The fort system set up by the middle of the Roman period existed for about two hundred years. The auxiliary forts were distributed more or less evenly and they were suitable for defending the river border of the two Pannonias. The average distance between two forts was about ten miles or, occasionally, fifteen miles when the Danube forked into several branches or was flanked by marshland, as for example along the Moson branch of the river and in the Sárret region. The largest distance, 32 miles, was measured between Solva and Cirpi. This distance can be attributed to the mountainous terrain.

The late Roman fort system can only be understood in knowledge of the late Roman military reform. Begun under Diocletian and completed under Constantine, the reform ultimately meant the division of the army into central military troops and the provincial armies assigned to defend the frontier and, also, a reform of the *limitaneus* army by raising new troops. The reforms also affected the already existing legions and auxiliary troops: these could keep their names, but their organization changed and their number decreased significantly. These changes influenced the fort system as well. The genuine threat of enemy incursions called for the

reorganization of the linear defence system into an in-depth one, in which the fortified towns and their militia could be mobilized in times of danger, played an increasingly important role beside the military bases. The forts along the border were reconstructed as part of the reform and this, in turn, had two consequences. One was the adjustment of these forts to a defensive role and to making them capable of withstanding sieges, calling for the reinforcement of the fort walls and, even more important, the construction of projecting angle and interval towers that also meant that the earlier ditch near the wall was filled up and another one was dug farther away. The other was the rebuilding of the fort and its barracks to accommodate a garrison of fewer troops together with the civilian population. The most salient reflection of these changes was the demolition of the *agger* on the inner sides of the defence walls to make place for new buildings built against the inner face of the wall.

The chronology of these late Roman constructions is uncertain in many cases. The existing forts were renovated and rebuilt to some extent under Diocletian, Constantine I and Constantine II, and the determination of their exact date and architectural-typological features calls for further studies. The last major military constructions can be dated to Valentinian's reign. The replacement of the horseshoe and fan shaped towers of the inner Pannonian forts with large round bastions begun shortly before his death has not been observed in the Pannonian provinces, suggesting a radical drop in the funds spent on the forts of the *ripa Pannonica* and, consequently, the *limitaneus* units.

No late Roman constructions and reconstructions have been observed in the two legionary forts of the province. The rebuilding of the *porta praetoria* during the Tetrarchy was the last construction project in the Aquincum fort. The fort was soon abandoned and a new fort was built on the eastern side in Constantine's time. Since no fan shaped towers were built in the legionary fort of Brigetio either, it is quite possible that the same happened at this fort also.

Almost all of the earlier existing forts that have been excavated yielded evidence for late Roman construction work. The only exception is the Albertfalva fort that was evacuated during the 3rd century crisis or shortly afterwards. The large rebuildings in the excavated forts have been generally dated to the earlier 4th century, to Constantine's reign; this dating seems acceptable, even though conclusive proof for it is often lacking. At Intercisa, for example, the rebuilding was carried out under Constantine II or Valentinian I, although the latter date is hypothetical. The coins found in the fan shaped towers at Quadrata and Ad Statuas suggest that they were built before the 350s.

New forts were also built in the late Roman period (Fig. 6). Some of these were standard rectangular constructions conforming to the traditional layout, such as the ones at Március 15 Square in Budapest and at Tokod built under Diocletian or Constantine, while others were built on hill-tops and the adjustment to the local terrain meant that their groundplan diverged from the standard one. These forts

indicate a consistent adherence to the imperial defensive policy and the practice of adjusting the overall defence-works to the terrain in order to repel hostile attacks. The precise date of these forts is in many cases unclear. Aside from Pilismarót that can be identified with *Castra ad Herculem* and dated to the Tetrarchy, these forts – including the one at Lussonium – can be broadly dated to the reign of Constantine, Constantius II and Valentinian.

The last construction period of the *ripa Pannonica* saw the erection of 10–30 m large, tower-like forts, either separately or on the territory of already existing forts. This would suggest that at the time of the construction works, the garrisons stationed in these forts were unable to defend the forts enclosed by several hundred metres long walls. The 40 m long and 3.2 m wide foundation wall uncovered at Arrabona was probably the almost complete longitudinal wall of a small late Roman fort. While the presence of a fort of this type can only be assumed at Arrabona, its existence has been proven at Lussonium. A 10 m by 9 m large small fort with 2.3 m thick walls was found in the interior of the late Roman fort, a few metres from the southern gate.

According to Sándor Soproni, these forts were built after the Battle of Hadrianopolis, in a rather critical situation when the mobile field army, after suffering grave losses, was replenished from *limitanei* units; since the troops stationed along the borders could not be brought up to strength, the forts were adjusted to the considerably smaller garrison troops. The excavations at Intercisa and Lussonium indicate that the small forts were not built immediately after Valens' death, but at the turn of the 5th century.

WATCHTOWERS

The research of watchtowers is perhaps the best indication of the state of Pannonian *limes* studies. The identification of large military forts is considerably easier than the detection of these rather small constructions, of which little survives if they were built from wood. The excavation of watchtowers thus often lags far behind the investigation of larger fortifications. Even in areas where the research of *castella* is well underway, virtually nothing is known about the network of watchtowers. We know that the efficient defence of the empire's borders was a major priority of the Roman military policy from the very start. In his description of Lentulus' campaign on the Lower Danube, the historian Florus mentions *citra praesidia constituta*; however, it is uncertain what type of military outpost he meant. Obviously, the control of the *ripa*, the frontier, was a major concern from the very beginning of the military occupation under Tiberius and, later, under Claudius' reign, even in times when relations with the peoples on the other bank were fairly good. This is primarily reflected in the construction of auxiliary forts, rather than watchtowers. The defence of the river borders was probably organized around regular patrols at that time,

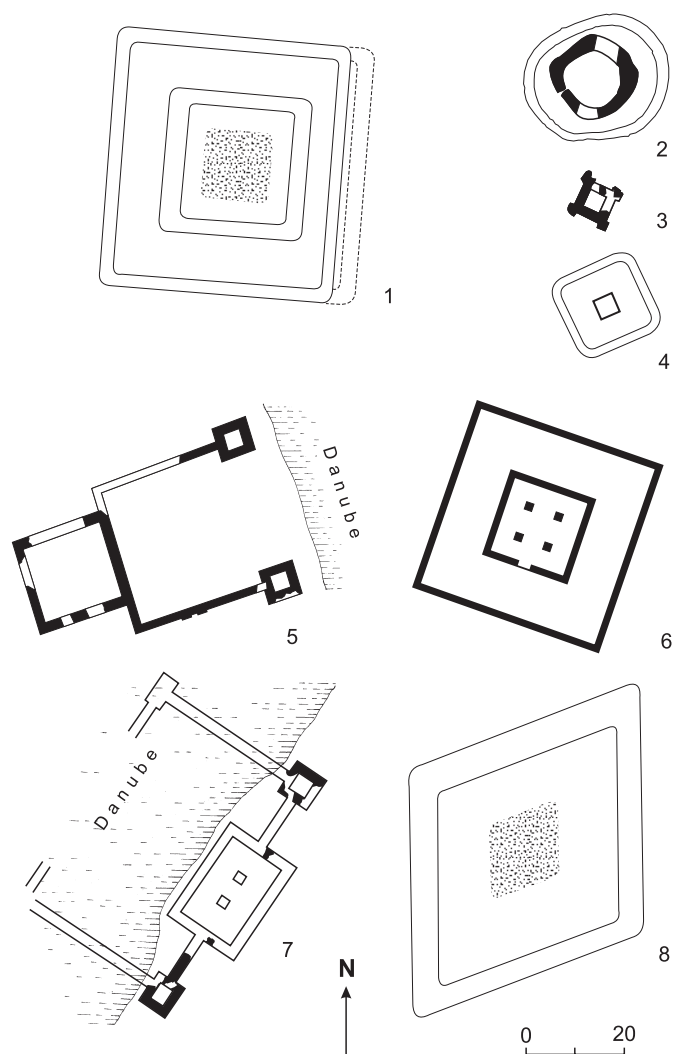


Fig. 7. Watchtowers: 1. Intercisa 6 (Kisapostag), 2. Arrabona 9 (Gönyű), 3. Gerulata 4 (Bezenye), 4. Azaum 3 (Neszmély), 5. Ulcisia Castra 1 (Szentendre), 6. Ulcisia Castra 2 (Budakalász), 7. Lugio 1 (Dunafalva), 8. Intercisa 10 (Kisapostag)

rather than sentries stationed in watchtowers. Trajan's column, however, suggests that the chain of wooden watchtowers along the borders became common by the end of the 1st century.

The study of older and more recent aerial photos, combined with field surveys and excavations, brought major advances in the research of watchtowers. The number of known watchtowers has almost doubled in the past twenty years and new ones have been identified in areas where only one or two such military installations were known earlier. These areas include the *limes* section at Arrabona and the territory south of Annamatiia. In contrast, few new watchtowers have been discovered between Szekszárd and Hungary's current border. Still, it is quite certain that intensive research in this field will bring the discovery of new sites.

Finds dating to the 1st century have so far only been recovered from the ditch of the Solva 11a watchtower. The

tower itself perished completely, and thus its size and structure could not be reconstructed. Only its ditch (having a diameter of 30 m) could be unearthed. Judging from a stamped brick of the *ala I Britannica* from the 1st century, the Azaum 1a *burgus* can perhaps be dated to the same period, although the site has not been excavated yet.

The number of watchtowers from the 2nd century is not much higher. The Crumerum 1 *burgus* can be mentioned from among the earlier ones since its finds suggest that it was used from this time, as was the *burgus* identified in the Pilismarót area, indicated by the remains of wooden towers and a ditch. Some of these *burgi* had a stone tower whose walls measured up to 16 m (Solva 20), although this was not the standard length in the light of more recently unearthed or discovered watchtowers from the 2nd century.

The *burgi* from the Commodus period mentioned in the nearly identically worded building inscriptions are regularly quoted in Roman period studies. It must be noted, however, that these inscriptions mention not only *burgi* proper, but also *praesidia*, suggesting that they were two different types of structures. Since these were mentioned in the context of the secret activities of the *latrunculi*, it seems likely that these buildings were erected in places that were deemed suitable for their arrest. The towers built on the elevation at Intercisa (Intercisa 11, 12, 17 and 13) may have been of such *burgi*.

Only the late Roman towers or, to be more precise, the ones from the Valentinian period are suitable for a more detailed analysis. The watchtowers in the Danube Bend were all built of stone, while the ones along the southern *limes* section in the Intercisa and Annamátia area were wooden structures. Their walls were 10 m long and they were usually enclosed by a quadrangular ditch, although double rectangular ditches have also been found in the Intercisa area and elsewhere, as have circular ditches on some sites.

Palisades have only been found in association with the watchtowers of the Valentinian period. These were usually constructed on the inner side of the ditch and they also functioned as a buttress for the *agger*. They occasionally ran along the outer side of the ditch, as at the Crumerum 2 *burgus*. Depending on the size of the *burgus*, the roof of the upper floor was supported by posts. One post was uncovered in the small Solva 19 fort, while four posts were used in the larger *burgi* of Solva 23a, Cirpi 2 and Ulcisia Castra 2 (Fig. 7).

The identical size of the watchtowers from the Valentinian period is rather conspicuous, suggesting that they were built according to a standard design. Since this uniformity can also be observed in the case of the ditches and the palisades, it is therefore instructive to include them in the discussion of the *burgi*. The axial length of the enclosure ditches was most often 25–26 m or its double, about 52 m, corresponding to 100 and 200 feet (whose most common unit was roughly 27 cm). The same can be said of the wall thickness that measured 4–5 feet or, occasionally, 6 feet. The ditch of the Cirpi 2 *burgus* enclosed a 32.5 m

wide area, corresponding to 120 feet. The same uniformity in size can also be noted among the towers enclosed by double ditches. The inner ditches also had an axial length of 25–28 m.

The towers enclosed by lozenge shaped ditches form a separate group that can most likely be dated to the Tetrarchy, at least on the evidence from the Intercisa 10 tower. Another group is made up of towers with double rectangular trenches, probably from the Valentinian period, that can mostly be found along the *limes* section between Intercisa and Lussonium, although similar towers can also be assumed at a few other sites. This tower type is conspicuously absent from the *limes* section between Solva and Aquincum, while the tower type characterizing this section is probably absent farther south. It seems likely that there were different military districts in these two areas of Valeria.

A distinction must be drawn between watchtowers and signal towers. They cannot be distinguished from each other in areas where the *limes* road runs directly along the Danube as, for example, in the Danube Bend. Elsewhere, however, the watchtowers erected on the Danube bank, on the edge of higher plateaus and by gullies that functioned as part of the Danubian defence system can be clearly distinguished from the signal posts built on the inner side of the *limes* road running at some distance from the river. In many cases, there are no or only minimal typological differences between the two, as at Pilismarót, where the line of the *limes* road coincides with that of the modern road, and in the Ercsi, Rácalmás, Kisapostag and Bába area, where the *limes* road ran farther from the Danube. In these areas a second chain of watchtowers was built near the riverbank.

The chain of bridgeheads along the Danube is a characteristic feature of the late Roman border defence system. Comparable structures are known from the Rhine region as well. A total of fourteen bridgeheads are known or assumed along the *limes* section in Pannonia Prima and Valeria, while only the bridgehead at Bács, lying slightly farther from the Danube, is known from the border section in Pannonia Secunda. Sándor Soproni noted that bridgeheads were built on both sides of the Danube and that they usually occurred in pairs. He believed that their construction and use fell into the same period (between 324 and 378) as the Devil's Dyke, the large rampart system in the Great Hungarian Plain. The Romans regarded the several kilometres wide zone on the other side of frontier rivers, such as the Danube, as part of the empire's territory. The bridgeheads that functioned both as military bases and supply depots were built in accordance with the terms of the treaties signed with the neighbouring peoples and in keeping with the general military reform in the 4th century, and they cannot therefore be directly associated with the Devil's Dyke in the Great Hungarian Plain. It is nonetheless conspicuous that the highest number of these bridgeheads can be found along Valeria's border, in the northern part of the area enclosed by the rampart system.

THE LIMES ROAD

Although the Pannonian *limes* road is described in the *Itinerarium Antonini* and the *Tabula Peutingeriana*, its exact course cannot be reconstructed from the data contained in these two sources. The archaeological record and aerial photographs enable a fairly accurate reconstruction of often 30–40 km long sections. Knowing that the Danube changed its course several times since the Roman period in some areas and that many of the river's meanders were cut off as part of the river regulations during the past two centuries, the relationship of the road to the Danube can be only be analyzed if this is borne in mind. In some case, as in the Mosonmagyaróvár area, it is the *limes* road and the chain of forts that outline the one-time channel of the river in the Roman period (Fig. 8).

The known sections of the *limes* road reveal that the military engineers planned the course of the road as close to the Danube as the floods and the terrain permitted. The road either skirted marshland areas or an embankment was constructed for the road, as at Szekszárd. Another notable fea-

Fig. 8. The forts under the control of the military commander (*dux*) of Valeria and the buildings symbolizing them. Detail from the *Notitia Dignitatum*, 4th century A.D.



ture is that the roads have many straight stretches. These sections, a testimony to the engineers' skilful planning, are often 10–20 km long. Long straight stretches have been found north of Százhalombatta, between Ercsi and Adony, and south of Dunaföldvár. One of Benjámin Csapó's maps reveals that the straight stretches of the *limes* road could still be clearly observed in the early 19th century.

The *limes* road led from fort to fort and the *via principalis* inside the fort was in fact a part of the road; at the same time, a road bypassing the fort was also constructed. If a fort was built in a place where the road could not traverse it, as at Alisca, an access road was constructed. The signal towers were usually built on the side of the road farther from the Danube, while the watchtowers were only linked to the road in areas where it ran right along the Danube bank.

The course of the *limes* road was planned meticulously and its length was measured. The distances, given in miles, were calculated from Vindobona, Carnuntum, Brigetio or Aquincum. The milestones found in their original places are instrumental for reconstructing the course of the road and the distances between various points. The three roads running south of Dunaújváros could be precisely dated on the basis of milestones from the 3rd century.

The structure of the *limes* road differed inside and outside the forts and settlements. The observations made at Brigetio, Aquincum and Intercisa indicate that the roads were paved with stone slabs inside the forts and with gravel outside them. The excavated road sections revealed that road foundations were often dug to a depth of 80 cm: a foundation of stone and earth was made that was then surfaced with gravel. Being military installations, the roads were built and maintained by the army, as shown by the inscriptions on the milestones that often mention road repairs. The construction and maintenance of the roads was probably divided up between the troops and their units.

Owing to their excellent course and solid foundations, the Roman roads – including the *limes* road – were used for a long time well after the Roman period since they were the only lines of transport and communication that could also be travelled in winter. This was true of both the Middle Ages and the post-medieval period, until the construction of the modern road network. It is therefore not mere chance that many modern roads coincide with the earlier Roman ones.

LATE ROMAN FORTS IN PANNONIA

Endre Tóth

The foundation walls of large rectangular forts enclosed by walls with round bastions lie under the ground at Keszthely–Fenekpuszta, Környe, Ságvár and Alsóhetény. The round bastions observed in these forts suggest that these 4th century structures followed a standard architectural design, in other words, the forts built in inland Transdanubia were part of a uniform military system. Since

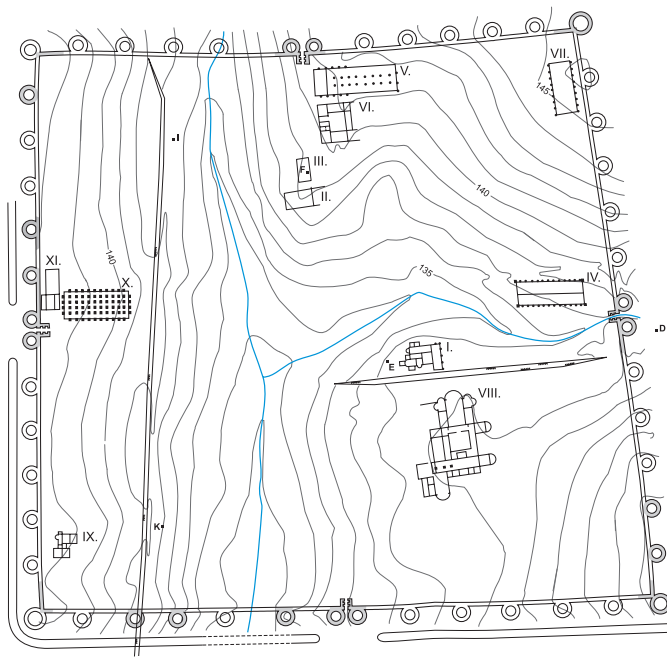


Fig. 9. The second period of the Alsóhetény fort

the remains of the 4th century fort enclosed by impressive walls at Gorsium/Tác show all the features that characterize the first period of these inland forts, it can also be assigned to the group of inland forts.

Until the 1970s, the only fort with round bastions to be excavated was the one at Fenékpusztá. Since none of the forts along the Pannonian *limes* were built with round bastions, these were initially believed to have been the remains of fortified settlements and towns that protected the rural population in their area, who sought shelter behind these walls at the time of barbarian invasions and in times of unrest.

The excavations conducted over the past twenty-five years have clarified the function, the groundplan and the architectural history of these forts. Between 1969 and 1971 and, later, between 1981 and 1994, the archaeologists of the Hungarian National Museum conducted excavations at Alsóhetény, a site not overlain by a modern settlement. The fort at Ságvár was investigated between 1971 and 1979. One of the most important findings of these excavations was that the round bastions of these forts were added in the second phase of their use-life. In phase I, a less massive fortification wall with U shaped interval towers and fan shaped angle towers enclosed the settlement. This layout, fairly common among the military constructions on the Danubian border, can be dated to the end of Constantine the Great's rule (306–337). The forts can therefore be regarded as military constructions. Sándor Soproni identified a number of sites with the garrisons where the *cohors* commanders listed in the *Notitia Dignitatum*, the official list of the civilian and military posts of the 4th century, were stationed. Vincentia/Környe, Quadriburgium/Ságvár and Iovia/Alsóhetény were *cohors* garrisons.

The groundplan of Alsóhetény, the largest inland fort,

resembled an irregular square measuring 458 m x 450 m x 472 m x 499 m enclosed by a system of defenceworks. The northern side of the Ságvár fort measured 298 m, the eastern one 225 m, while the southern and the western sides were both 270 m long. The reconstructed area of the Környe fort was 390 m x 350 m. The Fenékpusztá fort was somewhat smaller, as was the one at Tác. The excavations at Alsóhetény revealed that the walls of the buildings inside the fort were constructed of bricks.

Similarly to most other forts, the Alsóhetény fort was loosely built up. Its buildings included a *horreum* with four rows of pillars, two storage buildings (one with three naves, the other one consisting of a single room), an economic building with less sturdy walls, animal pens, the barracks proper, a bath and a main building resembling a peristyle villa in its outlay. These buildings were often buttressed by external pillars, a fairly common architectural feature of the late Roman period. Another characteristic of these structures is their rather large size, a strict functionality, the lack of luxury and any form of interior decoration (Fig. 9).

The investigation of these forts also showed that the inland fortifications were built according to the same design and that they represent a similar type in terms of their siting and their defence works, as well as the manner in which they were built up and the function of the buildings inside them.

(a) Geographical location: The forts in Valeria were built approximately parallel to the Danube, the eastern border of the province. They were regularly distributed along a north to south line, the only exception being the fort at Tác that lay slightly east of the Környe–Ságvár–Alsóhetény line. The fort at Fenékpusztá was built at the western end of Lake Balaton.

(b) Siting: One main consideration in the choice of location was proximity to abundant water. Another one was the concealment of the fort, as far as possible. This can be best observed in the case of the forts at Ságvár and Környe.

(c) Defence works: The forts were all north to south oriented, except for the one at Környe. The groundplan of the defence works enclosing a near-rectangular area in phase I was identical at Ságvár, Alsóhetény and Tác. The larger forts had four gates, the smaller ones had only two. The fortification walls of the second phase were built exactly over the earlier ones. The gates lay in the axis of the side walls.

(d) Internal layout: The inland forts contained buildings that had the same functions: a villa-like main building (Ságvár, Alsóhetény, Tác, Fenékpusztá), a *horreum* (Ságvár, Alsóhetény, Fenékpusztá), storage facilities (Ságvár, Alsóhetény and perhaps Fenékpusztá) and a bath (Alsóhetény, Tác and perhaps Ságvár). The large southern area of the Tác fort has not been investigated yet, while at Környe the modern village overlies the fort and its interior area cannot be excavated.

(e) Chronology: The architectural features of the defence works, the first burials in the cemetery on Tömlöc

Hill and the coins found in two features suggest that the construction of the Ságvár fort was begun under Constantine the Great (312–337), perhaps at the end of his reign. In phase I, the fort walls had U shaped and fan shaped towers, the wall thickness conformed to the standard 150 cm. At Ságvár, the towers had rectangular foundations, although similarly to the towers of the TÁC fort, the corners of the vertical walls were probably rounded. The rebuilding (phase II) also affected the defence works. The walls of the fort were rebuilt with a width of 200 cm, 250 cm and 270 cm, and round bastions with diameters of 14–15 m and a wall thickness of 200–270 cm were added at this time. This rebuilding can be dated to the end of Valentinian I's reign (364–375) or slightly later, as suggested by the chronology of the Fenékpusztá and Alsóhetény forts (Fig. 10). The TÁC fort was not rebuilt. It is unclear whether this should be taken to indicate that its military use came to an end. The Fenékpusztá fort with its round bastions was built at a later date than the other ones.

The excavations also yielded a wealth of information on the diverse range of economic activities pursued in these forts. Bread was baked in sunken ovens from the cereals stored in the *horrea* (Fenékpusztá, Ságvár and Alsóhetény). Iron smithies and the production of agricultural tools are indicated by the pig iron and tools found in the forts (Fenékpusztá and Alsóhetény). Evidence for animal slaughtering and butchering is provided by refuse pits filled with animal bones unearthed at Fenékpusztá and the meat smoking places discovered south of the Alsóhetény fort. The inland forts were supply bases, established as part of the late Roman military reforms. They provisioned and quartered the troops stationed along the *limes* and, if necessary, the mobile field army (the *comitatenses* troops) when it marched through the province. Agricultural tools and implements for the population in the area were also produced in these forts. The 300–400 strong infantry units stationed in the forts also functioned as a frontier garrisons.

Fig. 10. The round bastions of the Alsóhetény fort

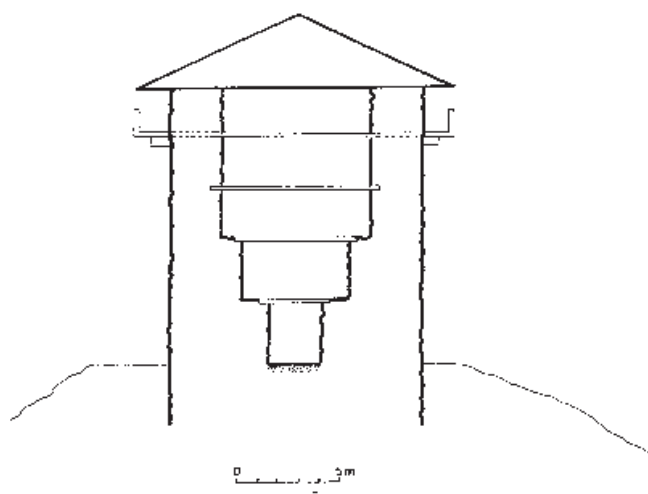


Fig. 11. Reconstruction of the watchtower at Ságvár

Vegetius, a military writer of the late Roman period, cautioned that camps should not be set up near higher hills since the enemy might capture them (*Epitoma* I. 22). The Barbarian armies invading the province during the Sarmatian–Quadic incursion of 374 occupied eastern Transdanubia for months, indicating the need for strengthening these forts. Besides thickening the walls of the defence works, a watchtower was built on Tömlöc Hill overlooking the Ságvár fort (Fig. 11). The tower had a unique structure, unknown elsewhere in Pannonia. It measured 12 m by 12 m, similarly to the watchtowers along the *limes*. The tower had a foundation of solid stone and a wall thickness of 5 m on the ground floor. The Fenékpusztá fort was practically inaccessible because of Lake Balaton and the surrounding marshland, reflecting the importance of defensibility in its siting. It would appear that the forts were rebuilt after the bitter experiences of the Sarmatian–Quadic incursion of 374 to provide an even more efficient defence.

About six hundred tombstone fragments, most of them carved from marble, an altar fragment and the fragment of a larger than life marble emperor statue (Fig. 12) were recovered from the foundation walls of the Alsóhetény fort. The uniform style of the tombstones can be associated with the stonemasons' workshops active in western Transdanubia and southeastern Pannonia. Their dates range from the close of the 1st century to the end of the Severan period. Since no settlement granted municipal rank is known from southern Transdanubia, it is possible that these carvings came from the cemetery of a *municipium*, whose location remains unknown for the time being. This town was probably abandoned by the 4th century and the tombstones from its cemetery were used as building material.

The inland forts reflect an ambitious, carefully planned and rational construction project in Valeria and Pannonia Prima the 4th century. More building material was used for the construction of the bastions of the Alsóhetény fort than for the replacement of the earlier wooden watchtowers with stone ones along the entire Transdanubian *limes* in the



Fig. 12. Fragment of an emperor statue from the Alsóhetény fort

Valentinian period. The large military fortifications of the province were identical with the 4th century military forts in other parts of the Roman Empire and were built according to the same design. The overall concept and plan of these construction projects and, more importantly, their execution called for significant public work, directed and supervised by the military. The forts functioned as supply bases. The *cohortes* garrisoning these forts were unsuited to partaking in the province's defence. These inland forts can thus be regarded as military installations of the late imperial period controlled by the army.

These impressive constructions withstood the ravages of time for long centuries. In the Middle Ages, they were used as convenient stone quarries, the only exception being the Fenékpusztá fort that was spared owing to its favourable location. The medieval chronicler, Simon de Kéza was familiar with the ruins of several Roman buildings in northeastern Transdanubia: he associated these buildings with the Huns and various events of the Hungarian Conquest. According to his chronicle, Svatopluk was defeated in an ancient town beside Bánhida, whose remains could still be seen – the 'town' in question was the Környe fort.

	VINCEN- TIA Környe	QUADRI- BURGIUM Ságvár	IOVIA Alsóhetény	? Fenékpusztá
Size of the fort	16 ha	7.3 ha	21 ha	7.8 ha
Thickness of the fort wall	230–300 cm	280 cm	150–160 cm	230–250 cm
Diameter of the interval towers	1580 cm	1300 cm	1350 cm	1400 cm
Wall thickness of the interval towers	220–230 cm	200 cm	250–260 cm	240–270 cm
Diameter of the corner towers	–	ca. 1600 cm	1700 cm	1600 cm
Wall thickness of the angle towers	–	250 cm	275 cm	260 cm
Diameter of the gate towers	–	1370 cm	1350 cm	1430 cm 1380 cm

ROMAN ROADS IN TRANSDANUBIA

Endre Tóth

A road-map (the *Tabula Peutingeriana*) and two itineraries (the *Itinerarium Antonini* and the *Itinerarium Burdigalense*) list the sturdy roads of Pannonia. The road system was in essence based on two major roads. One of them, the continuation of the Italian *Via Posthumia*, led eastwards from the Emona and Poetovio area in southwest Pannonia to Sirmium and the Danubian border between the Drava and the Sava, ensuring communication between Italy and the western part of the empire with Asia Minor and the eastern provinces.

The other road led northwards from Aquileia, the border of Italy, to the Danubian *limes* of the empire through Emona and Poetovio. This road is known as the Amber Road, a modern name given to this route after the trade in amber conducted along this road. A milestone found near the southern gate of Savaria records – quite exceptionally – the distance from Rome: the 675 miles correspond to the 1000 km between Savaria and Rome on Roman roads (Fig. 13).

Following the occupation of the Danubian border at the end of Claudius' reign and the construction of the chain of forts and watchtowers along the river in the Flavian period, a network of roads was also built to ensure communication between them. The significance of the Danubian road increased owing to the single-line defence system.

In the *Itinerarium Antonini*, the main roads of the province, starting from Poetovio, are listed in a sequence to provide a clear overview of the military and civilian administrative centres. After describing the main roads leading through the province (the military road along the Danube and the Sirmium–Sopianae–Savaria–Augusta Treverorum/Trier road starting from Byzantium), it goes on to list the local branches from Savaria and Sopianae/Pécs, the two proconsul's seats during the Tetrarchy. It describes the roads leading from Savaria to the legionary fort of Vindobona/Vienna and Carnuntum, and thence to the *legio* stationed in Brigetio/Komárom–Szöny through Arrabona/Győr, and finally to Aquincum. Another road led from Sopianae, the seat of the civilian governor of Valeria, to Aquincum, Brigetio and Carnuntum. In its description of the main stretches of these roads, the itinerary always gave the civilian and military governor's seat and legionary forts as the end-stations.

The identification and mapping of the major Transdanubian roads of the Roman period was begun in 1980. It soon became clear that of the roads described in the itineraries, only the remains of the roads that had been continuously maintained and resurfaced could be identified during field surveys. The course of the western Transdanubian roads can be identified along almost their entire length, while only shorter sections of the roads in eastern Transdanubia can be determined. The information contained in these itineraries is incomplete since many passages were repeat-



Fig. 13. The milestone fragment from Savaria and its inscription

edly copied and some stations, together with the distances between them, were left out of later copies. The analysis of toponyms and old maps is also invaluable for identifying these roads. Land surveyors interested in artificial topographical features often sketched Roman road sections in the early 19th century.

The course of the known roads, such as the Amber Road and the Savaria–Arrabona road, indicates that most of them ran along a straight line whenever the terrain made this possible. In more hilly regions, the road-builders usually skirted the slopes and tried to keep to the same altitude (this could be best observed in the case of the road

that cut off the Danube Bend and ran along the southwestern edge of the Pilis).

The entire Pannonian section of the Amber Road is known. The road crossed the Drava south of Lenti, continuing to the *municipium* of Salla/Zalalövő on a course that is more or less parallel to the one-time Varasd–Bratislava road. From here it continued to the Nádasd area, where it branched into two before crossing the Rába. The western branch led northward to Körmend and Savaria. The eastern branch crossed the Rába north of Katafa; its course can be traced to Savaria. A small fort enclosed by a ditch controlled the road on the southern bank of the Rába. The bridge over the Rába is shown on a drawing from the 19th century. There was a road station on the western side of the road at Sorokpolány until the mid-3rd century (Fig. 14). The road functioned as the north–south main road of Savaria; leaving the town, it entered Austria at Olmód; its course is known up to Sopron, whence it continued to the Danube and Carnuntum.

The course of the Savaria–Brigetio road can be well traced from Savaria to the Rába. It branched into two north of Sárvár. The southeastern branch continued towards Aquincum. Dénes Gabler unearthed a road station on the northeastern branch. The section between Ostffyasszonyfa and Pápóc is known only from a 19th century manuscript map since it was destroyed by ploughing. This branch turned eastward at Pápóc, crossed the Rába and continued north-northeast toward Egyed, passing a road station. A milestone was ploughed up beside the Roman road north of Rábaszentandrás; its inscription only indicated the distance: XLVII MP, the distance between its findspot and Savaria. The road crossed the Rába and passed through the *municipium* of Mursella, joining the *limes* road to Arrabona near Ménfőcsanak, from where it continued to Brigetio.

The posts of the bridge across the Rába on the road from Savaria to Aquincum have been preserved in the river bed. The road can only be traced along short sections from Sárvár to Celldömölk. It reached the Bakony Mountains east of Somló Hill and ran towards Aquincum near present-day Road 8 on a course that is more-or-less known.

Even though only short sections of the Savaria–Sopianae road are known, the terrain more or less outlines its course. The road branched off from the Amber Road north of Sorokpolány. Few traces of its gravel surfacing survived up to the Rába, where the remains of a road station mark the crossing place. From here the road turned southeast; practically nothing has survived of its gravel surfacing. Writing in the 19th century, Flóris Rómer noted that the Roman road was still in use in the Keléd area. The road ran southwards through Balatonhídvég or Fenékpusztá, then turned southwards toward Szigetvár through Somogyzsitva. A document from 1217 mentions a large road called *Via Imperatoris* passing through the village of Basal lying north of the town that can perhaps be identified with the Roman road. Crusader armies, such as the one led by the Emperor Frederick Barbarossa, marched down this road on their way to Constantinople, explaining its medieval name.

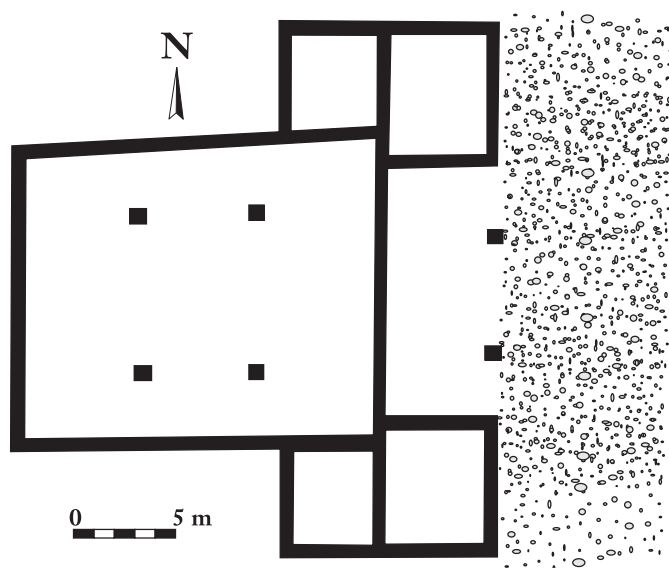


Fig. 14. Road station on the Amber Road at Sorokpolány

Even less has survived of the roads leading northward from Sopianae to Arrabona, Brigetio and Aquincum. The three roads left Sopianae on two courses. Judging from the terrain, the eastern road to Aquincum probably passed through the Mecsek Mountains, along the Hosszúhetény–Zobákpusztá–Magyaregregy line, although it is quite possible that it more or less coincided with the line of present-day Road 6 up to the Bonyhád area, where it turned north. It ran somewhat east of Vajta and Cece toward Tác, where it either passed through Gorsium or nearby Herculia (Szabdbattyán?), continuing first to Tárnok and then to Aquincum. The other two roads probably followed the same course until the Dombóvár area. The western road reached Lake Balaton through Alsóhetény and Ságvár. It skirted the eastern banks of the lake and arrived to Arrabona through Litér, Zirc, Veszprémvarsány and Pannonhalma. The course of the eastern road is not known. It most likely led through the Szabdbattyán area and passing between the Vértes and the Bakony Mountains along the Mór–Oroszlány–Kocs–Mocsa line, it eventually reached the legionary camp of Brigetio.

The road that cut off the Danube Bend followed a course that can be clearly traced partly from the terrain and partly from the ploughed-up gravel surfacing along the Pilisborosjenő–Piliscsév–Kesztlőc–Dorog line, joining the *limes* road at Tokod. The foundation walls of stone watchtowers from the close of the 4th century ensuring the safety of the road were unearthed beside the road at Pilisszántó and Piliscsév.

The course of the well maintained *limes* road running along the Danubian border of Pannonia – and of the empire – is known from aerial photos analyzed by Zsolt Visy. This road connected the legionary and auxiliary forts and the watchtowers.

The roads usually ran on a 50–70 cm high embankment.

The embankment supporting the Amber Road has survived in a fairly good state of preservation at Nádasd, while that of the Savaria–Arrabona road could be observed at Kemenesszentpéter. The road was 5–8 m wide. The embankment of the western Transdanubian roads was constructed of gravel rammed down hard to a thickness of 60–80 cm, usually without a foundation of larger stones. In the upper layers of the roads, the gravel was held together with a binding agent mixed with mortar. The binding material adhering to the pebbles has survived in some spots. A pavement of stone slabs was only made for the stretches passing through towns. The roads were paved with stone slabs in Savaria, Scarbantia and Aquincum (Fig. 15). Since the roads rested on an embankment, there was no need for a ditch along their sides. Although later agricultural cultivation has levelled and destroyed most of these embankments, the ploughed-up gravel layer very often outlines the original course of these roads. Since gravel was more scarce in eastern Transdanubia, the embankment was made of crushed stone, of which little survives. Longer road stretches and changes in the course of the roads can only be documented for the *limes* road.

Little is known about the inns, relay stations and bridges on these roads. We know that these were spaced 15 km apart on the Amber Road, depending on the terrain and, more importantly, on river crossings (Fig. 16). The main fording places were controlled by fortified sentry towers, such as the one at Katafa. A road station has been found south of Sorokpolány. The foundations of the pillar supporting the bridge of the road leading westwards from Savaria across the Perint stream have been identified. This bridge is also mentioned in a historical source that recounts how Quirinus, Bishop of Siscia, was thrown into the stream from this bridge. The road leading from Savaria to Aquincum crossed the Rába river northeast of Sárvár. The bridge was supported by wooden posts set in the river bed; the spaces between the posts were filled in with basalt

Fig. 15. Detail of a north–south street in Brigetio



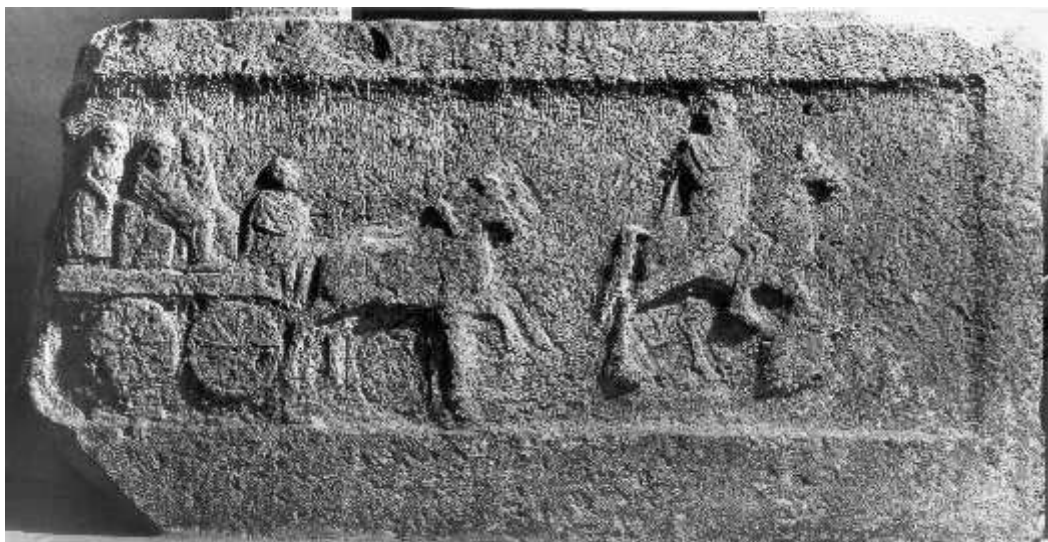


Fig. 16. Depiction of a wagon and rider on a tombstone from Intercisa

stones. The pillars of the bridge have been preserved in the bed of the Rába river. The dendrochronological analysis of the timber remains dated the felling of the trees to the 180s. Similar posts supported the wooden bridge across the Danube near the legionary fort of Aquincum.

The western Transdanubian Roman roads were still used in the Carolingian period. Various documents from the Árpáadian Age mention wide 'bands' of gravel, called *öttevény*, 'casting', in Hungarian. The word also survived as a toponym. In some spots, the mortar binding the gravel could still be observed on the surfaces of the roads; these were called *opus cementarium* in medieval documents, while the expression *via lapidosa*, 'paved road' was used for the road along the Danube.

THE TOWNS OF PANNONIA

THE EARLY DEVELOPMENT OF PANNONIAN TOWNS

Mihály Nagy

The Roman period heralded a new era in the history of Hungary: this period saw the emergence of urbanization in the modern sense of the word. New construction techniques made their appearance, for example in the installation of public utilities (aqueducts, sewers and drainage networks) and in the heating system of private and public buildings and baths concealed under the floor and in the walls.

The appearance of towns in Pannonia actually meant the emergence of communities to whom certain rights of local government and autonomy were granted. In contrast to the modern meaning of the term, the basic criterion of urban status was the legal status of the community that controlled a particular area, rather than the size of the settlement or the degree of its urbanization. An autonomous community

was in effect an organization of the native population occupying a specific area that was granted the right of self-government recognized by the state administration. An autonomous community of this type could be a *colonia*, a *municipium* or a *civitas peregrina*, depending on its earlier development. The army, and the civilian groups arriving in its wake, played a key role in the early development and evolution of the Pannonian urban communities.

The Romans organized the native populations that had surrendered or had been subdued by the army into administrative units called *civitates peregrinae*. At first, these came under the authority of a *praefectus civitatis* (an officer of the Roman army troops stationed in the area) who was later replaced by a *praepositus* chosen from the native population; when this happened, the *civitas* itself was granted a greater degree of autonomy. According to András Mócsy, the organization of the *civitates peregrinae* in Pannonia was begun after the suppression of the first phase of the Pannon-Sarmatian rebellion in 8 A.D. at the latest. The list of these early *civitates* is known from the works of Pliny the Elder. Except for the *civitas Eraviscorum*, the inscribed stone monuments of the Roman period rarely mention *civitates* (Fig. 17).

Certain areas of the province remained part of the *territorium* of the *civitates* after the Roman conquest, while another part was probably expropriated and declared *ager publicus*, state land. The *territorium* of a particular *civitas* was probably already separate from the territories controlled exclusively by the military administration, whose function was to provide for the needs of the military forts. The first town, Emona, was founded in an area under military administration after the legion stationed in the fort had left and veterans were settled in the abandoned fort in 15 A.D. The next town, Savaria, was probably also founded in the place of a military fort during Emperor Claudius' reign by settling legionary veterans. Two *coloniae*, Siscia and Sirmium, were created by settling veterans on the strategically important road leading eastwards in

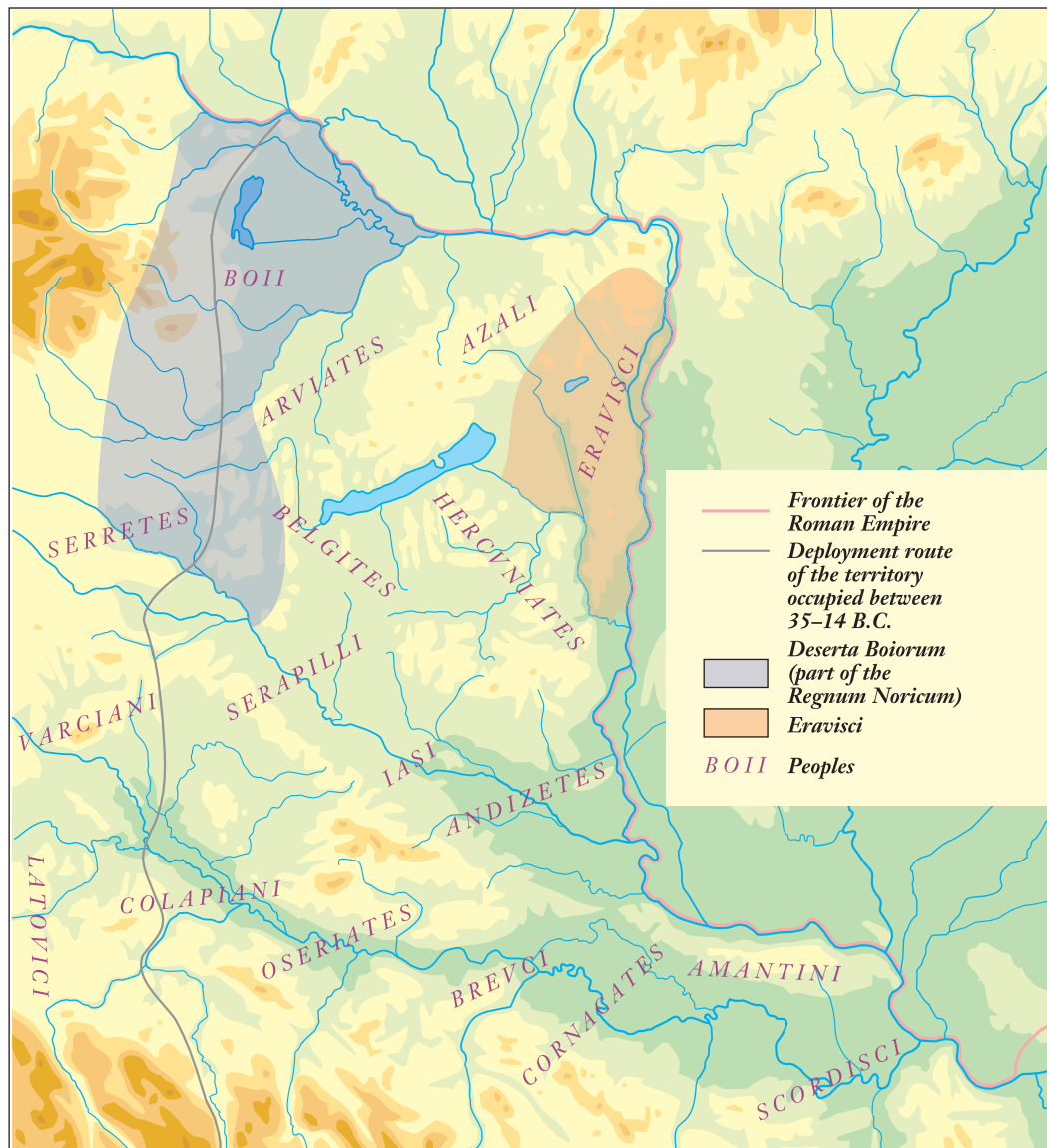


Fig. 17. The tribes living on the territory of Pannonia and the early towns, up to the mid-1st century A.D.

the Sava valley under the Flavians, probably in 71. Two *municipia*, Neviodunum (*municipium Latobiorum*) and Andautonia, were also founded during the Flavian period on the same road. The often large territory of the *municipia* was divided into smaller units called *pagi* and *vici*. Other communities with a certain degree of autonomy were also established in territories under military control (such as the *canabae* beside the legionary camps or the *vici* beside auxiliary forts). Scarbantia was also founded during the Flavian period. The settling of the veterans in *coloniae* continued under Trajan. Poetovio was founded in the place of a former legionary camp, most likely before the start of Trajan's Dacian wars. Most of the Pannonian towns were founded under Hadrian. The emperor founded the *colonia* of Mursa at a major junction of the road leading from Poetovio to Sirmium along the Drava. Another 'first' during his reign was the granting of *municipium* rank to Carnuntum and Aquincum, two civilian communities (*canabae*) near legionary forts that had not

been founded by the military. These towns, the capitals of Upper and Lower Pannonia, were the largest towns of the province. The civilian communities that developed beside the former military fort at the crossing place of the Zala at Zalalövő (*municipium Sallensium*), Mogentiana and Mursella were promoted to the rank of *municipia* during Hadrian's reign. In the lack of conclusive evidence, neither the exact location, nor the date of the foundation of Volgensium, an inner Pannonian *municipium* is known. Inscriptions from the early 3rd century mention its town magistrates. The *municipium Iasorum*, lying between the Drava and the Sava, is also considered to have been founded under Hadrian. The form of the name of the town suggests that, similarly to the *municipium Latobiorum*, the original *civitas peregrina* of a population group had been reorganized into a *municipium*. It seems likely that Cibalae and Bassianae were both granted the status of *municipium* by Hadrian.

In the lack of conclusive evidence, it is impossible to

determine the exact date when Iovia, lying on the road along the Drava in Upper Pannonia, was granted the status of *municipium*, an event recorded on an altar from the 3rd century. The date when this rank was conferred on the *municipium Faustianensium*, lying between the Drava and the Sava, is similarly unknown.

The *vici* of Brigetio and Vindobona were destroyed during the Marcomannic wars (169–172, 166). The honorific title (*municipium Aurelium*) of the civilian community of the Brigetio *vici*s suggests that it had received this title during the reign of one of the emperors bearing this name at the latest. The lengthy wars also arrested the development of several other northern Pannonian towns. Rebuilding projects continued with a greater zeal during the Severan period, at the beginning of the 3rd century.

The available evidence would suggest that no other towns were founded in Pannonia from the Severan period. Septimus Severus conferred the title of Septimia on two *coloniae*, Siscia and Sirmium, and promoted three *municipia*, including the two provincial capitals Carnuntum and Aquincum, and probably also Cibalae, to the rank of *colonia* in 194. Emperor Caracalla granted the status of *colonia* to the Bassiana *municipium*. The *municipium* of Brigetio was also given the status of *colonia* sometime around the mid-3rd century.

The prosperity of the Severan period was shattered by the Barbarian attacks that devastated Pannonia in 258–260, reflected also in the countless coin hoards. The rebuilding of the damaged or destroyed buildings only began years later. Public and private constructions were underway even as late as the 4th century. The decline of urban life is reflected in the fact that the inscriptions erected by town officials gradually disappeared, indicating that office-holding in the town administration had lost its attraction. Contemporary sources suggest that the Pannonian towns were in a rather bad state by the later 4th century. Archaeological investigations have shown that certain town quarters were abandoned and subsequently used for burial. The continuity of Pannonian towns was interrupted at the end of the Roman period. New towns emerged in their place during the Middle Ages – Szombathely over Savaria, Sopron over Scarbantia, Buda over Aquincum and Pécs over Sopianae – since they were usually located at important crossing places.

RELIGIOUS LIFE IN PANNONIAN TOWNS

István Tóth

About half of the towns of the one-time Pannonia province lie in Hungary. Only five of them yielded assemblages that provided information on religious life. Two of these five towns, Aquincum and Sopianae, lay in Pannonia Inferior, another two, Savaria and Scarbantia, in Pannonia Superior, while Brigetio was annexed from Pannonia Superior to Pannonia Inferior in 214.

The proximity to Italy, the early foundation date and the

settling of legionary veterans in these towns during the 1st century essentially determined the religious life of Savaria and Scarbantia, the two western Pannonian towns. These are the only towns in the province from where a temple dedicated to the Capitoline Triad and monumental statues of the deities are known (Fig. 18). These statues were made from Greek or Italian marble. Priests from other towns of the province regularly dedicated altars in Savaria, the centre of the provincial *ara Augusti*. Associated with the events organized by the *concilium provinciae*, the cult of Nemesis played an important role in the town, just as in Scarbantia, where a Nemesion with a rich find assemblage was uncovered in the amphitheatre.

The deities of the native population were also revered in both towns. Local elements can be detected in the cult of Sylvanus, Diana, Liber Pater, Ceres, Hercules and Mercurius. In Savaria, this was complemented by a number of impersonal deities, such as the Numina, Fatae, Sphincses, Dii Augurales, Dii Itinerarii and Semitatrices, indicating the survival of strong pre-Roman traditions (similarly to the Dii Magni in Gorsium).

Fig. 18. White marble statues of Jupiter, Juno and Minerva from the Capitoline temple of Scarbantia. Sopron, mid-2nd century A.D.





Fig. 19. Bronze statue of the Apis bull from Gorsium

Egyptian cults arriving from Italy in the 1st century too played an important part in the religious life of both towns. In Savaria this is reflected in the creation of a sacred precinct, and in Scarbantia in the erection of a private sanctuary. A direct oriental cultural influence can be noted beside the Italian one, leading to the emergence of a hereditary Egyptian priesthood in Savaria and the appearance of an Isis-Bubastis dedication in Scarbantia, a unique phenomenon in the West (Fig. 19). Other oriental cults were represented by a Iuppiter Dolichenus sanctuary in Savaria and a Mithraeum in Scarbantia.

Christianity also left its mark on Savaria. Beside a large early Christian cemetery and numerous Christian representations, this town was the birthplace of Saint Martin of Tours, one of the renowned saints of the 4th century. Clashes between Christians and pagans in the late 4th century can be observed in both towns. The last pagan shrines were destroyed and the statues of the Capitoline Triad were broken. Although there is no evidence for the existence of a bishopric in either town during the Roman period, this nonetheless seems quite likely.

The cultural impact of the *legio I* and *II adiutrix* on religious life on quite obvious in Aquincum and Brigetio. The cult of the state and military deities, Jupiter and Juno, Mars, Fortuna, Victoria, Venus and Dea Roma dominated in both towns. The highest number of altars was erected to Jupiter, followed by dedications to Sylvanus and Mithras. Many army officers and proconsuls were followers of the cult of these two deities. The Mithras sanctuary unearthed in the centre of the Aquincum fort was lavishly furnished by the *tribunus laticlavii* of the legion.

A deity blending a number of native elements was revered by many army troops. Called Hercules Illyricus, this deity can in a sense be regarded as a self-portrait of the 3rd century army transferred to the religious sphere. The cult of the emperor too played an important role in the military, especially in the 3rd century.

Many of the altars erected by the proconsuls in Aquin-

cum were dedicated to the imperial deities: Sylvanus and Mithras. The cult of Mercurius and Nemesis has been documented in the proconsul's palace.

Religious life in the civilian towns lying beside the legionary forts did not differ significantly from that in the fort towns. The dominant cults were those of Jupiter and Juno, Sylvanus and Mithras. The cults of the healing gods, Aesculapius, Hygieia, Apollo and of Sirona, a Celtic goddess, were prominent in both towns. In Aquincum, the presence of Telesphoros, depicted as *genius cucullatus* and invoked in inscriptions, was a unique phenomenon.

The religious centre of the Eravisci lay on top of Gellért Hill, south of Aquincum. Many altars dedicated to Jupiter Teutanus have been found here, most of them dating to the 2nd and 3rd centuries. They were mostly erected by the *augures* of the community or the magistrates of Aquincum for the welfare of the *civitas Eraviscorum*.

The oriental deities popular in the 3rd century include Jupiter Dolichenus, Heliopolitanus and Adonis. The synagogue of the Jewish god, called Deus Aeternus, is known from Brigetio; an inscription dedicated by an *archisynagogus* was found inside it.

Relatively few Christian monuments have survived in the two towns. The augur's staff (*lituus*) with gold inlay recovered from a 4th century burial at Brigetio is a remarkable find, reflecting the ultimate decline of paganism, indicated by the burial of the high priest's *signum*.

Few finds that can be associated with religious life before the advent of Christianity have been uncovered in Sopianae. There is evidence for the cult of Jupiter, Juno and Sylvanus, as well as of Liber pater and Terra mater. The altars were dedicated by both the civilian population and the *beneficarii consulari*.

Lavish early Christian assemblages from the 4th–5th centuries are known from this town. Burials, mausoleums and mortuary chapels, frescos and small finds preserve the memory of a flourishing Christian community and of contacts with Mursa and Sirmium to the south.

SAVARIA

Endre Tóth

In the mid-1st century, the Emperor Claudius founded a town called *Colonia Claudia Savaria* on the Amber Road that led to the Danubian border of the Roman Empire, where he settled the veteran soldiers of the *legio XV Apollinaris*. After the division of Pannonia in 107, this town became the centre of the emperor's cult and the seat of the provincial assembly of Upper Pannonia. The altar of the imperial cult, the sacred precinct and the buildings of the provincial assembly were built at the western end of the town (Fig. 20). Following Diocletian's administrative reform, Savaria became the seat of the civilian administration of Pannonia Prima. The proconsul moved his residence to the town and troops were stationed here to

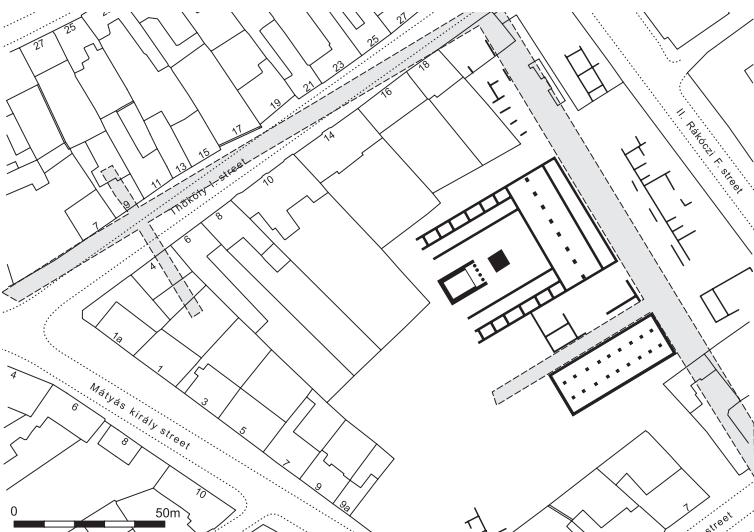


Fig. 20. The southwestern town quarter of Savaria with the sanctuary of Isis

ensure its defence. Savaria was occasionally visited by the emperors (Constantius II, Valentinian I). Some of town's citizens and the inhabitants in the surrounding area fled to the south in the early 5th century. The abandoned buildings were destroyed by an earthquake on August 7,

456. The name Savaria, however, survived until the Middle Ages.

The research of Hungary's oldest town began some two hundred years ago. In 1791, István Schönvisner, professor at the university of Pest, wrote a history of the *colonia*, based on the epigraphic evidence, the surviving relics and various other sources. His study gave a major impetus to the collection of Roman finds. The first systematic excavations were conducted in the late 1930s. A ceremonial hall with a mosaic floor measuring 17 m by 46 m, part of a group of buildings from the late imperial period, was no doubt used for imperial representation (Fig. 21). The sacred precinct with the Iseum was uncovered in the mid-1950s. The rescue excavations preceding urban reconstruction projects vastly enriched our knowledge of the topography of this Roman *colonia*, enabling the reconstruction of its layout and street system, as well as of the various periods in its life. The town had a gridded street system with the Amber Road, traversing the town in a north to south direction, in its axis. The 6 m wide streets were paved with flat basalt slabs. The excavations conducted more or less continuously since the 1990s have brought to light a number of stone houses from the 2nd century that overlay the earlier timber framed buildings of the 1st century and kept the original orientation of

Fig. 21. The Roman palace building from the 4th century A.D. and the Carolingian round fort in Savaria



these buildings. The roads were paved with basalt slabs at roughly the same time. A few residential blocks with arched street fronts have also been unearthed. A vaulted underground sewage system constructed of stone carried the waste water from the houses. The successive periods of the town's development correspond to the increasing administrative significance of the settlement.

SCARBANTIA

János Gömöri

The ruins of Roman Scarbantia lie four and a half metres under the centre of Sopron. The southern part of the *forum* can be seen in the cellar of the modern building on the corner of Új Street and Szent György Street (Fig. 22). To its west stood the *basilica*, the house of legislation with its row of slender columns. In the north, the imposing temple of the *Capitolium* towered over the rectangular square measuring 45 m by 46 m.

The settlement of wooden buildings and adobe huts was known as *oppidum Scarbantia Iulia* in Tiberius' time (14–37). Major constructions were begun in the earlier 2nd century, a few decades after the town had been promoted to the rank of *municipium Flavium*. The stone amphitheatre buttressed with earth was also built in the 2nd century, approximately

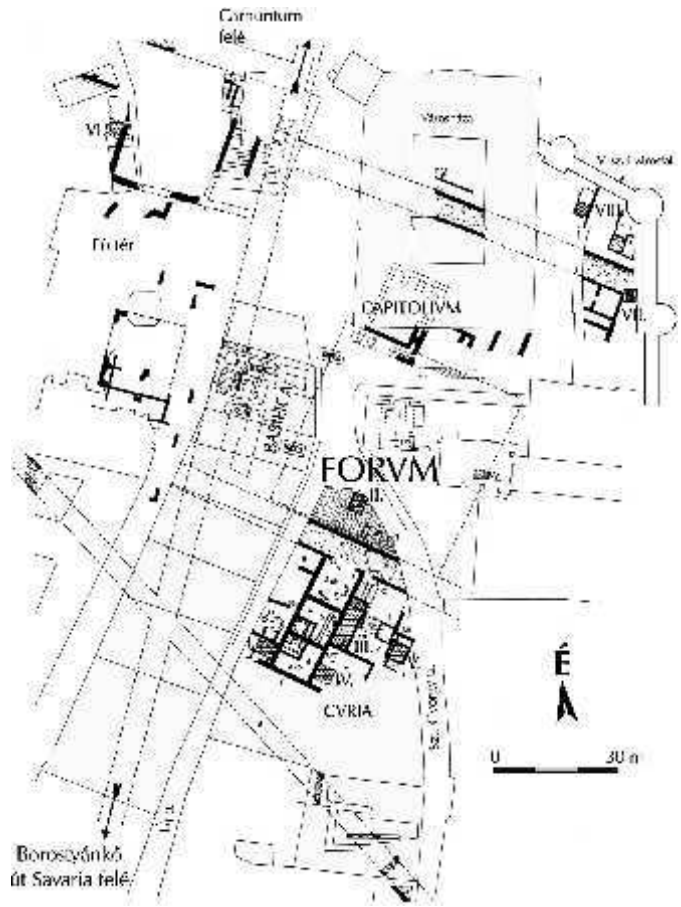


Fig. 22. Excavation plan of the forum of Scarbantia

Fig. 23. The town and the walls of Scarbantia from the north



at the same time as the *forum*. The excavations conducted in 1925, 1933 and 1991–92 revealed that the *arena* measured 42 m by 63 m, while the width of the *cavea* was 21 m. The ruins of the town bath built in the 2nd century and the remains of the *hypocaustum* system that heated the hot-water basin from below were uncovered in the cellar of what is today the Szent Orsolya School in 1950.

The inscribed stones found in Scarbantia and its environment indicate that the town had held numerous sanctuaries and temples; the ruins of some have been uncovered (Nemeseum, the temple of the Capitoline Triad, the Mithraeum in nearby Fertőrákos). The merchants erected an altarstone in the sanctuary of Mercurius standing beside the *forum*. The followers of Liber Pater, another name for Bacchus, also presented their sacrifices in a neighbouring temple.

The pottery kilns were found on the site of the Ikva shopping centre and between Széchenyi and Deák Squares. Travellers arriving to Scarbantia from the south passed the cemetery flanking the main road, containing the tombstones of prosperous families, often with painted scenes or relief decoration. The inscriptions on the tombstones reveal that some of the people who settled in the Scarbantia area came from the trading houses of Aquileia and neighbouring Tergeste/Trieste.

At first, Scarbantia was an open, undefended settlement. The town walls were built at the beginning of the 4th century. The town centre was enclosed within a 3.5 m thick and 8.5 m high stone wall with 35 horseshoe shaped bastions. The north-south axis of the oval fort was a 400 m long stretch of the Amber Road. A 100–125 m wide zone was fenced off on either side of the 6 m wide road paved with gneiss slabs leading to the fort. The town had two gate towers. The northern gate, opening towards Carnuntum and Vindobona, is still visible under the present-day belfry. The southern gate toward Savaria probably lies under the town wall section between 18 Széchenyi Square and the Orsolya School. A pedestrian gate was cut into the eastern and the western side of the wall. The groundplan of the fort is clearly outlined by the town wall along the Várkerület–Szinház Street–Széchenyi Square line that was rebuilt during the Middle Ages. The ashlar façade of the Roman town wall and its bastions can still be seen in several places (Fig. 23). When the Avars invaded the Carpathian Basin in 568, the town's inhabitants evacuated Scarbantia, and, together with their bishop Vigilius, they joined the Lombards and migrated to northern Italy.

AQUINCUM: THE CIVILIAN TOWN

Paula Zsidi

Aquincum developed at one of the most important crossing places of the Danubian *limes*, at the junction of the east-west road arriving from the Solymár valley and the road running along the Danube. There was a settlement on the

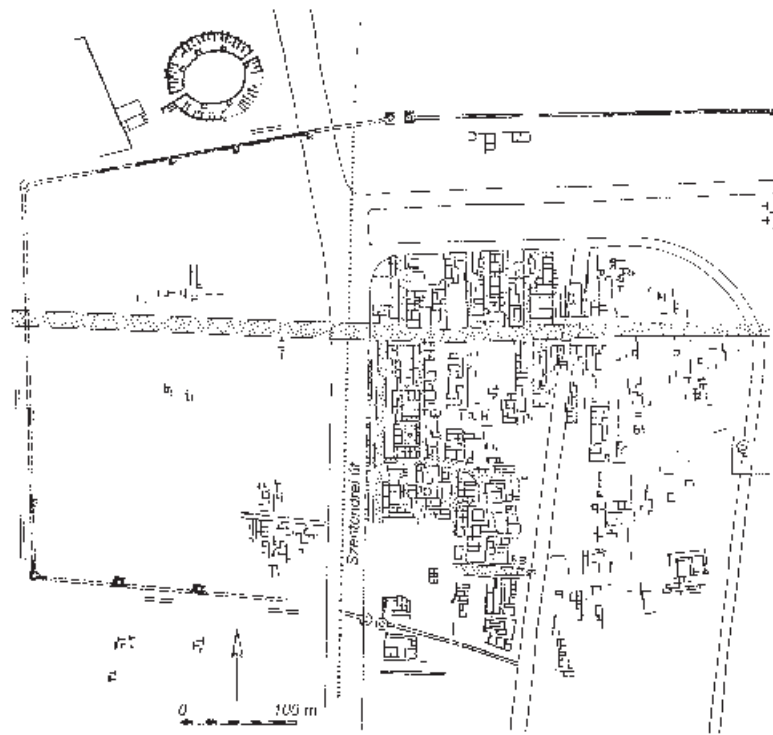


Fig. 24. Plan of the civilian settlement at Aquincum

site of the town before the Roman period. In view of the strategic importance of the area, the earliest Roman architectural features were military in nature. They probably date from Domitian's reign, when the *legio II adiutrix* was transferred to Óbuda.

Being a settlement belonging to the capital of Pannonia Inferior province, the *vicus* was granted the rank of *municipium* around 120. Another promotion in rank and a new period of prosperity in the life of the town can be dated to the reign of Septimius Severus. Together with the military town, the *municipium* was promoted to the status of *colonia* in 194. The latest epigraphic evidence for the activity of the municipal *ordo* dates to the first decades of the 4th century. The town itself was occupied until the last third of the 4th century (Fig. 24).

The excavations conducted without major interruptions since 1880 have uncovered about one-fourth of the town's territory, primarily its eastern part. Many buildings and installations that were essential to the life of the town, such as the amphitheatre, wellheads, aqueducts, inns, cemeteries and industrial quarters, lay beyond the town walls.

The bastioned defence works of Aquincum were interrupted by fortified gates in the north, south and west. The location of the southern gate has not been identified yet.

The gridded street system, the so-called *insula* system characterizing most Roman towns, cannot or can only barely be recognized in the civilian town. The small streets branching off the *cardo* and *decumanus* mostly enclosed irregular blocks of houses. This layout can be

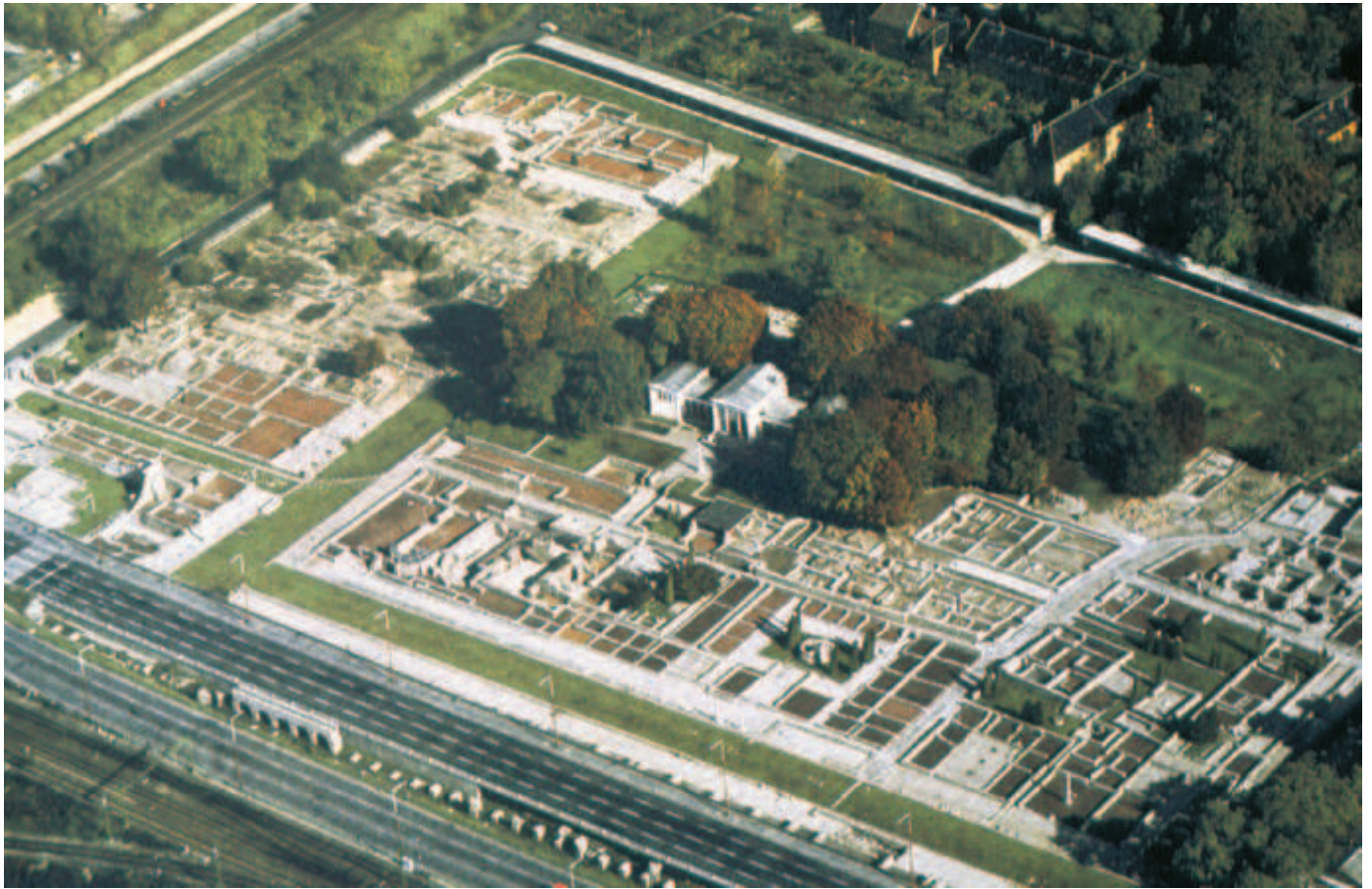


Fig. 25. Aerial photo of the reconstructed remains of the civilian town at Aquincum

traced to the town's development in the Severan period, when the proportion of oriental and north African inhabitants rose significantly and the new settlers re-created the characteristic features of the towns of their original homeland (narrow lanes, so-called long houses arranged like the teeth of a comb, etc.). By the 3rd century, the original *insula* system of the early 2nd century only survived along the two main roads, where the function and use of the large public buildings (*forum*, public baths, *collegium* buildings, *tabernae*, etc.) hardly changed (Fig. 25).

Lying at the junction of the main roads, the *forum* on which the temple of the imperial cult stood shows a regular groundplan, although it is rather small compared to the overall size of the settlement (Fig. 26). Of the large public buildings by the *forum*, the *basilica*, the large public bath and the *taberna* row on the western side of the north-south main road have been excavated. A sanctuary, the market hall and the *collegium* headquarters stood on the other side of the main road (Fig.

27). The residential buildings were built slightly farther from the main road. Three main types can be distinguished among these houses. Aside from two houses of the *peristylum* type, harking back to Italian antecedents, most of these residential buildings were of the type with a central corridor or of the so-called long house type. Public baths

were perhaps the most important establishments serving the comfort of the town-dwellers; the six baths found to date were evenly distributed in the investigated part of the town and each served a separate town quarter. The interior of the buildings was often decorated with lovely wall paintings and elaborate mosaic floors. The cemeteries lay along the roads leading to the town. The best-known burial ground is the one at Aranyhegyi-árok, where many elaborately carved tombstones (Fig. 28) and other carvings from funeral buildings have been found.

The larger part of the investigated area



Fig. 26. Capital with an Amon head from the forum of the civilian town at Aquincum



of the town is now accessible to the general public as an archaeological park. The reconstructions present the town of the Severan period.

BRIGETIO

László Borhy

Brigetio was the garrison of the *legio I adiutrix* from the close of the 1st century to the very end of the Roman occupation. Its name can be derived from Celtic *brig-*, meaning 'fort'. The Romans organized the Celticized Azalus tribe of Illyrian stock living in this area into the *civitas Azaliorum*.

An urban settlement, a *canabae legionis* surrounded the Brigetio fort, but since the settlement had been established in a military territory, it was not granted urban rank. Residential buildings provided with floor heating and decorated with lavish wall paintings were uncovered on its territory; a sacred precinct with the cult place of Jupiter Dolichenus and Mithras lay in the western part. An inscription suggests the presence of a temple dedicated to Apollo Grannus nearby. The sacred precinct also incorporated a medicinal spring (*fons Salutis*). Pottery and brick kilns and workshops were uncovered in other parts of the *canabae*.

The amphitheatre was built west of the legionary fort. According to the description of Richard Pococke, an English traveller, its remains were still visible in the 18th century. Other visitors to the area mention a partly above-ground aqueduct that carried drinking water to Brigetio from the direction of Tata.

Little is known about the layout, topography and internal structure of the town lying 2 km west of the military fort. The civilian settlement was granted the status of *municipium* under Caracalla, when Brigetio was administratively annexed to Pannonia inferior (214); the town was soon promoted to the rank of *colonia*. Its extent can in part be reconstructed from the assumed line of the one-time town wall and the cemeteries between the *canabae* and the *colonia*. The internal layout is little known in the lack of excavations. The investigation of this Roman town was begun in 1992, in the marketplace (Vásártér) of Szőny that according to local tradition overlay the *forum* of the Roman town. The rooms of the building found during the excavation were decorated with magnificent frescos (Figs. 29–30).

It would seem that life in the *canabae legionis* ceased sometime in the late Roman period and that its area was subsequently used as a cemetery. The earliest Christian graves lie in this area. The walls and the defences of the legionary fort were renovated and rebuilt for the last time during the last major military construction project of the Danubian frontier. The historian Ammianus Marcellinus records that

Fig. 27. Construction inscription dedicated to Dea Syria from the civilian town at Aquincum



Fig. 28. Tombstone with a wreath



Fig. 29. The remains of the so-called fresco house uncovered during the excavations at Szőny-Vásártér (Marketplace)

Fig. 30. The central element of the ceiling fresco from the so-called fresco house at Szőny-Vásártér (Marketplace)



Valentinian I who launched this construction project died in the fort of Brigetio in 375.

The excavations conducted to date have not provided any clues as to when the inhabitants abandoned the town. The observations made during the excavations in the marketplace would suggest that the building unearthed there was abandoned in the mid-3rd century. Its former occupants systematically emptied the rooms since no vessel sets have been found, and neither could traces of an unexpected destruction be noted; on the contrary, the archaeological record reflects the slow decay of the houses (the collapse of the roof and of the walls).

SOPIANAE Zsolt Visy

Sopianae was a significant Roman settlement at the southern foot of the Mecsek Mountains. The inhabitants of the

region at the time of and in the early phase of the Roman occupation were Celts and Illyrian Andizetes. The Roman name of the town is probably of Celtic origin since the stem **sop*, denoting a marshland area, occurs in several toponyms of Celtic origin. The toponym perhaps refers to the lower lying marshland areas of Pécs or the large marshlands along the Drava.

The town is only mentioned in the *Itinerarium Antonini* and Ammianus Marcellinus' work. The restoration of the single inscription mentioning the town (*cives Sop[pianenses]*) is controversial. Together with several other Pannonian *municipia*, the town was founded under Hadrian. A few military tombstones from the late 1st century suggest that the town had a military antecedent, although the archaeological record has not confirmed this.

Since the medieval and the modern town overlies the Roman one, at first only the late Roman cemeteries and burials provided proof for the one-time existence of the town. Many parts of Roman Sopianae were uncovered during systematic campaigns and rescue excavations from the early 20th century. It became clear that the Roman town, extending over an area measuring roughly 500 m by 400 m, occupied the area enclosed by present-day Ferencsek and Nagy Lajos király Roads in a north-south direction and Várady and Irgalmasok Streets in a west-east direction. Ferenc Fülep discovered the *forum* of Sopianae under the present-day main post office building and its environs. A public bath and a *beneficarius* station were found nearby. Recent rescue excavations have brought to light the remains of various public and residential buildings and streets. In addition to the remains of buildings from the 2nd and 3rd centuries, a public bath with five apses was uncovered in present-day Sopianae Square and its immediate vicinity (Fig. 31).

A remark by Ammianus Marcellinus suggests that in the 4th century the civilian governor (*praeses*) of Valeria province had his seat in Sopianae. The rich late Roman find assemblages and burials from Pécs and its environs indicate a significant promotion in rank, as does the imposing building unearthed under the main post office building that can probably be identified with the governor's palace and the late Roman town wall at the eastern end of present-day Citrom Street. The town probably had an episcopate as well.

Of the cemeteries of Sopianae, only the northern one, used predominantly in the late Roman period, is known in detail. The lavish finds reflect a Christian society and a prosperous town. Over a dozen mortuary chapels were built along in the northern part of the cemetery, forming a dense cluster around Saint Stephen's Basilica. Both painted and plain burial chambers were built under the chapels. The frescos depicted scenes from the Old and the New Testament, such as the Fall, the lives of Jonah, Daniel, Peter and Paul, and the Chi-Rho monogram also appeared quite often.

The mortuary chapels survived for a long time, some still being used as late as the close of the Migration period, as



Fig. 31. The town and cemetery of Sopianae on the territory of present-day Pécs on an aerial photo, from the south

shown by the finds recovered from them and the fresco of a three-lobed chapel dated to the 8th–9th centuries. The medieval name of Pécs, *Quinque Basilicae*, most likely referred to the chapels that were still standing and used for liturgical purposes. Neither can it be mere chance that the episcopal church founded by King Saint Stephen was built in this area, probably over a mortuary chapel.

AQUEDUCTS AND PUBLIC UTILITIES

Klára Póczy

Although the aqueduct and sewer system was introduced in the towns of northern Italy and the greater part of the empire in the 1st century and the beginning of the 2nd century, towns with complex public facilities only appeared in

the 2nd century. The technical elements of the system were refined as part of a genuine 'technological revolution' in the 1st century. New innovations, such as the force pump and the combination of multi-levelled sewers were introduced. The towns and settlements of Pannonia were already part of this process. This was an elaborate system since the excess water of public wells was led into ornamental fountains and wells, while the waste water of the public baths was led into a sewer system. The refuse was washed away by this water that enabled the use of water toilets in the towns.

Water consumption was measured with an ingenious device, a calibrated meter fitted to the water tap. A bronze tap with the soldered lead joint was found in Brigetio. The water-rates were collected by the municipal office. The conduits were regularly monitored for detecting illegal tapplings and offenders were fined. According to the law, water was state property.

The introduction of running water into a town was one of the greatest burdens on the local government. The personal fortune of the municipal officials acted as the security for these construction projects. If the economic balance of a town was disrupted, it could easily upset the economy of the entire province, and in order to avoid this danger, the governor in office was expected to bear the responsibility for completing major investment projects of this type.

During the inauguration ceremony of one of the baths of Aquincum, Marcus Ulpius Quadratus presented a sacrifice to the goddess Fortuna Balnearis since he was the official who gave permission for the use of running water. Two *duumvires quinquennales* of Aquincum, a father and his son, with about two decades between them, each dedicated an altar to Aesculapius and Hygieia in the sanctuary by the springs from where two aqueducts of Aquincum started, indicating that they assumed responsibility for completing

Fig. 32. Reclining water god in the eastern *nymphaeum* of the forum in the sacred precinct of Gorsium

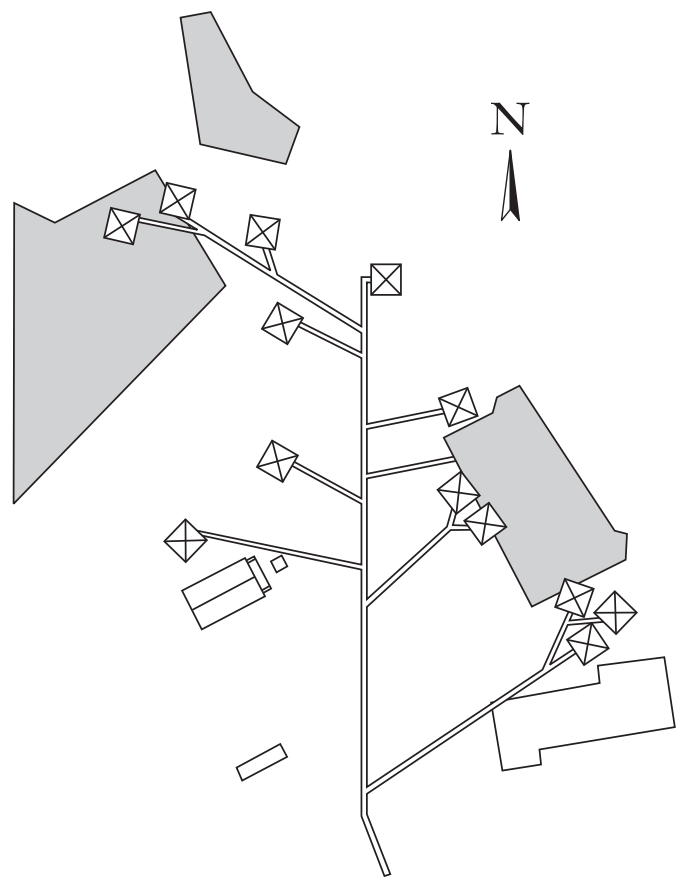


Fig. 33. Aquincum. The wells of the aqueduct at Budapest-Római-part

the construction of the aqueducts on deadline as part of their official duties.

The costs of the design and the investment were borne by the towns, although the emperor occasionally contributed to the costs. There are no written documents from Pannonia in this respect; a few inscriptions record that a fountain or a *nymphaeum* was financed by private citizens. Several water conduits were constructed and laid by the army (Fig. 32).

LICENCE, DESIGN, EXECUTION

When a construction project was launched from private funds, a licence for the construction had to be first obtained from the municipal council. This was recorded on an inscription carved in stone that named the installation and the person providing the funds; the inscription ended with the formula D.D.D.D.: *d(onium) d(edit) in ordine d(ecurionum) d(ecreto)*, meaning that in accordance with the regulations, the municipal council had given a written licence for the construction. An inscription of this type has been preserved, for example, at Aquincum on a public *nymphaeum* that used running water. The donor was Caius Iulius Secundus, one of the town's mayors.

The first north–south aqueduct of Aquincum was built in 93, when M. Ulpius Traianus was the proconsul of Pannonia. This aqueduct was originally constructed to ensure the water supply of the legionary fort, although the civilian settlement could also enjoy the benefits of this utility since it ran through the civilian town. The inscriptions on



the altars set up at the springs from which the aqueduct carried the water to the town record that as soon as the rank of *municipium* was conferred on the civilian settlement by the Emperor Hadrian, the water output of the aqueduct was increased owing to the generosity of the town's leadership (Fig. 33).

A hydrological engineer who had been granted Roman citizenship by Trajan directed construction work when new springs were tapped. Ulpius Nundius was a *discens regulatorum*, an expert working with a *regula*, a protractor, who was trained for special tasks. The names of many engineers working in Pannonia have been preserved.

An aligning instrument called the *groma* was used in laying out the course of roads and aqueducts. One such instrument has also been found in Pannonia. A bronze ruler with a fine graduation was fixed to a table top that could be tilted. The bronze *regula* was fixed to the table top and the curves that can also be regarded as an ornamentation were used for drafting. These instruments could function even today.

The north–south conduit supported by arches and a later northwest–southeast conduit similarly resting on a row of arches were built for the legionary *castrum*; these aqueducts also supplied the civilian and military towns with water. These aqueducts were planned and constructed by the army, and their maintenance too was the army's duty. Most aqueducts were surface ones with trough shaped conduits, although an aqueduct running below the ground surface dating to the 3rd–4th centuries has also been found (Fig. 34).

The situation was the same in Brigetio. The aqueduct and sewer system built by the army supplied the garrison of the *castrum*, as well as the military and civilian town.

The activity of the engineering corps attached to the legions stationed in the province has also been documented in other Pannonian towns, as shown by the remains from Savaria and Scarbantia. The *legio XV Apollinaris* was still stationed in Carnuntum, when the aqueduct of Savaria was completed, while the aqueduct of Scarbantia was planned and constructed by the *legio XIV Gemina* that replaced it.

The water supply and sewer system of four Transdanubian Roman towns are known in detail. Each revealed different technical solutions. Some were aqueducts resting on high arches, while in others the water flowed through stone pipes on the ground or in covered underground conduits lined with terrazzo. Evenly spaced milestones (*cippi*) marked the location of monitoring and repair shafts for the latter (Fig. 35). At Intercisa, water from the Danube was transported to the cistern of the fort in barrels or was pumped into the cistern.

Fig. 34. Street drain. Aquincum

Fig. 35. Drain with the repair shaft under the pavement of the street. Aquincum

OPERATION AND MAINTENANCE

A number of edicts regulated how the streets, the shops and the shopping halls were to be cleaned and this was regularly monitored by the *aediles* representing the municipal council. The floor of meat markets had to be paved with stone slabs into which troughs were carved during their construction. The floor had to be washed with water every two hours, lest the refuse contaminate the environment. These stone troughs can still be seen in the civilian town of Aquincum.

Flush toilets were installed in every public bath in Pannonia (the high number of such conveniences allows this general statement). The foundation of a public toilet was preserved in the busy centre of the civilian town of Aquincum, together with the remains of the pipes for the running water and the sewer that drained the waste. A water tower and several public wells, part of the system, were also found nearby (Fig. 36).

REGIONAL ESTABLISHMENTS LINKED TO WATER

Traces of modest river regulation were observed between the Rába and Gyöngyös rivers near Savaria. A passage in a

Fig. 36. Fountain with dolphins, after restoration. Aquincum



contemporary written source mentions that an ambitious construction project was begun between 305 and 311 under Galerius in roughly the same area where the present-day Sió canal lies in order to connect Lake Pelso (Balaton) with the Danuvius (Danube). Sections of the Roman period earthworks are still visible near Siófok.

Dams and weirs were often established on the large estates, usually for fish breeding and the creation of fish ponds. A weir of this type was identified near Pátka in the 19th century. The water of the Zámoly reservoir, operated by modern technology, covers the walls of its Roman predecessor.

Another Roman period weir and a sluice system has been identified near Öskü. The stretch of Road 8 between Várpalota and Veszprém runs on the embankment of the Roman dam – the embankment functioned as a road also during the Roman period.

The draining of waterlogged marshland areas was a standard procedure in the Roman period to gain new arable land. It was believed that these lands were best suited to vine cultivation and for orchards. A passage in the *Historia Augusta* records that during Probus' reign (276–282) the army stationed in Pannonia dug a number of ditches for this purpose.

RECENT RESEARCH RESULTS

The technological procedure of how the water discharged by springs was harnessed could first be observed and documented at Aquincum–Római-part. The course of the water could be traced from the ceramic wellheads of unusual shape through a small tank, terracotta pipes and stone troughs to the main conduit. It also became clear that the wellhead of each spring corresponded to its discharge. The wellheads were produced in the pottery workshop of the legion, where industrial ceramics were also made. These wellheads can still withstand the water pressure.

THE SUBSEQUENT FATE OF ROMAN AQUEDUCTS

The function of aqueducts was in later ages forgotten to such an extent that the most bizarre ideas about their surviving and visible remains were transmitted from generation to generation. One of these legends, still current in the early 19th century, was that in the Middle Ages wine flowed through the aqueduct of Savaria.

A number of charters mention the high stone walls of the north–south aqueduct of Aquincum from the 14th century on. A section of this aqueduct reflects the tradition of the feasts held on September 8 in the 17th century: the so-called Mária Stone, a small roadside chapel containing a depiction of the Virgin erected in the shelter of the Roman arches.

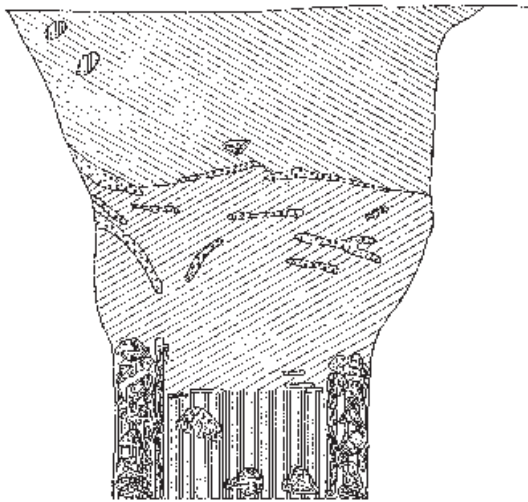
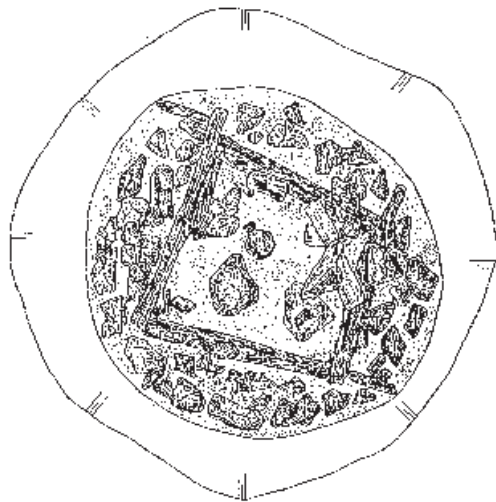


Fig. 37. Ménfőcsanak–Shopping mall. View and cross-section of well 205

(1) Aqueducts

Savaria: Velem, Kőszegszerdahely, Rohonc, Bozsok valley, with a few viaduct stretches; length: 29 km

Scarbantia: Bánfalva, Lake Malom, Rák stream; length: 6.5 km

Aquincum I: from the fourteen springs at Római fürdő; length: 4.5 km

Aquincum II: from the Árpád spring, along the present-day Vörösvári road; length: 2 km

Brigetio: Tata, from the Fényes springs; length: 14.5 km

(2) Methods of harnessing water and wellheads

Aquincum: wellheads using a ceramic device of interlocking elements (Budapest–Római fürdő)

Intercisa, waterside settlements: the water was carried from the Danube in barrels or lifted vertically, probably with a force pump

Gorsium, Ménfőcsanak, Intercisa: from wells and cisterns (Fig. 37)

Aquincum III: proconsul's palace – a regional water work with a water tower

A wide variety of wells are known from towns, *vici*, villas and other settlements, as well as from individual buildings.

(3) Drainage and sewer systems

Savaria, Gorsium, legionary fort of Aquincum, civilian town of Aquincum: multi-level canals with repair shafts. Each bath had a sewer, while above-ground drains could be found in most large settlements.

RURAL SETTLEMENTS IN PANNONIA

VILLAS

Dénes Gabler

About six hundred villas are known from Pannonia, of which over four hundred lie in Hungary. This number is far from complete, partly because of the varying intensity of research in different areas of Pannonia and partly because the earliest villas were built of wood, as shown by the remains found during the excavations on Pannonian sites and the analogies from Germany and Great Britain. Only about one-tenth of the roughly six hundred villas has been investigated to date.

The distribution of the villas and the distances between them vary; taken together with the epigraphic evidence, they give a fairly good idea of the size of the estates. A villa economy had a *fundus* of 2–3 km² in the Fertő region and one of 3–4 km² in the Aquincum area. More or less similar building complexes often lie at approximately the same distance from one another. In these cases it seems likely that these were the centres of estates that had been created by *centuriatio*, i.e. the parcelling out of land. These estates were primarily distributed among the *veterani*, the retired soldiers. A land distribution of this type has been documented on the *territorium* of Savaria/Szombathely, where the veterans of the *legio XV Apollinaris* were settled, and on the *territorium* of Scarbantia/Sopron and Poetovio/Ptuj. As a result of the *centuriatio* – the creation of one hundred lots of land determined by surveyors that were equal in value and were hereditary – the native population lost their former lands and could only be tenants at the most.

In areas where urbanization proceeded more slowly, there were considerably more rural settlements and fewer villas. For example, on the *territorium* of Brigetio/Szőny, villas were only founded in the middle or the late phase of the Roman period. Few villas lie directly by the Danube

since it was a military territory, where only the garrisons of the late Roman forts were permitted to cultivate the land. Many 1st century inscriptions mention early villas on the *territorium* of Savaria and Scarbantia, whereas in the border zone, including the Aquincum area, the majority of the inscribed monuments raised by the urban élite date to the Severan period (193–235) and the villa buildings themselves suggest a settlement in the 3rd and 4th centuries.

As a result of internal development, large estates probably emerged more swiftly in the areas lying farther from the Danube, while the land granted to the discharged soldiers in the border zones tended to favour the survival of medium sized estates. In Pannonia, the villas at Bruck–Neudorf, Nemesvámos–Baláca, Hosszúhetény, Komló–Mecsekjános, Kővágószőlős, Eisenstadt–Gölbesäcker and perhaps Szentendre were probably the centres of large estates.

The building complexes that can be regarded as the centres of large estates were usually enclosed by walls. These walls were not defenceworks proper, but were rather erected to protect the valuables, to offer a measure of security and to keep the animals from straying away. The villas in the Fertő region, the Baláca villa north of Lake Balaton and the Šmarje–Grobelče building complex in southwestern Pannonia were surrounded by walls. Within these walls, other walls enclosing smaller areas were found in the villas of Bruck–Neudorf and Baláca that, perhaps similarly to the Gaulish and British villas, separated the *pars urbana* from the *pars rustica*, the often luxurious residential areas from the purely economic buildings.

The groundplans of the villa types that developed in Italy were adapted to the cooler Pannonian climate by making certain modifications. The dwellings of the native population apparently had little influence on the structure of Pannonian villas. The assignment of an individual villa to a specific architectural type is often difficult since the rebuilding sometimes meant the adoption of a new groundplan. The following main types can be distinguished.

(1) *Porticus* villas. In Pannonia, building complexes with houses arranged on a cross shaped groundplan can be as-

Fig. 38. Groundplan of a *porticus* villa. Budapest–Csúcshegy

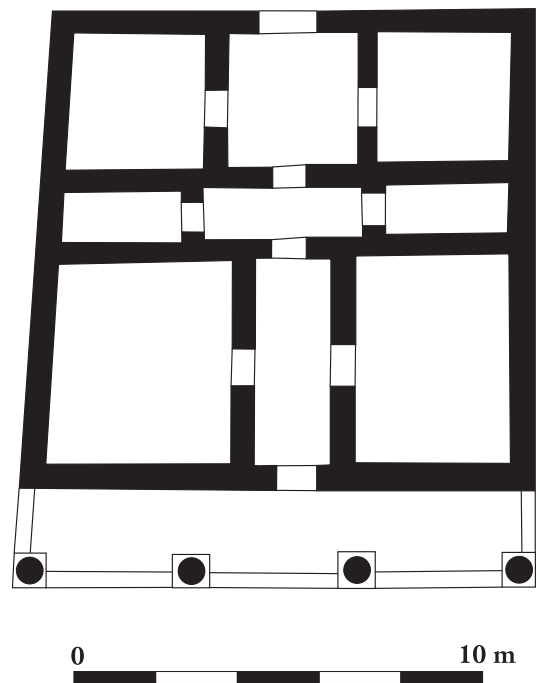
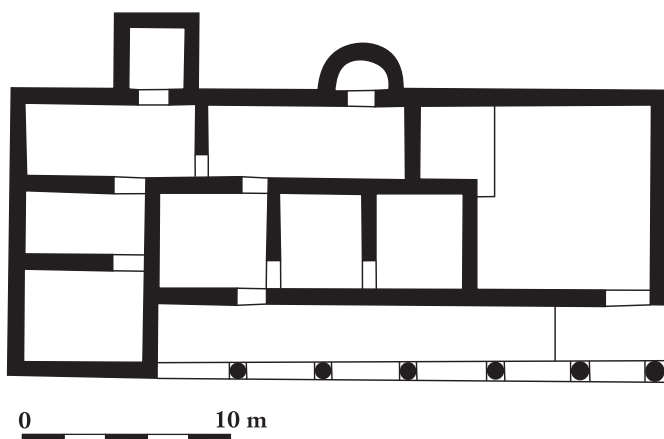


Fig. 39. Corridor villa. Békásmegyér, 3rd century A.D.

signed to this type. The groundplan is more typical than the presence of a *porticus*. Most of the villas near Aquincum were built on this groundplan (Pomáz–Lugi-dűlő, Budapest–Csúcshegy–Kaszás-dűlő; Fig. 38). The buildings from the earlier phase of the Bruck–Neudorf villa represent a variant of the *porticus* villas with wings. The type without the projecting wings, such as the Budakalász building complex, is more frequent.

(2) Corridor villas. Most were built on a so-called long house groundplan, with a series of rooms opening from both sides of an axial corridor (Örvényes). The house occasionally had a *porticus* (the villas around Aquincum, Winden am See; Fig. 39).

(3) Courtyard villas. These are buildings, with the rooms arranged along or around a courtyard. A *porticus* villa was sometimes built around a U shaped courtyard. *Areola* villas represent one variant of this type, with the rooms arranged along two (Deutschkreutz) or three sides (Alsórajka, phase I) of the courtyard. The other variant is the peristyle villa, echoing Hellenistic architectural traditions (a courtyard surrounded by a row of columns). This type is represented by the ornate buildings in the centres of large estates, such as the villas at Baláca, Eisenstadt, Hosszúhetény and Kővágószőlős, as well as the Alsórajka buildings (Fig. 40).

There were no significant chronological differences between these three types.

The main building usually incorporated the main elements of urban houses, such as the longish passageway (*fauces*: as at Gyulafürdő–Pogánytelek and Alsórajka) and the vestibule (*vestibulum*; Eisenstadt–Gölbesäcker). Most villas had a kitchen (*culina*), bedrooms (*cubiculae*), a study (*tablinum*) and a dining room (*triclinium*, originally containing three *klinē*).

Larger reception halls (*aulae*) were found in three villas. The one at Bruck–Neudorf was constructed in the 4th century. The Kővágószőlős villa was, similarly to the Szentendre one, probably the centre of a large estate. In some cases, the *porticus* was rebuilt into a corridor with windows (*porticus fenestrata*) as an adaptation to the climate of the northern provinces (Szentendre, Kővágószőlős, Hosszúhetény).

The hexagonal corner tower of the main building at Hosszúhetény is a unique phenomenon. Towers resembling the structures depicted on African mosaic floors are assumed in the case of the villa complex at Szentkirályszabadja–Romkút (two towers) and Gyulafirátót–Pogánytelek (four towers). These were certainly not defence works, but functioned as watchtowers. The portico of the Kővágószőlős villa is flanked by two semicircular ‘towers’. These architectural elements usually appear in building complexes dating to the 3rd–4th centuries.

The main buildings and baths of Roman villas were heated, usually with a *suspensura* system, in which the floor supported by small brick or stone columns was heated from below. The villas around Aquincum (Csúcshegy, Budakalász–Dolina, Békásmegyer) and the ones on the municipal *territorium* of Brigetio (Dorog–Hosszúrétek, Bakonybánk, Nagyigmánd–Thaly puszta) were heated using a hypocaust system of this type. Relatively few rooms were heated compared to the size of the building complex.

Major differences can be noted in the internal furnishing and decoration of the buildings. The most elegant villa buildings were ornamented with mosaic floors. The floors of the Baláca and Alsórajk villas were probably made in the Severan period. Of the villas on the municipal *territorium* of Savaria, only the one at Zsennye was furnished with a mosaic floor. Mosaic floors were also uncovered in a few building complexes on the *territorium* of Scarbantia, now lying in

Austria. In eastern Pannonia, a frescoed room with a mosaic floor is mentioned in earlier reports on Kővágószőlős.

Wall paintings were more frequent in villas. Their style and technique suggests that they had been repeatedly repainted. The lack or rarity of wall paintings in the villas on the municipal *territorium* of Brigetio and Vindobona is rather conspicuous. In contrast, frescos were quite frequent in the villas north of Lake Balaton (Baláca, Kékkút, Örvényes, Gyulafirátót, Aszófő, Balatonfüred, Vonyarcvashegy) and in the region of Lake Fertő. Frescos were uncovered in the villas at Szentendre and Csúcshegy in the Aquincum area, the Sokorópátka villa on the *territorium* of Mursella and the one at Tokod on the *territorium* of Brigetio. In the Sopianae area, the Hosszúhetény and the Kővágószőlős villas contained rooms with frescos. At Baláca and Csúcshegy, the frescos in the villas were accompanied by lavish stucco ornaments.

Certain architectonic elements, such as gates and cornices were ornamented with stone carvings, stone banisters and various mouldings. The splendidly carved column heads too enhanced the splendour of these buildings, especially north of Lake Balaton.

Baths with several rooms were an important part of Roman culture and it is therefore hardly surprising that these usually lay in the main buildings (Baláca, Aquincum–Kaszásdűlő, Alsórajk, Szentendre), although some villas had a separate building for the bath that was also used by the farmhands (Donnerskirchen, Bruck–Neudorf, Eisenstadt, Baláca–building II, Szentkirályszabadja–Romkút, Egregy, Balatongyörök, Rezi, Gyulafirátót, Alsórajk, Šmarje–Pristava).

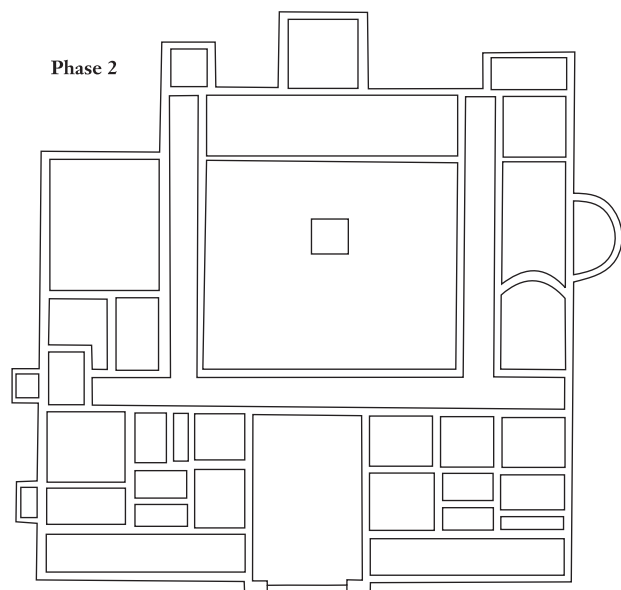
The large granaries (*horreum*) used for storing cereals were undoubtedly the most important economic buildings. The groundplan of these buildings can be easily recognized since the walls had to be buttressed to bear the huge weight. A row of columns or a series of closely set parallel walls supported the floor inside the building, ensuring the circulation of air necessary for drying the grain from below. *Horrea* have been uncovered at Baláca and Kékkút, north of Lake Balaton, as well as at Šmarje–Grobelče in southwestern Pannonia. A part of the *horreum* of the Fertőrákos villa may have had a residential function.

The corridor villa at Örvényes included rooms that functioned as workshops and it also had a smithy. The southern part of the villa at Aquincum–Kaszásdűlő was probably a repair workshop. A cart yard and perhaps lodgings for visitors were part of the villa in Szentendre, a part of which may have functioned as a *mansio*, a road station in the 4th century.

Unlike in Gaul and Great Britain, none of the buildings in Pannonian villas could be securely identified as the house of the *vilicus*, the steward who supervised agricultural work on the estate.

The Roman occupation brought fundamental changes in land ownership. The production of the Pannonian villa economies soon made the import of a wide range of agricultural commodities unnecessary, except for the import of

Fig. 40. Courtyard villa. Alsórajk



better quality wine, oil, tropical fruits and various marine products such as fish sauce and oyster, as evidenced by amphora finds. By the 4th century Pannonia exported cereals to Italy. The written sources mention that the main products of the province were millet and rye: the grain finds recovered during excavations, however, indicate the cultivation of other plants as well. Emmer (*Triticum dicoccon* Schrank) was supplanted by modern wheat (*Triticum aestivum*) in the Roman period. Sickles, scythes and querns, as well as wall paintings (Budapest–Vihar Street) testify to an intensive agricultural production in the province. The agricultural tools and implements of the Late Iron Age often survived in an unchanged form on the native settlements of the Roman period, while innovations such as the two-wheel plough were only used on large estates. Beside grain finds, the remains of plants cultivated for wine production, such as elder (*Sambucus nigra*) used for the treatment of wine, are – together with the information contained in the written sources – eloquent proof of Pannonian viticulture. The villas to the north of Lake Balaton and in the Fertő region played a major role in the dissemination of viticulture. Relatively many pruning knives (*falx vinitoria*) are known from these territories and the remains of a wine-press were discovered in the villa at Winden am See.

The introduction of new fruit species, such as peach (*prunus Persica*), almond and apricot (found in a mummy grave at Budapest–Jablonka Road) can also be linked to the villa economies. Figs, olives and medlar were obviously imported from the Mediterranean (Italy and Spain).

The epigraphic evidence indicates forestry activities directed by slaves (*servus saltuarius*). The forests were initially probably owned by the native aristocracy, but most of them were later appropriated by the emperor. A steward managing one of these imperial forestries erected an inscription near Savaria in the 4th century.

The appearance of villa economies also brought major changes in animal breeding. A number of farm animals, such as donkeys, geese and domestic cats, were first bred systematically in the Roman period and a conspicuous change in the ratio of domestic animals can also be observed. Poultry bones occur but rarely on native settlements, while they are frequent in Roman towns and forts. Sheep and cattle breeding had attained significant proportions already prior to the Roman occupation. However, cross-breeding with Italian species resulted in a higher meat yield in the villa economies. The Roman period cattle and sheep were larger than their predecessors of the Late Iron Age. Pannonian wool was famous since the *pilleus Pannonicus*, the cap worn under the helmet, was made from this wool.

Beside agricultural production, industrial activity was also pursued in the villas. Many villas had pottery workshops or smithies. An inscription from the Savaria area indicates the presence of extensive imperial estates in the province, especially in the 4th century. The Bruck–Neudorf villa was by that time the centre of an imperial estate and it was

transformed into a luxury villa after the mid-4th century. It is perhaps identical with the *villa Murocincta*, mentioned by Ammianus Marcellinus, where the emperor's family stayed in 375.

Some of the 4th century villas yielded finds suggesting the presence of early Christian cults (Donnerskirchen, Kékkút). A richly ornamented mausoleum was built beside the Kővágószőlős villa in the mid-4th century, a unique monument in Pannonian architecture.

Following the barbarian invasions of the 5th century and the changes in their wake, the villa economies could no longer fulfil their original function. The remaining population built smaller huts within their walls (Csúcshegy, Babarc).

ROMAN VILLAS NORTH OF LAKE BALATON

Sylvia Palágyi

There are only four sites north of Lake Balaton (Balácsa, Gyulafirátót–Pogánytelek, Szentkirályszabadja–Romkút, Örvényes), where the excavated remains allow the reconstruction of an estate centre and its buildings and the determination of the outlay, the groundplan and function of the villa centres, as well as the approximate size of arable land and pastureland around these centres. The villa at Balácsa was probably the earliest one, although buildings in stone from the 2nd century have also been found at Gyulafirátót and Örvényes. A 4th century rebuilding could be observed at all four estate centres.

The identification of the main building is difficult at Örvényes and Szentkirályszabadja. An apsidal room and a *porticus* flanked by projecting wings were later added to the oblong shaped main building with an inner courtyard at Gyulafirátót. The excavations at Balácsa were resumed in 1976 and brought to light a fairly large inner courtyard preceding

Fig. 41. Central buildings of the Roman villa farm at Balácsa

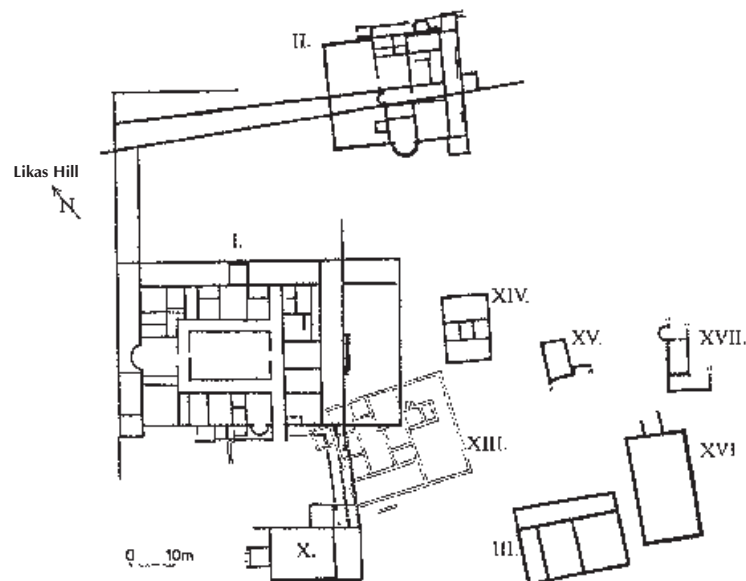




Fig. 42. Remains of the Roman villa farm at Balácsa, with the covered main building

the later peristyle. A number of smaller rooms and *prae-furnia*, as well as a passageway were added to the main building. This villa had an earlier stone phase with a different orientation. The Aquincum and the Örvényes corridor villas resemble the 2nd century types, although they both had a portico and a courtyard enclosed by stone walls. Two additional yards were enclosed by walls on the eastern and northern side of the main building. The northern courtyard connected the main building with the bath that had been rebuilt several times and had alternately functioned as a workshop, a residential building and a bath. Its function during the last architectural phase of the villa complex was indicated by the apsidal rooms, the drainage conduits and the heating system.

The buildings unearthed at Balatonfüred and Balatongyörök, both lying north of Lake Balaton, represent baths with a more complex ground plan. At Balatonfüred, the basins were found in the three apsidal rooms. At Gyulafürdő and Örvényes, the baths consisted of four adjacent rooms, one of which was apsidal. The excavations at Balácsa revealed that a villa sometimes had more than one bath. The second bath at Balácsa resembles the ones in which the rooms were arranged linearly, with additional rooms adjoining the ones in the east. Beside the small residential

building containing three rooms and a portico, an economic building and heatable winter quarters of six identical 'cells' for the persons who served on the estate stood in the centre of Balácsa estate. Although the estate centre of Balácsa, covering some 9 hectares, was divided into yards and gardens by walls, the *pars urbana* and the *pars rustica* (animal coops, pens, sties, etc.) were rarely separated. For example, the large granary and perhaps the stable lay between the smaller residential building and the bath. The buildings in the northern part of the villa were apparently economic in nature (Figs 41–42). Smaller buildings with two rooms built together at the corners or along a side wall (Gyulafürdő) and structures in which a smaller room was created by walling off a corner or about one-quarter of the original room (Szentkirályszabadja) can be regarded as outbuildings in these villa farms (Fig. 43). The latter arrangement has good analogies at Lauffen on the Neckar river.

The water necessary for the life in these villas was obtained from nearby springs and streams; if the villa also had a pottery workshop, a well was often dug. If the water source lay farther away, the water was led to the villa in lead and clay pipes laid on a stone wall or in a bed of terrazzo and mortar. At Balácsa the drainage system was made from bricks.



Fig. 43. Outbuildings of the Balácsa villa in the freshly ploughed field

The red Permian sandstone of the northern Balaton region was used for thresholds, window and door frames, pillars and paving slabs. The most typical products of the 3rd–4th centuries were columns ornamented with carved leaves and masks. Only the villa at Örvényes had a marble pavement. The mosaic floor at Balácsa was made from local stone. Three of the mosaic floors have been preserved *in situ* in the main building, while the fourth one was taken to the Hungarian National Museum. The mosaic floors were made around 200, after one of major rebuilding works. The black and white fields are framed with a garland of ivy leaves in one of the rooms. Another mosaic floor has floral motifs designed from colourful triangles, diamonds and circles set within a border of black-and-white four-petalled flowers on two sides. The two larger mosaic floors, measuring 32 m² and 62 m² respectively, can be ranked among the most outstanding relics of Pannonian mosaic art (Fig. 44). The fields are filled with shaded geometric motifs, rosettes, double peltas, tree branches, coloured crosses, combined to create the illusion of a three-dimensional image. Both large mosaics contain the depiction of a kantharos; one also has a smaller bird, the other two pheasants perching on a pomegranate tree. Flowering pomegranate trees adorned the wall that closed off the peristyle in the 3rd century. The leaves and flowers unfurl from behind a painted grille. Green olive trees tower above this grille toward the half-columns



Fig. 44. Mosaic floor in the main building of the Balácsa villa

protruding from the wall preserving the peristyle (colonnade) atmosphere of the room.

The earliest paintings of the Balácsa villa, painted on a yellow-lilac, red and black grounds, had been completed by Hadrian's reign at the latest. Following the artistic traditions of Pompeii, a broad band above the base was most often ornamented with water scenes, while vertical bands decorated with tendril and floral patterns separated the panels containing mythological scenes and the medallions with still lifes of Caesar's mushrooms, bread loaves and quails. The fresco fragments from the two baths and the main building at Balácsa – white panels framed with red and flowers set in squares – that adorn the walls date to the latest architectural phase of the villa.

RURAL SETTLEMENTS IN PANNONIA

Dénes Gabler

Beside the villas and the military *vici*, the remains of at least 770 rural settlements of various types have been identified in Pannonia, mostly from surface finds. These settlements vary both in their size, ranging from a small cluster of houses to settlements extending over several kilometres, and in their function. Some of these settlements lie in areas in which hardly any villas were built. These less productive rural communities, forming closed settlement units, cultivated their own fields and were more or less self-sufficient (for example in the Kapos valley between the Rába and the Marcal rivers). Other settlements formed clusters around villas (Deutschkreutz, Sommerein); these can probably be regarded as the settlements of the tenants (*coloni*) who lived on the villa estate, although it must in all fairness be added that owing to the gaps in the archaeological record, the contemporaneity of the villas and these settlements is still uncertain. A number of inscriptions referring to settlements of this type are known (the *vicus Caramatensium et villa* near Intercisa). It is not always clear whether these settlements lay on the *territorium* of a town or whether they were built on the territory of a *civitas*, a community with the status of *peregrinus*.

Two major settlement types can be distinguished in terms of their origin: some show a continuous development into the Roman period from an existing Late Iron Age settlement (Ménfőcsanak, Szakály, Budapest–Tabán, Békásmegyer), while others had no pre-Roman period antecedents.

The wars accompanying the Roman conquest and the policy of resettlement following the Pannon-Dalmatian rebellion both led to the depopulation of many earlier settlements. The native population abandoned the Late Iron Age hillforts (Budapest–Gellérthegy, Regöly, Ostffyasszonyfa, Nagyberki–Szalacska, etc.) by this time at the latest, although some of these settlements retained certain functions (for example, the Gellért Hill settlement remained a cult centre). A few of these fortified settlements were later occu-

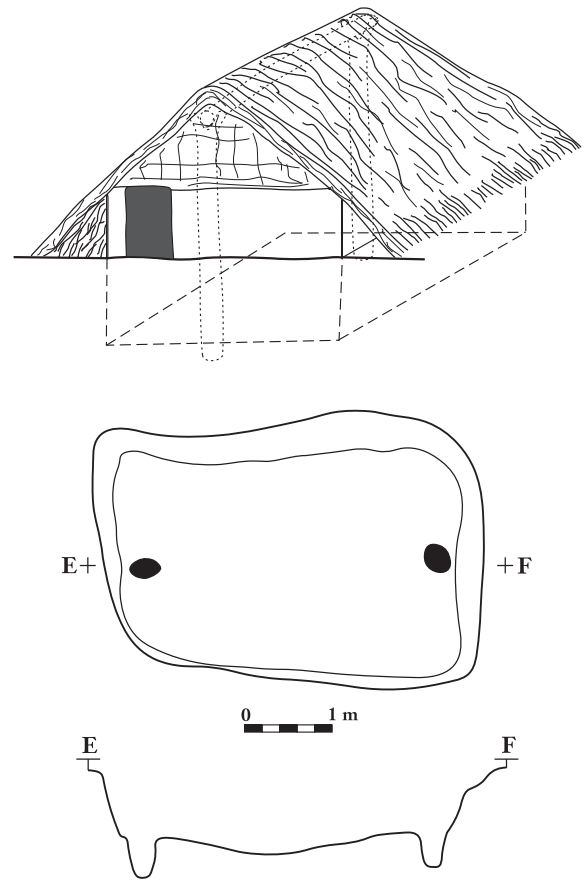


Fig. 45. Groundplan and reconstruction of a sunken house. Ménfőcsanak–Shopping mall, feature 225

pied by the Romans who built their own forts there (Esztergom, Dunaszekcső).

The most frequent house type on settlements whose occupation remained unbroken was the common Iron Age type: a slightly sunken quadrangular house with rounded corners. The saddle roof was supported by two purlins resting on upright posts set into postholes dug along the axis of the house on the two narrower sides. The walls were usually built of adobe. Traces of distaffs and smaller postholes were found on the oft-renewed floor of beaten clay. Thatch or reed was used for roofing (Fig. 45). Most houses did not contain an oven (the house uncovered at Nagyvenyim is a notable exception in this respect). At the same time, open-air ovens were found on several settlements, for example at Ménfőcsanak and Szakály. The position of the post holes indicates that the most frequent house type had upright timbers in the corners; houses with six upright posts, common among the peoples living north of Pannonia, were practically unknown in the province. At Ménfőcsanak, adobe houses without a wooden framework, and sunken houses built of jointed timbers were both uncovered. Internal partitioning walls of wattling daubed with clay were very rare. A well, a workshop and perhaps a larger shed was also part of a homestead. Each homestead was enclosed by a ditch. Stone



Fig. 46. Roman barrel used for lining a well, after restoration, from a settlement of the native population. Ménfőcsanak–Road 83

houses were rarely built on these settlements even during the Roman period, the only exception being Ménfőcsanak, where the observations made during the excavations suggested a house possibly built of stone.

The largest settlement of the native Celtic population was unearthed at Ménfőcsanak, where a total of fifty-seven houses, representing various types, and forty-two wells were uncovered. The wells were lined with barrels or, more rarely, with stone, while a few had a timber structure (Figs 46–47). Cylindrical or pear shaped storage and refuse pits were found beside most houses. Some of the cylindrical storage pits were plastered with clay and fired in order to protect the grain from moisture. In spite of the relatively high number of excavated features, the overall layout and structure of this multi-period settlement cannot be recon-

structed since the settlement extended well beyond the 2 km by 40 m large investigated area. Several sunken workshops were also found. These had a rectangular groundplan and contained stone hearths.

In spite of the similarities in house types and settlement features, a number of differences can also be noted between these two settlements of the native Celtic population, especially as regards import wares. The finds from Ménfőcsanak, lying on the road from Savaria to Arrabona, included a relatively high number of Roman imports (such as *sigillata* wares and glass), while few such finds were recovered at Szakály, lying farther from the trade routes of the period.

The other settlement type did not have Late Iron Age antecedents. These flourished not only near forts, but along the inland roads as well.

The emergence of new settlements was greatly stimulated by the distribution of land among the discharged veterans. In the Savaria area, for example, settlements other than villas were densely distributed on the fringes of the town's *territorium*; the pottery from these settlements abounded in late La Tène wares that survived into the Roman period. A part of a 1st–2nd century settlement with sunken houses was unearthed at Uny. Elsewhere, the foundation of new settlements can be linked to the re-settlement of new population groups (Sopronbánfalva).

Although sunken houses and simple huts were fairly frequent in 2nd century villages, the gradual progress of Romanization brought the adoption of Roman lifeways on a number of settlements by the late 2nd century. Stone houses and houses with stone foundations first appeared on settlements lying near roads. Many of these were built using the drywall technique, without mortar. Three stone



Fig. 47. Timber lining of a well. Ménfőcsanak–Shopping mall

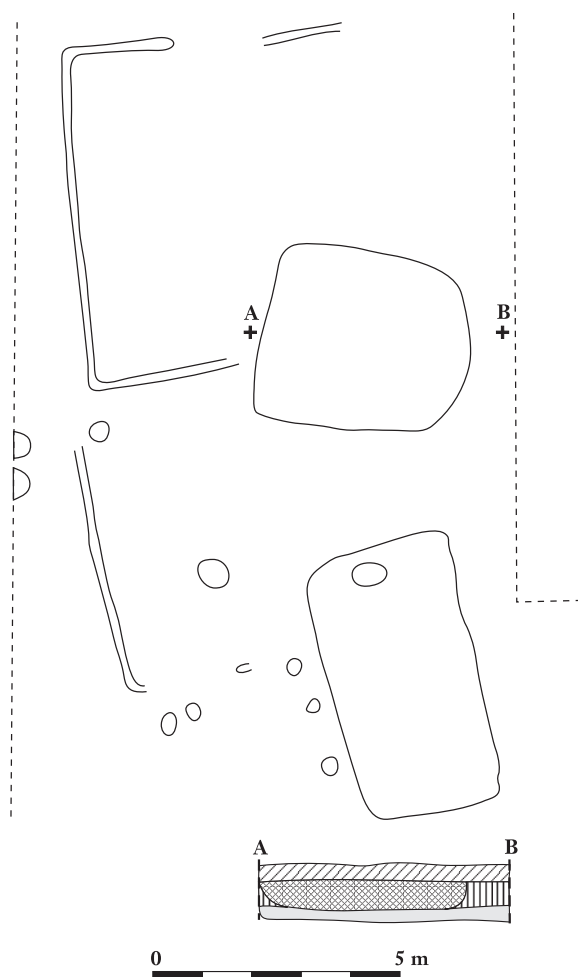


Fig. 48. Groundplans of timber structures and sunken houses from the settlement of the native population at Szakály

houses, dating to the 3rd century, have been uncovered at Bia and Páty. The internal partitioning walls were probably built of adobe, wood or wattle-and-daub. The remains of stone houses have also been unearthed at Csákvár, Boglárlelle, Pincehely and Tárnok, all settlements lying at important road junctions.

In the 4th century, settlements with houses built in the Roman tradition were densely distributed in river valleys, for example on the outskirts of Mezőfalva in the Sárvíz region, where dozens of buildings were identified on various sites. Similar buildings were found near Pilisvörösvár.

Larger above ground buildings replaced the sunken houses of the Szakály settlement in the 4th century. These houses were built around a framework of densely spaced timber posts, with the gaps between the posts packed tightly with earth. The internal partitioning walls were constructed of wattling daubed with clay. Above ground log cabins, such as the ones unearthed at Szakály, first appeared in the 3rd century. The size of the storage pits also increased during the 3rd–4th centuries. A new building resembling the Roman *granaria* appeared for storing

grain. These buildings rested on wooden posts, allowing the circulation of air necessary for drying the cereals from below (Fig. 48).

By this time, the Late Iron Age pottery was wholly supplanted by ceramic wares made in the Roman style, turned out by the workshops of the nearby *municipia*. Roman coins too appeared, although to a lesser degree. The villages were sometimes enclosed by ditches. It would appear that even the settlements that had clung to the traditional Iron Age economy and lifeways succumbed to Romanization in the 3rd century. While the development of the Szakály and the Páty settlements can be traced to the close of the 4th century and the early 5th century, a number of settlements – such as the one near the Gerulata fort and one of the settlement parts at Ménfőcsanak – lying along the *limes* were abandoned in the later 3rd century and the early 4th century.

Although these rural settlements were primarily engaged in agricultural production, various craft activities were also pursued. Pottery kilns have been unearthed at Tokod, Bicsérd, Ságvár, Berhida, Balatonaliga and Cso-bánka, as well as at Müllendorf and Hosszúvölgy in western Pannonia. Traces of iron smelting have been observed near Mezőfalva. A genuine industrial settlement existed at Tokod, where aside from pottery production, glass and iron were also worked. The remains of a smithy have also been uncovered at the site. Some of these workshops were no doubt set up to supply the 4th century fort, and in this sense they can be regarded as part of the *limes* installations. Bronzeworking has been demonstrated at Szakály, where Norican-Pannonian winged fibulae were produced at the end of the 2nd century. Metal workshops have been uncovered at Nagylózs and Ménfőcsanak. These small workshops catered to local demand and did not export their products.

CRAFTS AND INDUSTRY

János Gömöri

Pannonian industry primarily supplied inner markets and only rarely were its products exported to more distant territories. The distribution of the roughly two hundred industrial sites known from Hungary from this period is the following:

Mines	4
Pottery workshops	77
Brick kilns	18
Lime kilns	4
Non-ferrous metalworking	38
Iron workshops, smithies	56
Glass production	12
Bone carving	3
Uncertain workshop finds	7

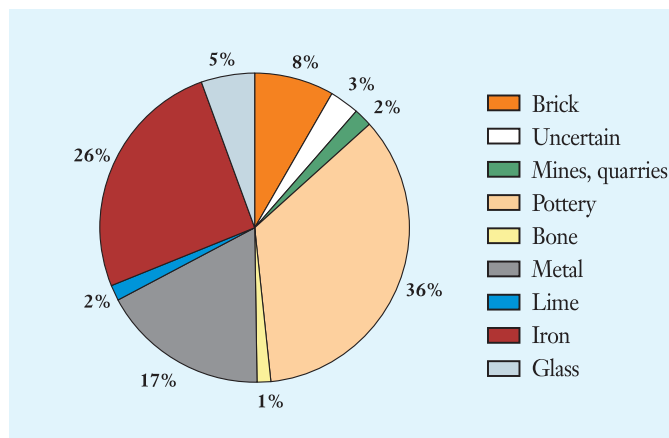
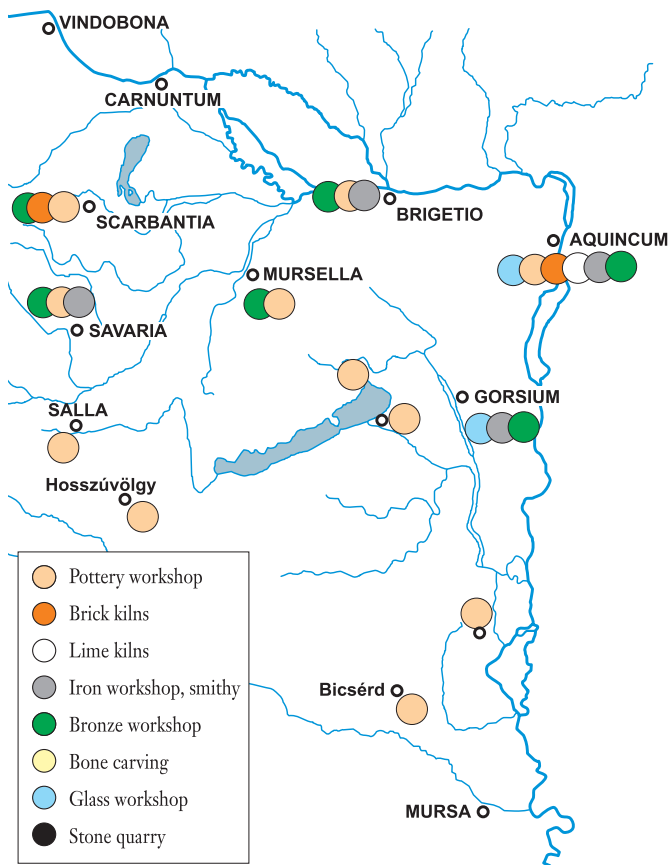


Fig. 49. a. The most significant workshops and mines in Pannonia, b. products of the Pannonian craft industry, according to branches

With the exception of bone, few archaeological traces survive of products made from organic materials. The only indication of woodworking, for example, are the iron carpenter's tools, such as axes, borers, saws, chisels, etc. Beside textiles woven from flax and hemp, animal products such as wool, leather and in part bone, were mostly used for clothing. These locally produced organic raw materials were processed in the villa economies or on settlements as home crafts. The tools of weaving and spinning (clay spindle whorls and loom weights) and the remains of bone carving workshops (workshop debris) have

been brought to light at Gorsium and Brigetio. Workshop finds provide a wealth of information about industry in the Roman period (Fig. 49).

QUARRIES

The main raw materials used in the construction of Roman period buildings were wood, stone, brick and lime. Stone was also used abundantly for road constructions. The streets in Savaria were paved with basalt slabs transported from the Ság-hegy, while stone slabs quarried on the slope of the Nándor Hill were used in Scarbantia. The stone for the pavement of the *forum* and the walls of the 4th century fort was brought from the quarries at Fertőrákos and at neighbouring Szentmargitbánya. A number of Roman stone quarries could be identified with the help of old maps and field surveys. Freshwater limestone for the buildings and the stone carvings found in Aquincum was quarried in the 320 m long, 50–150 m wide and 10 m deep quarry on the Berdó Hill near Békásmegyer. Traces of quarrying were observed at the abandoned quarry of Érdliget–Hamzsabég. The remains of a Roman quarry and a dam were also found at Bánta-puszta near Öskü in Veszprém county.

BRICK KILNS

A total of eighteen brickyards have been discovered in Hungary. The sunken brick kilns all had a rectangular ground-plan. They can be divided into three main types according to the position of the columns supporting the grate:

(1) Brick kilns of the 'double firing chamber' type were mostly found in the military brickyards. On the testimony of the known stamped bricks, brickyards operated by the military appeared in Pannonia under Claudius (e.g. the bricks of the *ala Scubulorum* in Gorsium) and continued until Valentinian I's reign. The brick kilns in Aquincum and Brigetio can be associated with the legions stationed there. The brick stamps indicate that the two kilns found on the Danube bank at Dömös (one measuring 620 cm by 544 cm, the other 545 cm by 510 cm; Fig. 50) were part of the brick-laying workshop of the *legio I adiutrix pia fidelis* from the 2nd–3rd centuries.

(2) Brick kilns with a central heating duct were unearthed, for example, at Harka–Kányaszurdok on the outskirts of Sopron.

(3) Brick kilns with a rectangular firing chamber divided into three parts by two columns. A kiln of this type was unearthed at Fertőrákos–Alsóültetvény-dűlő near a villa farm, where clay extraction pits were also found. Roman period brick kilns have also been excavated at Balatonfüred, Budakalász, Gyulafirátót, Héviz–Egereg, Csopak, Külsővat and Nemesrempehollós.



Fig. 50. The stoke hole of the heating ducts and the grate of brick kiln 1. Dömös, turn of the 2nd–3rd centuries A.D.

LIME KILNS

The burning of lime (*calx*) used in construction work was usually performed in the industrial quarters lying on the edges of towns, near the brickyards, although larger villa economies sometimes had their own lime kilns (Szentkirályszabadja and Tahitótfalu). Round or oval sunken lime kilns lined with stone or clay were used throughout the empire. The pits of the kilns widened slightly upwards. The limestone was placed on a ledge on the pit floor. The kiln was heated through a stoke hole. The upper part of the kiln was covered with leaves and branches plastered with clay during firing, as shown by the kiln remains with a diameter ranging between 1.5–4.5 m found at Aquincum.

POTTERY KILNS

Potters' quarters have been identified beside every major Pannonian town, although pottery kilns have been also unearthed on smaller *vici* and larger villas. On some sites, the moulds, oil lamp negatives, smoothers, stamps and wasters indicate the activity of local potters. The remains of Roman period pottery workshops have been found on seventy-seven Transdanubian sites. These represent various types.

The survival of local Celtic traditions in the 1st and 2nd centuries is reflected in a variety of vessel forms and ornamental motifs, as well as in the round and elongated pear shaped pottery kilns of the late La Tène type. The grate of the kiln was usually supported by a pillar that di-

vided the fire-box into two parts. The kilns unearthed in the late Celtic settlement in Budapest (the Tabán and Gellért Hill), at Békásmegyer, in the Bicsérd *vicus*, in Scarbantia and in Mursella can be assigned to this type.

Éva Bónis has noted that in Pannonia the provincial

Fig. 51. Pottery kiln from the Flavian period with the bowls from the last firing. Scarbantia



Roman kiln type became common in the mid-2nd century. The round grate of these kilns was supported by a central column surrounded by clay pillars. Pottery kilns of this type were found in Pacatus' workshops at Aquincum, where a third kiln type was also uncovered. This kiln resembled the brick kilns: it was rectangular in groundplan and its grate was constructed of adobe bricks set along the longitudinal walls. Both the Celtic and the provincial Roman kiln type were used in two potters' quarters in Scarbantia. One of the kilns contained a few bowls, probably left there after the last firing (*Fig. 51*), while several pots, jugs and cups that could be assembled from their fragments were found in the workshop area, representing the entire range of wares produced at the end of the 1st century.

Éva Bónis distinguished two other variants in addition to the ones described above. The pottery kilns at Tokod and Pilismarót–Malompatak, dated to the 4th century, were constructed from bricks, while the grates were assembled from pre-fired clay rods. Grey smoothed-in pottery was produced at the latter site, probably for the German allies (*foederati*) who had settled in the province. The latest pottery kilns (Balatonaliga) represent yet another type of the Roman period in Pannonia. The small grate of these kilns was supported by a central column.

GLASS

In the early Roman period, glass wares were primarily imported from Italy; later, imports from southern Gaul and Germany also appeared. Local Pannonian glass workshops have also been found – these could be identified on the basis of the molten glass found at Arrabona (Győr–Kálvária and Széchenyi Square), Brigetio/Szőny, Gorsium/Tác, Tokod, Ugod–Dióspuszt, Nemesvámos–Balácsa, Körösladány–Vermeš and Szentlénárt. László Barkóczy has demonstrated that tradesmen from Italy and Cologne established glass workshops at Aquincum in the 2nd century. Glass chalices modelled on oriental types calling for great expertise and skill were produced in Gorsium and Intercisa/Dunaújváros in Severus Alexander's time. The oven of a glass workshop was uncovered at Intercisa. Local glass production continued until the 5th century, although workshop finds have not been found yet from this late phase.

IRONWORKING

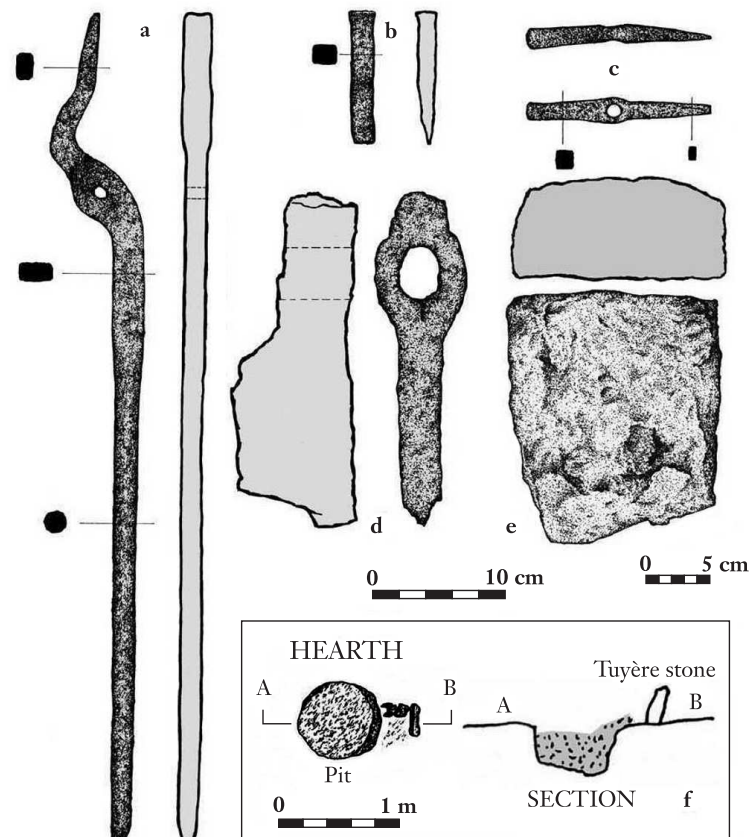
A total of twelve ironworking sites from the La Tène period have been identified in Hungary. In the Hungarian part of Pannonia, iron was smelted from its ores in a few exceptional periods only, for example when the large northern Dalmatian iron smelting centre in the Majdan region south of Siscia temporarily suspended its activity. Iron bars ham-

mered into rectangular ingots, weighing 5–6 kg, were found at Intercisa and in the *vicus* beside the late Roman fort at Alsóheténypuszta. The furnace in Scarbantia, the single currently known iron smelting furnace from the Roman period, was probably constructed at the time of the rebuilding projects following the Marcomannic wars.

The finds recovered from the fifty-six sites that yielded evidence for ironworking (usually in the form of iron slag) indicate the production of iron implements and trade in iron artefacts. Every larger settlement and villa economy had a smithy (Petőháza, Keszthely–Fenékpuszta, Örvényes), although the activity of smiths on a settlement is sometimes indicated by a few tools only (Gorsium, Bajna, Külsővat, Szőny). The postholes of the timber-framed wooden smithy at Petőháza outlined a building measuring 6 m by 8 m, lying on the slope above the Ikva stream south of the stone buildings of the villa farm. Iron tools (tongs, a hammer, a chisel and a punch), pig iron hammered into a rectangular shape (10.5 kg) and a handful of agricultural tools, iron tyres and iron door fittings were found on the territory of the villa dated to the 4th century (*Fig. 52*). The hearth of the smithy was indicated by an ash pit with a diameter of 50 cm and the tuyère stone of the bellows.

Armour and weapon repair workshops were active in the forts along the *limes*.

Fig. 52. Roman smithy and its tools: a. fragment of the tongs, b. chisel, c. hammer, d. large hammer, e. pig iron. Petőháza



BRONZEWORRING

Traces indicating non-ferrous metalworking were identified on thirty-eight sites, including forts, towns, *vici* and larger villa farms. The most frequent finds are the tools used for casting and for repairing bronze objects, together with the waste from these activities; lead working could also be demonstrated on some sites. Bronzsmiths often worked alongside other craftsmen, such as smiths or glass makers, as in the industrial district beside the Intercisa fort, where tanners' workshops were also found. The remains of bellows could be identified at one of the nineteen small furnaces unearthed by Eszter B. Vágó and Zsolt Visy. Bronzsmiths produced a wide range of articles at Intercisa in the 2nd–4th centuries, as shown by the brooch moulds and the casket mounts, small statues and the bronze helmet found among the remains of the workshop. Brooches were also cast at Tokod. Iron and bronze slag were found in the *vici* beside the *ala* fort of Arrabona. The remains of a workshop with a small hearth used for metal smelting, a crucible and broken bronze artefacts for re-smelting, dating from the 3rd century, were uncovered beside the *forum* in Scarbantia (Fig. 53). The cache of broken bronze objects found by the gate of the Fenékpusztá fort, evidently intended for re-smelting, suggests a bronze workshop in the 5th century. At most sites, the activity of metalsmiths is indicated by slag, crucible fragments (Tokod, Szombathely, Győr), moulds (Ménfőcsanak) or certain tools, such as tongs and a hammer (Gorsium).

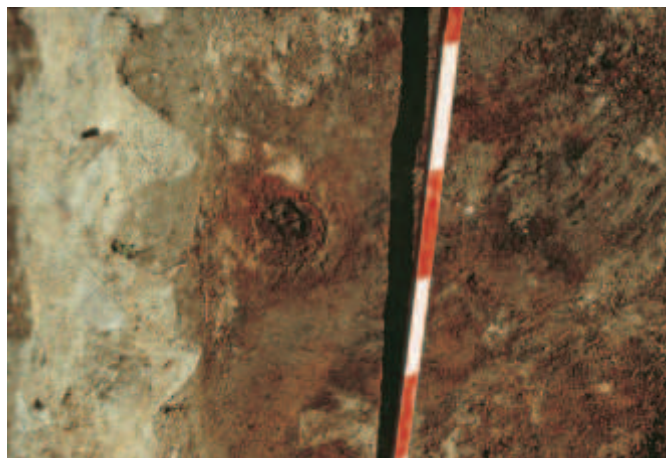


Fig. 53. Hearth for metal smelting inside a bronze workshop

CULT CENTRES IN PANNONIA

Klára Póczy

Following the Roman occupation of Pannonia, the deities and cults of the native population were gradually supplanted by Roman ones. The *interpretatio* of the religion of the south Pannonian Illyrian and the north Pannonian Celtic groups appears to have been rather swift. Only the names of only a few deities are known. Most of the native deities were identified with a Roman god – usually with Silvanus – and they survived in this form. These Romanized

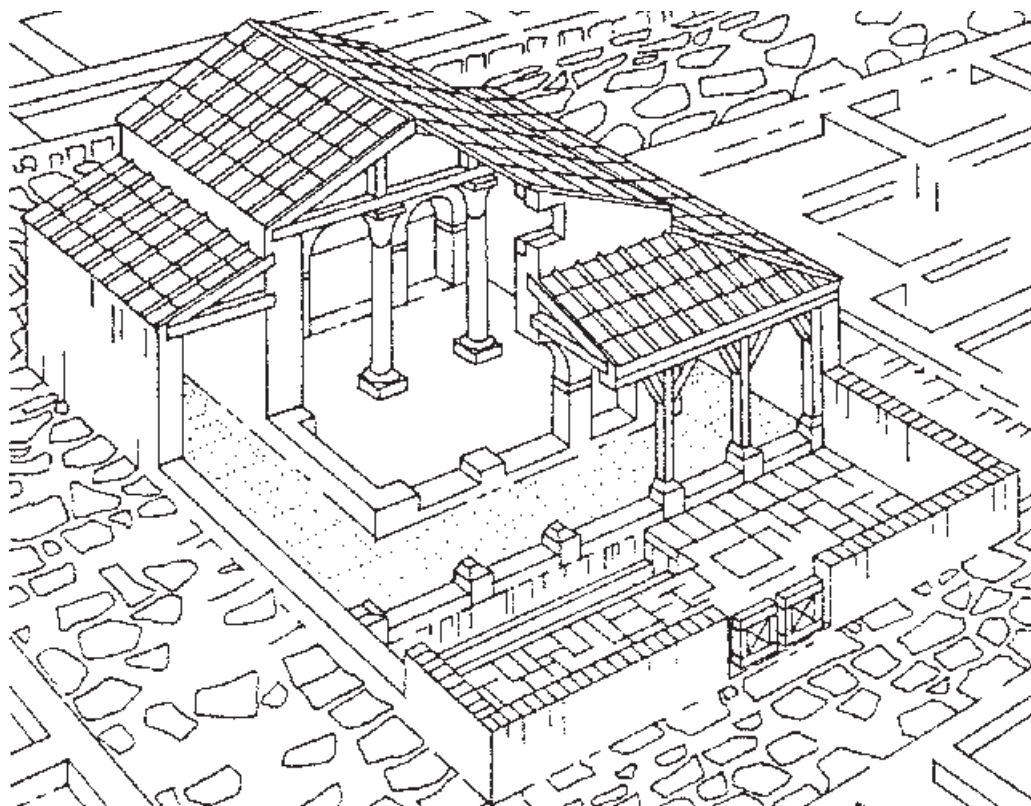


Fig. 54. Reconstruction of the temple of Mercurius in Savaria

Celtic deities, however, left only a minor imprint on the religious life of the province.

The temples and cult buildings can be grouped according to their groundplan that usually corresponded to the classical temples found in all the provinces of the empire. The shrines and sacred precincts of the oriental cults showed many individual features. The groundplan, the architectural and ornamental elements, as well as the cult statues, the inscriptions, the paraphernalia used during ceremonies and the remains of offerings all contribute to the location of cult places and the identification of the deities that were worshipped there.

The earliest sanctuaries date from the mid- and the later 1st century (Claudius' and Vespasian's reign). These include the sanctuaries (*fanum*) in the forts. They stood in the centre of the forts and were part of the military commander's headquarters. The military insignia, the banners, the statues of the gods who protected the unit and the portrait of the emperor, the supreme warlord, were kept in this sanctuary. Sanctuaries of this type have been uncovered in the legionary fort of Aquincum and in the auxiliary forts at Albertfalva, Gorsium and Intercisa.

Similar 'official' sanctuaries are known from the early phase of the Roman occupation. The investors and the merchants of the Italian merchant houses raised cult places dedicated to Mercurius, the patron deity of commerce. The ruins of a 1st century temple dedicated to Mercurius, standing at the junction of the Amber Road in Savaria, the capital of Pannonia, were uncovered and restored recently. The earliest coins found in the vessels placed in the *cella* of the sanctuary date from Claudius' reign. Animal bones were also found among the offerings presented to the god and one vessel also contained an egg beside the coins. The temple was built in 73, under Vespasian (Fig. 54).

The foundation walls of a more modest temple of Mercurius were found in Aquincum, together with a stone inscription mentioning the cult. This rather simple stone building in the military town on the Hajógyár Island was pulled down after 106, when Pannonia was divided into two administrative units and Aquincum became the capital of Pannonia Inferior. An ornate building incorporating the proconsul's residence and his *officium* was built in its place. The merchants' modest temple dedicated to Mercurius also became part of the new building and a new *cella* was built over it. The open area by the sanctuary was enclosed by a stone fence. The altars raised to Jupiter as an official tribute by each proconsul when he assumed his office were set along this wall.

Official sacred precincts first appeared under Trajan. Although the cult centre of the province has not been identified and located yet, several temples dedicated to the Capitoline



Fig. 55. Fragment of a Jupiter statue from Intercisa

Triad – the official cult places dedicated to Jupiter, Juno and Minerva – in the town centres have been unearthed. The excavations uncovered the foundation walls of these temples in Gorsium and Aquincum. The sanctuary of the temple of the Capitoline Triad in Scarbantia was used without significant alterations until the late imperial period. The statues of Jupiter, Juno and Minerva were placed in a *cella* divided into three parts. The colonnade at the entrance of the temple is monumental even in its ruins. The six steps leading from the stone paved *forum* to the podium temple have been preserved together with the column bases ornamenting the entrance and a few inscriptions. Although the marble statues of the Capitoline deities in Scarbantia were smashed at the time of the Christian iconoclasm during the Roman period, these magnificent and monumental works of art could be reconstructed from the surviving fragments. Their style indicates a date in the mid-2nd century. A temple dedicated to Jupiter has also been found in Intercisa (Fig. 55).

Similarly to the above group of statues, the fragments of larger than life representations of Jupiter, Juno and Minerva have also been found in Savaria, although not in their original place, but in a nearby area.

A *nymphaeum* adorned the *forum* in front of the Capitoline temple in Gorsium and Aquincum. With its two basins and statues of the Nymphs and the God of Springs, the *nymphaeum* in Gorsium was perhaps the most spectacular public monument in Pannonia (Fig. 56). The fragments of a marble nymph statue were also found in front of the Capitoline temple at Aquincum; here the fragments of the destroyed statues were built into the steps of a wide staircase of a building probably used by the followers of a Christian cult in the 4th century in order to 'trample' on the pagan idols.

Fig. 56. Statues adorning the *nymphaeum* in Gorsium



Another sacred precinct, created under Trajan, is also known from Aquincum, by the springs that fed the new aqueduct. A small wooden building was erected over each spring and an altar bearing the names of the deity and the person who made the offering was placed on the floor. These finds provide tangible evidence for the practice that high-ranking officials erected altars to the gods in the well-house when the water-works were inaugurated. The individuals who made these offerings were the leading officials of the civilian settlements and the engineers responsible for the technical installation. The sacred precinct was enclosed by a wall. A temple erected in honour of Jupiter, containing inscribed altars, stood at the entrance. The façade, the colonnade and the staircase of this podium temple survived in their original position.

The Capitoline temple and the sacred precinct at the springs were both official cult places. Three times a year, at the spring festival on April 24, at the imperial festival on August 2 and on October 13, the festival of the sacred springs, the population of the town visited both places during a ceremonial procession. The festival ended with games in the amphitheatre of the civilian town.

The cult of Fortuna Balnearis can also be linked to the worship of the life-giving sacred springs. Her *aedicula*, fitted with inscribed altars, stood next to the larger public bath of the town centre in the civilian town of Aquincum.

A sacred precinct similar to the one in Aquincum was established at the springs of Brigetio as well. Founded half a century later than the one in Aquincum, the deities revered here were Aesculapius and Hygieia and their counterparts, Apollo and Sirona. An inscription records that the sacred precinct of these healing deities was enlarged and ornamented with additional sanctuaries and a portico in the 3rd century.

The emperor's cult eclipsed the popularity of the Capitoline Triad by the mid-2nd century and during the 3rd century it became stronger, reaching its zenith in the early 4th century. A podium temple for the emperor's cult was erected in the inner, ornate courtyard of the proconsul's palace in Aquincum, where the monumental torso of a man clad in a toga was discovered. The head of the reigning emperor was fitted onto the neck of the statue standing in the small temple that remained in use for about one and a half centuries. The head of the statue was replaced whenever a new emperor ascended the throne. Unfortunately it remains unknown, whose portrait was fitted onto the statue for the last time. Judging from the statue bases and fragments discovered in the *principia* of the auxiliary troops and legionary forts in Aquincum, Intercisa, Lugio and elsewhere, the emperor's cult played an important role.

The high walls enclosing the sanctuary of the Capitoline Triad, enlarged into an impressive temple, and the adjacent buildings were preserved in a good condition in the *forum* of the civilian town of Aquincum. The altar was found in its original place in the courtyard, together with the small pentagonal basin in front of it that was used in rituals. A flight of stairs led to the podium of the temple opposite the main entrance of the courtyard.

The name of the association whose members performed the liturgical service of the emperor's cult in the province has been preserved in the epigraphic material. In Aquincum, the members of the *collegium Victoriarum*, an association founded for the celebration of imperial victories, were wealthy *liberi*, liberated slaves. Their personal wealth entitled them to claim this important position in urban society in the 3rd century. Archaeological excavations have enabled the accurate reconstruction of the groundplan of the sanctuary dedicated to the emperor's cult in Gorsium; the layout, the podium, the original location of the altar, the flight of steps and a few columns of the sanctuary have been preserved following the conservation of the site.

A few hilltop sacred precincts can be associated with the emperor's cult both in Aquincum and Carnuntum, the capitals of the two Pannonian provinces. Jupiter was identified with the local chief deity and his name was abbreviated as IOMT in Aquincum and as IOMK in Carnuntum. The letter T can perhaps also be read as *Teutan(us)* in an inscription found in the sacred precinct of Aquincum (Budapest-Szépvölgyi Road). The ruins of several small *aediculae*, open shrines and a podium temple, all enclosed by a wall, lie on a small hill overlooking the Danube. One major find from this sacred precinct is a statue of Jupiter set on a high column (only its torso has survived). The god held a *spectrum* in his hand and an eagle rested by his feet. The inscriptions of the altars revealed that some had been erected by the mayors of the *colonia*, others by the high-ranking officers of the legion. One of the

Fig. 57. The Mithras shrine in the legionary fort of Aquincum





Fig. 58. Marble cult image from the Mithras shrine in Intercisa

inscribed altars recorded the name of the *augur*, the diviner. Both in Aquincum and Carnuntum, the altars recording the day on which they had been erected all give the date of June 11, indicating that the celebrations were held on the same day in Pannonia Superior and Inferior.

The emperor's worship was enriched with a number of new elements under the Severus dynasty in the early 3rd century. Most important among these was the presence of Isis and Mithras in Pannonia. Venerated by a thousand names and in a thousand forms, the goddess Isis was admitted to the official Roman pantheon in the early imperial period. The single known Iseum of Pannonia was unearthed in Savaria.

It was for a long time believed that the cult of Mithras only spread among the poor and impoverished, and that this cult had been brought to Pannonia by oriental population groups. Both theories have proved to be mistaken. As it turned out, only minimal traces of this cult have been found on the settlements of the population groups who are known to have arrived from the east, from Asia Minor. At the same time, the successive phases of the diffusion of the cult in the Roman Empire can be precisely traced along the forts of the army stationed along the frontiers and the roads that connected the *limes* with Rome, the military and administrative centre of the Empire. The main centres were the road stations, the smaller customs posts and the major customs centres, such as Poetovio in Pannonia, that managed the financial affairs of several provinces. Mithraism was the official cult of the high-ranking army officers and the customs officials. This is hardly surprising since the name Mithras means 'contract', 'an agreement'. This link is also apparent from the offerings found in the Mithras sanctuaries. The officials of the financial administration were mostly imperial slaves and *liberti*. As regards the cult itself, suffice it here to quote one of the sanctuaries dedicated to Mithras from Aquincum (*Symphorus mithraeum*), where a stone fence protected the buildings that also included an imperial mint be-

tween 209 and 217. The identification of Mithraeums is rather easy owing to their distinctive groundplan. The narrow nave of the sanctuary was flanked by narrow *podia* and the cult image invariably depicted Mithras stabbing a bull (Figs 57–58). The 3rd century also saw the emergence and spread of the cult of the Sun God and the Dioscuri (Thracian riders) in the Balkanic provinces of the empire. Votive lead plaques retain the memory of this cult (Fig. 59).

In Pannonia, Christian communities emerged from their secret gathering places to practice their beliefs openly after the edict of tolerance was issued 312. This decree prohibited the persecution of the monotheistic Jews and Christians in an empire that had been polytheist for over a thousand years. The Acts of the Martyrs of Pannonia have preserved the memory of secret Christian congregations from the time when they were still persecuted since it was the bishops and the officials of the religious communities in Sirmium, Cibalae and Siscia who were most often sentenced to death. Recent excavations have indicated the presence of Christian communities in several towns. This religion was practiced by urban populations and Christian congregations were usually to be found in well defended settlements. After his conversion, Constantine I incorporated the well organized Christian communities into the state administration. He recompensed the followers of the religion, paid the bishops a regular salary and donated lands and buildings to the Church to fulfil its social tasks.

Fig. 59. Votive lead plaque depicting the Sun God and the Dioscuri from Intercisa





Fig. 60. Early Christian cella trichora. Aquincum (Raktár Street)

According to our present knowledge, the most important early Christian centre was Aquincum in the province of Valeria, where four basilicas and several mortuary chapels have been brought to light (Fig. 60). The remains of two basilicas were unearthed and subsequently conserved in Gorsium, also in Valeria, where a section of the Christian cemetery has also preserved in the open-air museum (Fig. 61). A mortuary chapel has also been found in Intercisa, while the

Fig. 61. Early Christian screen with the Christ monogram. Gorsium



Fig. 62. Adam and Eve. The Fall, painting on the wall of the early Christian mausoleum in Pécs

early Christian centre of Sopianae is noteworthy for the impressive number of painted mortuary chapels (Fig. 62). Although the highest number of early Christian inscribed monuments has been found in Savaria in the province of Pannonia Prima, no buildings have yet been identified that would confirm that the cult centre of the province had once lain in this town. The remains of early Christian basilicas and mortuary chapels have been uncovered at Triccianae/Ságvár and Valcum/Fenekpuszta, while a series of rich mortuary chapels were unearthed at Iovia/Alsóhetény and Kővágószőlős, indicating that the population of these late Roman fortified settlements were members of Christian communities. These communities survived after the last century of the Roman imperial period and their presence can be demonstrated well after the evacuation of the province.

BURIALS

Paula Zsidi

Cemeteries or cemetery sections have been investigated on some two hundred Roman provincial sites. As a result, we know of numerous grave parcels, graveyards and grave monuments, while the finds include the skeletal remains and grave goods from well over ten thousand burials. This impressive corpus of finds offers a wealth of information on beliefs and the cult of the dead, as well as on the society and economy of the Roman period. Even though the bulk of this information cannot be obtained from other sources, the study of cemeteries was neglected as compared to settlement research.

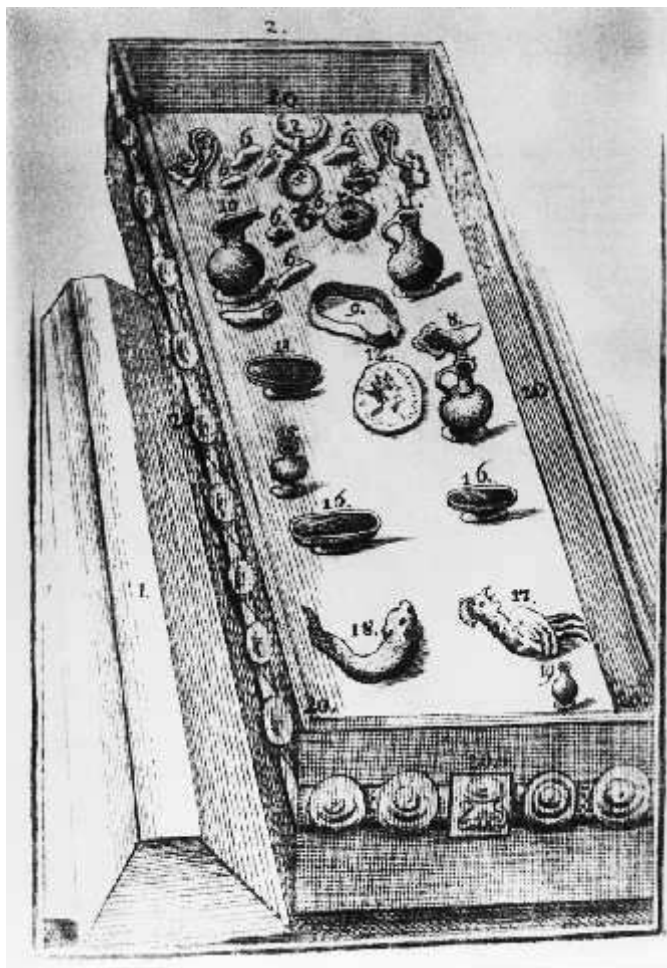


Fig. 63. The finds from the Roman sarcophagus found at Óbuda in 1752

The first 'published' grave find can be found in Ferdinánd Miller's book from 1761 that also contained an illustration of the stone sarcophagus discovered in Óbuda (Aquincum) in 1752 and its rich grave furniture (Fig. 63). The relevant passages mention that the finds were taken to Vienna on Count Antal Grassalkovich's orders and were presented to the empress.

The first scholarly study on the finds from a Roman cemetery was written by József Hampel in 1891; he described the graves and their finds from a section of the northern cemetery of the military town of Aquincum (the so-called Raktárrét cemetery). Together with an accurate description of the finds, Hampel also included a map of the cemetery. A more careful reading of the text reveals that only the sarcophagi, the stone and brick graves and the burials in lead coffins had been 'unearthed' and documented. Later on, larger cemetery sections were also investigated, primarily in Aquincum (the cemetery on Bécsi Road, the cemetery by the Aranyárok), Brigetio and Intercisa. A part of the graves discovered in these cemeteries were published between the 1940s and the 1960s in the monographs devoted to these settlements. András Mócsy provided an overview of Pannonian burials and the

cult of the dead in the early 1960s. From this time on, there were distinct efforts to excavate cemeteries as completely as possible and a marked advance can also be noted as regards the detailed publication of cemetery sections (Kékesd, Győr, Szombathely, Matrica, etc.).

Vera Lányi wrote a comprehensive overview of late Roman cemeteries in the early 1970s. Her study was based on the statistical analysis of some 2210 graves from almost a hundred 4th century burial sites. The publication of the late Roman southern cemetery of Intercisa in 1976 was another milestone in the research of Pannonian burial grounds, with its many-sided analysis of the burials uncovered during earlier and more recent campaigns. This study revealed the potentials of complex cemetery analyses. Traditional and electronic publications are both viable options for making the dynamically rising number of excavated cemeteries and their finds available to the scholarly community.

BURIAL RITES IN THE ROMAN PERIOD

The Roman occupation brought the gradual adoption of Roman customs and Roman culture in almost all wakes of life. The process of Romanization can also be traced in burial rites and the cult of the dead. The early Roman period was characterized by a variety of burial rites. These local traditions survived for a long time alongside the new burial customs introduced by the conquerors.

Cremation of the dead was the dominant rite in Pannonia during the 1st and 2nd centuries. Numerous variants of this funerary rite are known from the cremation cemeteries unearthed along the Pannonian *limes* (Arrabona, Brigetio, Aquincum, Matrica, Intercisa) and from the burial sites of smaller settlements (Kékesd). The deceased were usually cremated at the *ustrinum*, a section of the cemetery set aside for cremation. Few such *ustrina* are known in Pannonia. One was identified at Intercisa and in the cemetery east of the civilian town in Aquincum. The ashes of the bodies cremated on the pyre (*rogus*) erected in the *ustrinum* were

Fig. 64. The grave goods of a cremation burial. Aquincum, turn of the 1st–2nd centuries A.D.



either placed in an urn or a stone or wooden casket together with the remains of the pyre, or were simply thrown into the grave pit together with the grave goods. Traces of the ritual preparation of the open grave pit before the funeral (*libatio*) have been observed on some sites. The grave pit was sometimes burnt; it was occasionally plastered with clay before it was burnt. Some of the grave goods found in cremation burials show traces of burning, indicating that they had been burnt on the pyre together with the deceased. Other grave goods were intact, meaning that they had been placed into the grave together with the ashes (*Fig. 64*).

A number of earlier and more recent observations indicate the practice of cremating the body over the grave itself (*bustum*). The funeral pyre was raised over the open and ritually cleansed grave pit. The bier on which the deceased rested was placed onto the pyre together with the deceased's possessions that were believed to be needed in the afterworld. The position of the wood remains and the burnt bones often reveals the structure of the pyre and the position of the deceased on the pyre. After the pyre had burnt down, additional grave goods and, occasionally, the remains of the funeral feast were placed on top of the burnt remains.

Only a few well documented early cremation cemeteries are known from Pannonia (Aquincum, Savaria). Although several variants of the cremation rite could be observed within a cemetery, traits that were only typical of an individual settlement could often be noted within a smaller area, suggesting an ethnic background for these local elements. These include the house shaped urns used by the Latobici in southwestern Pannonia and the wagon burials of the Eravisci in northeastern Pannonia (*Fig. 65*).

Fig. 65. Detail of the tombstone of a native family. Dunapentele, mid-2nd century A.D.



Fig. 66. Cemetery with the remains of roadside sepulchral monuments. Aquincum, military town, western cemetery

Most of the known cremation cemeteries also contained contemporary inhumation burials. This rite usually reflects the traditional mortuary practice of the local population in the early Roman period. It must nonetheless be borne in mind that similarly to the richness of grave goods and the establishment of ornate and opulent graveyards, cremation was a rather expensive affair that depended not only on the ethnic background, but also on the financial standing of the deceased. This is suggested, for example, by the burials at Aquincum, where the lavishly furnished burials all contained cremated dead, while the graves on the periphery were inhumation burials with few grave goods. Infants and small children were also inhumed in graves dug at the edge of the grave parcels or beyond them. The most frequent grave goods were vessels for food and drink (pottery, glass or, more rarely, metal). The deceased were often provided with complete 'table sets' for the journey to the afterworld. Costume ornaments were seldom deposited in cremation burials and the few that have been found were mostly burnt and mixed with the ashes of the deceased. Tools and weapons were rarely placed into cremation graves (with the exception of the tumulus graves; *Fig. 66*).

Wagon burials that contained not only food and drink for the journey to the afterworld, but also a completely outfitted wagon with horses, were a distinctive variant of cremation burials expressing barbarian pomp (*Fig. 67*). The belief that death was but a long journey was fairly widespread among the Pannonian Celts, reflected also in the depictions on the tombstones of the Boii and Eravisci. Wagon burials became quite common in the 2nd century; the distribution and the richness of the grave goods suggest that this burial rite was practiced by the partially Romanized, wealthy Eraviscan tribal aristocracy.

A major change can be noted in burial rites throughout the empire and also in Pannonia at the turn of the 2nd and



Fig. 67. Reconstruction of a wagon unearthed in a burial. Budakeszi



3rd centuries. Cremation was slowly supplanted by inhumation, a rite that became near-exclusive by the 4th century. Most scholars have invoked the political and economic changes in the empire and the diffusion of religions holding out the promise of resurrection as an explanation for this change. The slow change in burial practices can best be traced in large, continuously used municipal cemeteries, such as the ones at Aquincum and Intercisa. On the testimony of the grave goods, some of the cemeteries opened in the early Roman period were abandoned in the 3rd century. The new cemeteries of the 4th century can be distinguished from the earlier ones both by the burial rite and the grave goods. Although the practice of cremation enjoyed a short revival in the early 4th century, inhumation remained the dominant rite in this period.

The sarcophagus burials along the roads leading out of towns marked the first appearance of inhumation burials with lavish grave goods (*Fig. 68*). At first, the sarcophagi were simply placed on the ground. The richly ornamented and often inscribed sarcophagi with depictions in relief date to this period. Later they were sunk into the ground to protect them from grave robbers.

Although inhumation burials show fewer variations than cremation burials, a number of different rites can nonetheless be distinguished. Most inhumation burials were simple affairs. The deceased were occasionally laid to rest in wooden coffins, but most often they were simply wrapped in a shroud before being lowered into the grave pit. Graves lined with stone slabs imitated sarcophagi. The stones for these graves were often taken from the stones of earlier cemeteries that were no longer in use. The secondarily used stones provide a wealth of information about the earlier, lavishly ornamented funeral monuments. Brick graves and

Fig. 68. Sarcophagus with an inhumation burial. Brigetio, early 4th century A.D.

graves made from stone and bricks without mortar were also quite frequent during the late Roman period.

The rather narrow sarcophagi and the graves constructed without the use of a binding agent left little space for food and drink offerings – this being one of the reasons for the conspicuous decline of pottery in burials from the 3rd century on. Costume ornaments, jewellery and other articles were better preserved in inhumation burials that also contained a variety of utilitarian articles, such as spindle whorls, iron knives, distaffs, etc.

The mummy burials appearing in Pannonia in the early 4th century represent a special burial type (*Fig. 69*). The corpses unearthed in Aquincum, Brigetio and Intercisa were conserved using a complicated process and wrapped into four or five layers of cloth saturated with a resinous solution. The left arm was extended along the body and was wrapped up together with the body laid on its back in an extended position, while the right arm was laid across the chest and bandaged separately. The mummified corpse was then placed on a mat inside the coffin. In these burials, the conservation agent often preserved the remains of plants (flowers, fruits) that were placed into the grave. A fragment of the portrait of a man painted onto a wooden chest has survived in one of the mummy graves from Aquincum. The eastern custom of mummification was probably brought to Pannonia by an eastern population group. This is the northernmost occurrence of this rite.

The 4th century inhumation burials are conspicuously poorer in grave goods than the burials of earlier periods. This can in part be explained by the burial rite and in part by the economic decline, as well as by the increasingly frequent grave robbing. In contrast to the varied grave goods of the former period, the grave furniture was relatively uniform in the late Roman period. The most characteristic grave goods were costume ornaments and jewellery articles (earrings, necklaces, bracelets, brooches, buckles and strap ends). Pottery and glass vessels (jugs, cups, beakers and the occasional bowl) occur but rarely among the grave goods, with individual burials containing fewer types and pieces.

Fig. 69. Mummy grave. Aquincum, earlier 4th century A.D.



Tools, implements and weapons too were seldom deposited. At the same time, coins appear more frequently, although these are often unsuitable for dating the burial.

The later 4th century was marked by a conspicuous rise in the number of graves that can be associated with Barbarian peoples, found alongside the burials of the provincial population. The grave goods of foreign origin (Sarmatian and Germanic wares), the unusual and exotic burial customs all reflect the arrival of new population groups. Their graves often occur alongside the burials of the local population (Sopron–Hátulsó Street, Budapest–Gazdagrét), indicating the contemporaneous and joint use of the cemetery, often extending into the decades after the 4th century.

The burial sites of the Christian communities form a separate group among the 4th century cemeteries. These can usually be found in the major centres of this religion (Sopianae, Savaria, Aquincum). The simple burials generally contained few grave goods (a lamp, a cup or a jug) and they were usually arranged around a central burial (usually the grave of a martyr). The cemeteries of the Christian communities can generally be identified on the basis of these central burials with their distinct architectural features (mortuary chapel). The Christian burial sites usually lie apart from other cemeteries. In the case of larger settlements, a separate area was set aside for this religious community in the municipal cemetery (Aquincum, northern cemetery of the military town).

BURIALS AND SETTLEMENT LAYOUT

In accordance with Roman law, the cemeteries of Pannonia were also established along the roads leading out of the settlements (Arrabona, Brigetio, Intercisa). The area set aside for the burial ground was divided into parcels and individual families used these parcels as a family graveyard. One of the best examples of this practice has been documented at Aquincum. The cemeteries established along the major roads leading out of the seat of the proconsul remained in use throughout the Roman period, although with varying intensity. Beside the permanent cemeteries containing many hundreds, often many thousands of graves, a number of smaller cemeteries used for shorter periods of time have also been found – these were abandoned after major urban rebuilding projects and new ones were opened in their stead. Beside the municipal cemeteries and the cemeteries of smaller settlements, the manor houses and the villa farms also had their own burial grounds.

In the earlier period, the cemeteries lay farther away from the settlements, drawing gradually closer and by the late Roman period grave parcels were often opened in the unoccupied settlement parts, especially in the towns. The parcel system and group burials can also be observed in some late cemeteries (Aquincum, Intercisa). Towards the close of the Roman period, in the 4th century, new cemeteries were only opened in the unoccupied areas of smaller settlements (Tokod, Budapest–Gazdagrét). These cemeter-

ies were used without interruption until the turn of the 4th and 5th centuries or even later, and the burials themselves can be associated with various ethnic groups.

The determination of the location of the cemeteries was part of urban planning projects and their protection was a public duty. There is ample epigraphic evidence from Pannonia recording how individual citizens and professional associations, the so-called *collegia*, helped in the organization of funerals. The largest number of *collegia* is known from Aquincum. The tombstone inscriptions mention a certain *collegium fabrum et centonariorum* most often. Although the association of carpenters and clothiers was primarily responsible for fire fighting, the finds recovered from the building of the *collegium* indicate, that their activities also included the organization of funerals.

FUNERARY MEMORIALS AND MONUMENTS

The most ornate and varied forms of marking tombs are known from the municipal cemeteries. The most common memorial was a simple grave stele, a tombstone that often marked the burial site of an entire family. The shapes of the Pannonian steles, the division of the panels and the representations often echo Italian funerary memorials. Local stonecutters usually worked from pattern-books. The distinctive rep-

Fig. 70. Flavia Usaiu's tomb stele from Gorsium



Fig. 71. Depiction of Heracles and Hesione from Dunapentele or Adony. Painted limestone, first half of the 3rd century A.D.

resentations and motifs have enabled the identification of individual stonecutter workshops, such as the ones in Aquincum, where in addition to the stonecutters' workshop of the legion, stonecutters organized into *collegia* were also active. Beside rather schematic tombstones taken from the pattern-books, these workshops also turned out a number of charming portraits (Fig. 70). The female figures on the tombstones of the local population appear in the traditional Celtic costume. Wagon scenes, offerings and scenes of the funeral feast were popular themes on Pannonian tombstones. Reliefs depicting mythological events were more common in smaller graveyards and on the sepulchral monuments enclosed by walls from the mid-2nd century. In addition to Dionysiac depictions and Rome's foundation myth, the figures of Orestes, Medea and the Dioscuri were also quite popular (Fig. 71). The

Fig. 72. Relief ornamented sarcophagus from Aquincum

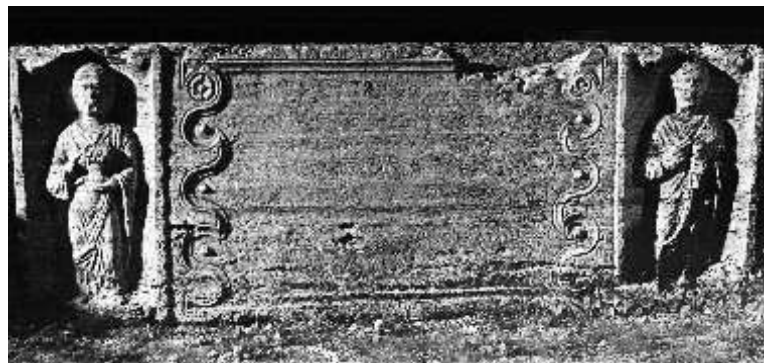




Fig. 73. Eastern wall of burial chamber V, during excavation, in Pécs

creation of graveyards and the erection of grave steles and sepulchral monuments was rather expensive. It is therefore hardly surprising that the grave inscriptions usually record the cost of the sepulchral monument and also the amount that a particular *collegium* had contributed.

The Pannonian grave memorials did not simply commemorate the deceased persons on carved stones, but often honoured them with a poem. A certain poet called Lupus, known from a grave inscriptions found in Aquincum, no

doubt also composed poems for grave monuments erected in other Pannonian towns (Fig. 72).

The burial chambers of the early Christian communities form a distinctive class of sepulchral monuments from the late Roman period. The modest ones were built of stone or brick laid into mortar and had plastered walls, such as the ones found in Aquincum, in the southern cemetery of the civilian town; these were usually made for the less wealthy members of the community (Fig. 73). The central graves of Christian burial grounds were large, lavishly ornamented burial chambers with plastered walls that were often decorated with the symbols and characteristic representations of Christianity (Sopianae, Aquincum; Fig. 74). The wall paintings of the early Christian mausoleum from the 4th century uncovered in Sopianae/Pécs are truly impressive works of art. The scene on the eastern side depicts the Fall (cp. Fig. 62). The unique figural scenes decorating the early Christian burial chambers and mortuary chapels in Pécs are now open to the public. These monuments are among the finest relics of early Christianity in Pannonia.

Fig. 74. Burial chamber. Pécs



ROMAN PERIOD TUMULI IN TRANSDANUBIA Sylvia Palágyi

The study of tumulus graves, a specific variant of cremation burials, was begun in Hungary some one hundred and fifty years ago, when Eduard von Sacken conducted excavations at Zalalövő and the nearby site of Zalaháshágy, and Andor Turcsányi uncovered the tumulus cemetery at Katafa. The tumulus cemeteries near Hungary's western border can be assigned to the group distributed along the border between Noricum and Pannonia. The mound burials of this group are usually called Norican-Pannonian tumulus graves.

The tumulus cemeteries in eastern Transdanubia differ significantly from this group, characterized by fairly large



Fig. 75. Tumuli and wagon burials in Pannonia

burial mounds and a density of cemeteries, distributed in Lower Austria, southern Burgenland and Styria. The burial rite and the number of the grave goods in eastern Pannonia are practically identical with the grave inventories recovered from 'flat' graves, while the large mounds standing alone or in pairs near the border between Pannonia Superior and Pannonia Inferior also differ from the mounds of the Noricum-Pannonian group owing to their stone constructions and finds (Fig. 75).

The so-called Pátka type pots and bowls were found in the – still unpublished – cemetery of Pátka, made up of 134 mounds, where investigations have been conducted since 1874. The Hungarian National Museum undertook the excavation of the Pusztaszabolcs–Felsőcikola site and in 1957 the finds from the twelve mounds uncovered at Mezőszilas in the early 20th century were finally published. Excavations were conducted at Zalaalövő, Gelsesziget, Nagykanizsa, Nagyrécse, Söjtör and Pördefölde. Several tumuli were also unearthed at Kemenesszentpéter, Inota and Baláca (Fig. 76). The number of the surviving burial mounds in the cemeteries of Somogyaszaló and Somogyjád could be determined by field surveys; the more

recently discovered cemetery at Edde has also been surveyed and mapped, together with the tumuli at Szalacska/Mosdós, where both prehistoric and Roman period mounds have been identified. Sadly, a number of tumulus burial grounds, such as the ones at Juta and Orci, have been completely destroyed.

The discovery of a wagon burial under mound 2 at Inota has convincingly proven that tumulus and wagon burials should not necessarily be separated. The draught and saddle horses found in the same tumulus cast new light on the tombstones bearing wagon depictions. The scenes showing wagons pulled by two horses, often accompanied by a third horse, on many tombstones apparently reflected genuine burial customs (cp. Fig. 70).

The large tumulus of Baláca is unique among the burial mounds of Noricum and Pannonia owing to its size and its enclosing wall with a stepped base, crowned by a carved cornice. This monument shows cultural influences from Italy, similarly to the groundplan and the decoration of the villa built in the late 2nd–early 3rd century (Fig. 77).

The *dromos*, the corridor, found in a few burial chambers too reflects Italian cultural influences among the tumuli of



Fig. 76. The stone wall enclosing tumulus 2 at Inota, during excavation

Zala county and the burial mound uncovered at Kemenes-szentpéter in Veszprém county. The tambours, the circular stone walls of Italian grave monuments, have their modest counterparts in the small enclosure wall at Inota. The custom of painting the burial chamber's walls and the corridors was also adopted from Italy. The walls were covered by painting imitating marble wall veneer or leaf motifs and floral patterns, as well as network patterns. The corners and the furniture placed in the burial chamber were framed in red.

In Europe, the custom of erecting an earthen mound over the burials can be observed since the Neolithic. The toponym "Százhalom" (hundred mounds), cropping up often in field and forest names throughout Transdanubia, usually retain

the memory of large Late Bronze Age and Early Iron Age tumulus cemeteries. It has been suggested that the forerunners of the early Roman period tumulus graves in the northern provinces of the Roman Empire, appearing from the later 1st century, should be sought in these prehistoric tumuli owing to the resemblance between them, even though there was a rather long 'moundless' period between the two. It is still unclear why the custom of raising a mound over burials was revived in the Roman period.

The army troops stationed in the province, the representatives of Italian merchant houses and other civilians from Italy may have played a role in the revival of this burial custom since they often erected burial mounds similar to the Italian ones over their own and their families' graves. The epigraphic evidence and the grave goods suggest that the individuals whose ashes were found beneath the mounds were in part members of the native population and in part Italian immigrants, such as landowners and other individuals who were members of the municipal administration and whose personal possessions included provincial wares and articles. The erection of burial mounds could also reflected differences in rank and social standing within the community, as shown by the burials of a middle-aged and a young man under the two tumuli in Inota, each furnished with a wagon, draught and saddle horses and a rich grave inventory of weapons and tableware sets (Fig. 78).

Funerary structures under the mounds were more frequent in the burials along the Amber Road. The tumuli at Baláca and Inota near Várpalota, north of Lake Balaton, represent the easternmost Pannonian occurrence of tumuli with a *dromos* and painted or stuccoed burial chambers enclosed by stone walls.

Mounds were usually smaller in eastern Pannonia. The diameter of the smallest mounds was 3–4 m, their height measured 0.2 m. The burial mounds at Hant and the re-



Fig. 77. The enclosure wall, dromos and burial chamber of the burial mound, during excavation. Baláca-Likas Hill



Fig. 78. The grave pit of tumulus 1 of Inota

cently identified Mosdós mounds were exceptional with their diameters of 25 m and 32.5–48 m and their height ranging between 4 m and 6.3 m. The tumuli in Pannonia Inferior lacked burial chambers and *dromoi*; the ashes were usually deposited into larger wooden caskets.

The dominant rite of the Roman period tumulus burials was cremation. The deceased were usually cremated at the *ustrinum*, although in a few exceptional cases the pyre was raised over the grave pit and the pit was filled with earth af-



Fig. 79. Glass urn from tumulus 1 of Inota

ter the pyre had burnt down (the *bustum* at Zalalövő). At Balácsa, a horse and dogs were also cremated on the pyres raised over the grave pits. The burnt walls of the pits preserved the structure of the pyres. The deceased were laid on the pyre with their jewellery, the dog and the horse, as well as the harness.

The ashes were deposited into the graves in a variety of ways. The simplest procedure was the scattering of the ashes on the surface and the deposition of food (cereals, meat) and drink believed to be needed in the afterworld in clay, glass or bronze vessels. The ashes were sometimes placed into a pit, an urn (or some other vessel) set into a pit, or in a brick or wooden casket (Fig. 79). Burnt and deformed objects were often found in the pits containing the ashes. These were the remains of the articles that were part of the deceased's costume or had been thrown onto the pyre and had then been deposited in the grave pit together with the ashes and bone remains. Quite some time often elapsed between the cremation, the burial and the erection of the grave mound. The burnt patches of earth and some of the

Fig. 80. Tumulus 1 of Inota, before excavation





Fig. 81. Leaded bronze shield boss from tumulus 2 of Inota

vessels found on the contemporary surface are the remains of the relatives' visits to the graves on certain days and of the funeral feasts.

Judging from the large funnel shaped and round pits, the earth needed for the erection of the mound was brought to the burial ground from the vicinity (Kemenesszentpéter, Baláca). On some sites it could be observed that the funerary structures and the mounds were constructed in several successive phases. The height of a larger mound often reached 12 m (Fig. 80).

Some of the large mounds in western Hungary and along the border between the two Pannonias (Inota, Baláca) were enclosed by a circular wall or a ditch (or perhaps a wattle fence). Similarly to the Western European practice, some tumuli were erected in a rectangular graveyard; at Baláca these were enclosed by a stone wall, while at Kemenesszentpéter–Dombi-dűlő by a ditch with a triangular section.

The dating of these tumulus burials is based on the few coins, *sigillata* wares, glass, pottery and bronze vessels recov-

ered from the graves. The barbotine decorated bowls found in the early tumuli were imports from northern Italy or southern Gaul. The globular glass urns unearthed in the burial mounds at Ivánc, Sárvár and Inota also originated from northern Italy. Two pairs of glass jugs were recovered from the grave pits at Inota and Mezőszilas. A smaller and a larger glass jug were found in tumulus 2 at Inota. The glass beaker ornamented with a scale pattern from Inota is a rare find, whose best analogies can be quoted from sites along the *limes* in Noricum and Pannonia, as well as from the villa uncovered at Baláca. Hand-thrown pottery, such as pots with combed decoration, painted pots and bowls, grey wares (pots, deep bowls, three-footed bowls), cups and mugs with indented side were also quite frequent. Several slender jugs were found in the tumuli in Fejér county. The bronze vessels most often placed in graves were jugs, pitchers, dippers and strainers. A hand-washing set made up of a jug and a handled cup was one of the typical grave goods at Inota and in the wagon burials of northeastern and eastern Pannonia.

The deposition of wagons – and of weapons in some tumuli – was not a Roman custom. The aristocracy of the native population and the leading layer of native origin were wealthy enough to continue this expensive custom and to take their hunting weapons to the afterworld even in the first half of the 3rd century. The most frequent weapons were shields with iron or bronze bosses and iron or wooden grips, long swords, daggers, spears and battle-axes (Fig. 81). The horses were stabbed to death with the spears found among the horse bones.

The custom of raising a large mound over the burials gradually disappeared in the later 3rd century and the 4th century. The inhumation burials unearthed at the base of the mounds, along or on the wall enclosing the burial ground and the burials cutting through these walls date to the late Roman period and the Árpáadian Age. They indicate that these artificial burial mounds were still regarded suitable for accommodating additional burials (Fig. 82).

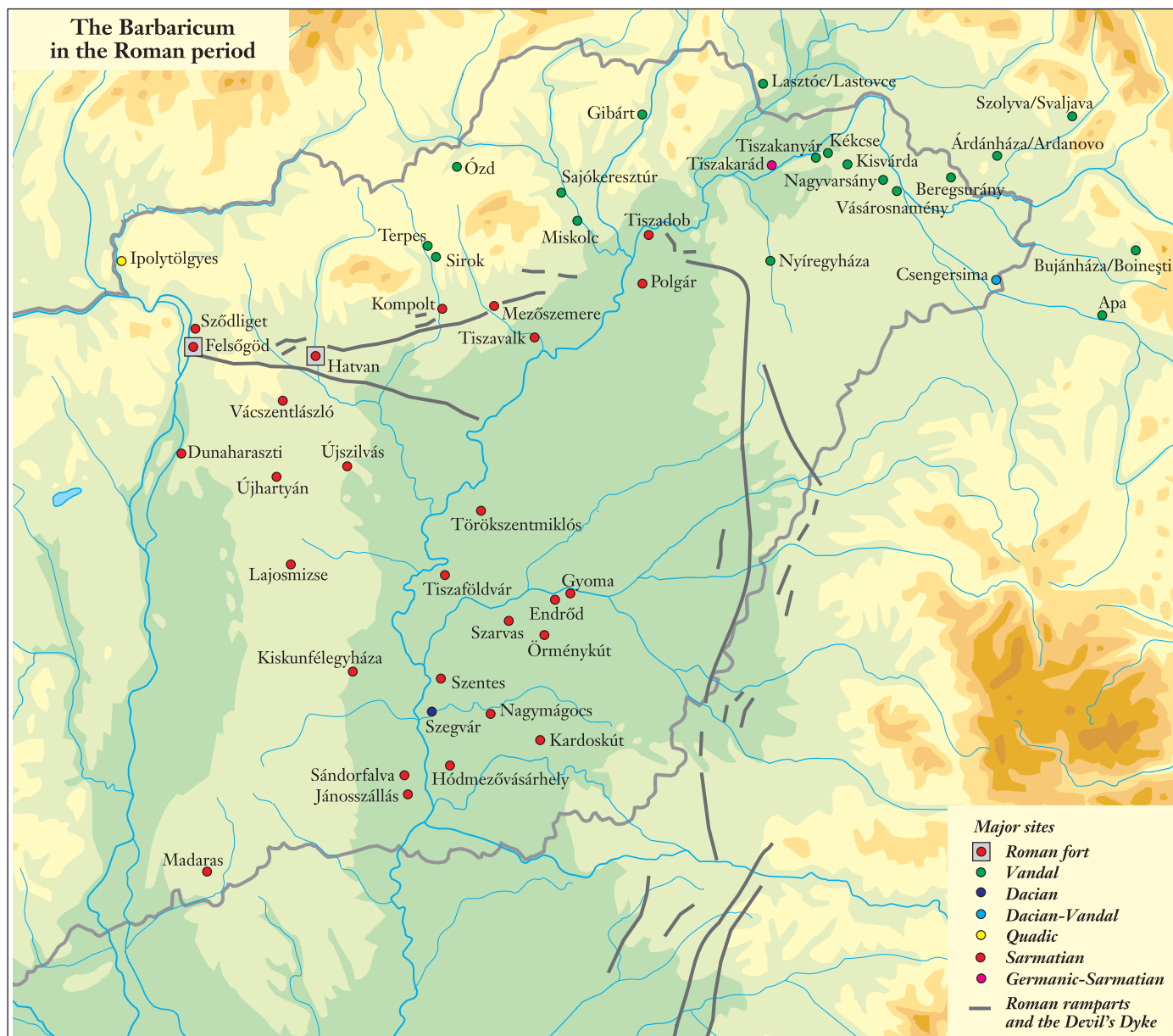
Fig. 82. Reconstruction of the tumulus of Inota



IX. THE BARBARICUM IN THE ROMAN PERIOD



The Barbaricum in the Roman period



HISTORICAL OVERVIEW

Andrea Vaday

The territory east of the Danube was the homeland of various Barbarian peoples in the Roman period. The ethnic composition of these peoples and the balance of power between them shifted periodically on the left bank of the Danube, as well as in the adjacent Bačka in Yugoslavia and the Banat in Romania.

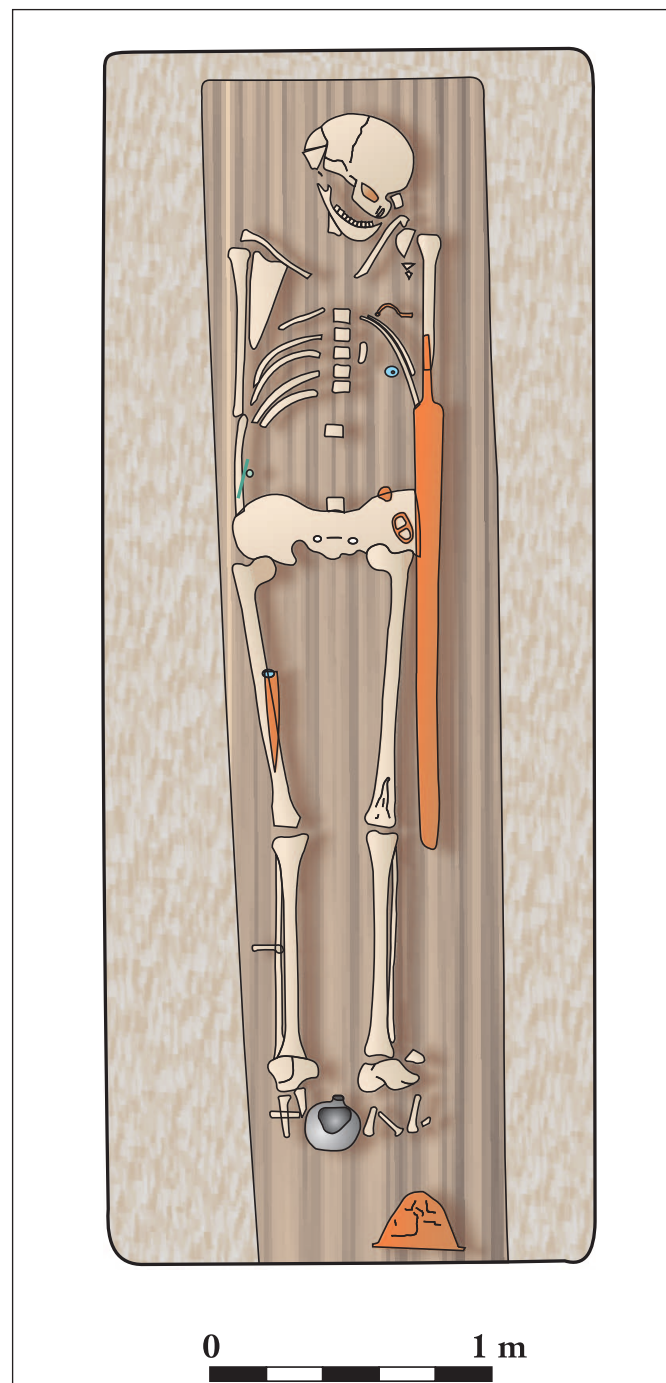
In the mid-1st century B.C., the Celts lost their hold over the Great Hungarian Plain and were ousted by the Dacians, led by their king Boirebistas. The remnants of the Celtic tribes survived only along the northern mountainous fringes of the Great Hungarian Plain. After the Romans occupied Transdanubia, they fortified the Danubian frontier of the empire to prevent the Barbarian peoples' expansion. Roman policy was to ensure and secure the loyalty of the neighbouring Barbarian tribes to Rome, whether by political, economic or military means, this being the reason that Rome extended her authority over the Germanic Quadi who had founded their kingdom north of the province, but whose tribal territory and power also extended to the left side of the Danube Bend.

Arriving to the Carpathian Basin from the Lower Danube region, the first groups of the nomadic Sarmatian Jazygians of Iranian stock settled in the northern part of the Danube–Tisza Interfluve in the early 1st century A.D. After consolidating their settlement, they forged an alliance with the neighbouring Quadi, an alliance that remained unbroken for over four centuries. The Jazygians expanded southwards between the two rivers; leaving the hilly region on the northern fringes of the Great Hungarian Plain, they crossed the Tisza at the close of the 1st century, at the time of Trajan's Dacian wars and – with the exception of the Upper Tisza region – they occupied the area beyond the Tisza that had formerly been ruled by the Dacians. After defeating the Dacians, Rome founded the province of Dacia in the area that is now part of present-day Romania. The Sarmatians found themselves in an entirely new political environment, squeezed in between the Roman provinces of Pannonia in the west, Dacia in the east and Moesia in the south, with an area occupied by a mixed Celtic, Dacian and Germanic population to their north. Led by their king, the main tribe of the Jazygians soon joined the first Jazygian groups in the Great Hungarian Plain. The population growth, the increasing strength and expansion of the Barbarian population living in the Great Hungarian Plain did not escape the Romans' attention. The Roman merchants who carried their wares across the Danube to distant territories, also acted as spies for the provincial army. The strategic importance of the roads traversing the Great Hungarian Plain and the crossing places on the Tisza increased.

The war on the empire's Danubian frontier broke out at the same time as the wars against Parthia in the east, in the late 2nd century. The Barbarians invaded the Danubian Ro-

man provinces in two major waves from the Rhine region to the Black Sea. Marcus Aurelius had to face the fact that no matter how ingeniously Rome tried to force these peoples to become vassals of Rome, the alliance between the Barbarian tribes proved stronger. One possible solution to the crisis east of the Danube was the creation of new Roman provinces in the Germanic and Sarmatian territories that were to be called Marcomannia and Sarmatia. The Roman troops advanced deep into the Barbarian heartland, occupying the territory up to present-day Trenčský (Trenčín,

Fig. 1. Coffin burial of a warrior from Mezőszemere



Slovakia). After Marcus Aurelius' death, however, Roman foreign policy again turned defensive, reflected in the linear protection of the frontier and the renewed efforts to forge an alliance with the Barbarians. The idea of creating new provinces was discarded. The war also affected the Barbarian peoples. Groups of Sarmatian Roxolani from the east settled in the Great Hungarian Plain, while the Vandals, a Germanic tribe, occupied a part of the Upper Tisza region. Parallel to the appearance of the Vandals, the Sarmatians expanded towards the northeast. The Vandal-Sarmatian border was established at this time, as was the Sarmatians' settlement territory that remained unchanged until the last third of the 4th century. The so-called Devil's Dyke (variously called Csörsz or Roman Dyke), a massive earthwork constructed in the late Roman period on the Romans' initiative, marked the boundary of the Sarmatian settlement territory. The products of distant provinces found in Sarmatia reveal that Roman trade with the Sarmatian lands intensified. A number of northbound roads branched off the Aquincum–Porolissum road, along which Roman wares reached faraway areas in Poland through eastern Slovakia (Fig. 1).

The profound changes that shook the Roman Empire in the 260s and 270s also affected the Carpathian Basin. The repeated Gothic attacks from the east weakened the Roman frontier defence to such an extent that Aurelian was forced to withdraw the Roman troops from Dacia, to completely evacuate the province and to resettle the Roman population south of the Danube. The road to Transylvania and the west lay open to the Goths. Driven from their homeland east of the Carpathians by the Gothic advance, new Sarmatian groups arrived to the Great Hungarian Plain; their majority eventually settled in the Bačka and the Banat in the south. That the Sarmatian territory became increas-

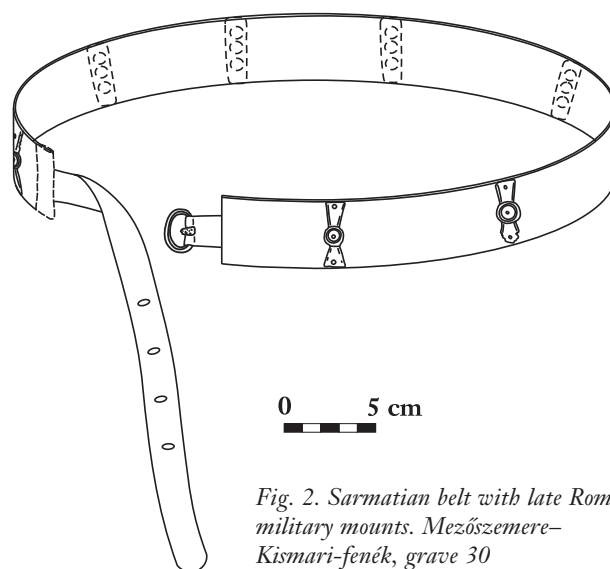


Fig. 2. Sarmatian belt with late Roman military mounts. Mezőszemere–Kismari-fenek, grave 30

ingly important to the Romans is shown by the repeated peace treaties concluded with this people in the first third of the 4th century and the creation of a defence zone in the Barbaricum to protect the Danubian provinces of the empire against the Gothic onslaught. The middle line of the Roman defensive earthworks running along the boundary of the Sarmatian settlement territory was probably constructed at this time, in the wake of Marcus Aurelius' campaigns (Fig. 3). That this immense earthwork system was patrolled by Barbarian troops supervised by Rome is reflected in the high number of armed male burials in the cemeteries lying along the entire length of the earthwork and the presence of late Roman belts with military mounts and Roman brooches, signalling their wearers' 'Roman' military rank (Fig. 2).



Fig. 3. Reconstruction of a Roman rampart at Fancsika

Arriving from the east in the early months of 332, the Goths and the Taifali first attacked the Vandals living in the Körös region and then turned against the Sarmatians, who repelled the attack with Roman help. The late 370s heralded the dawn of a new era. There were regular clashes between the tribes arriving from the east and the Eastern Roman troops in the Balkans. Emperor Valens personally led the campaign against the Barbarian peoples. In the decisive battle at Hadrianopolis (Edirne, Turkey), the Gothic-Alan-Hun army dealt a crushing defeat to the Roman army. Some groups of this Barbarian army moved westwards and eventually settled in Pannonia with Rome's permission. The wars became constant, leading to the collapse of the Sarmatian defence line. In 401, upon hearing of the Huns' advance, the Vandals fled westwards from their homeland in northern Hungary; they were joined by the Quadi living north of Transdanubia and groups of Alani from the Tisza region. On December 31, 406, they crossed the Rhine, the first of the many successive waves of the Barbarian peoples' migrations to the west. As a result of their flight, the population temporarily decreased in some parts of the Great Hungarian Plain. The migrations through the Carpathian Basin meant immense hardships for the Sarmatian population. Decimated by the constant wars, the Sarmatians withdrew to the Danube–Tisza Interfluvium and the areas south of the Danube after the Gepidic takeover following Attila's death.

THE PEOPLES OF THE BARBARICUM DURING THE ROMAN PERIOD

Andrea Vaday

THE SARMATIANS

The archaeological heritage of the Sarmatians was first identified in the late 19th and early 20th century. The first systematic overview of the Sarmatian finds from the Barbaricum was written by Mihály Párducz in the early 1930s. This study was followed by a string of others, publishing the find assemblages in the museums of Csongrád, Hajdú-Bihar and Bács-Kiskun counties. Mihály Párducz remained the leading expert in this field of research; in addition to publishing a number of excavated cemetery and settlement finds, he also wrote a second summary of the Sarmatian corpus of finds and determined the find types typical of individual periods (the early Sarmatian period, the finds of the 2nd and 3rd centuries and of the Hun period). Sarmatian finds were published but sporadically after World War 2 until the 1970s. Fieldwork was mostly restricted to rescue excavations; the single planned excavation was conducted at Madaras, where an entire Sarmatian cemetery was unearthed. The history of the Sarmatians in the Carpathian Basin was at the time based

on András Alföldi's works. János Harmatta contributed important studies on Sarmatian linguistics and the history of the eastern Sarmatians, an indication of the rigid separation of historical, linguistic and archaeological research in this field.

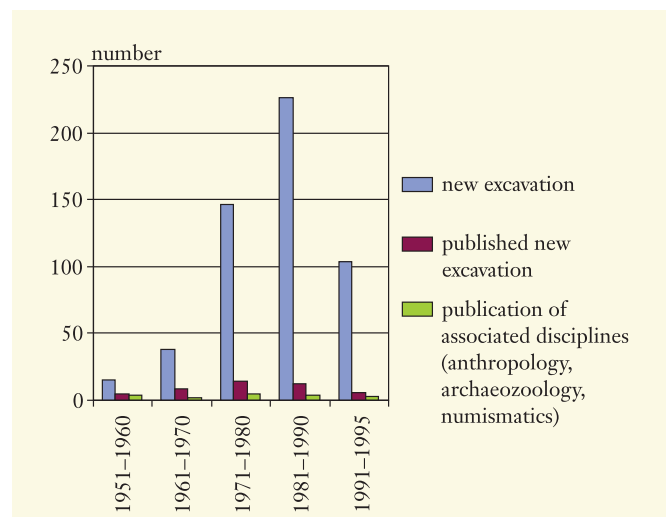
The study of the peoples living on the fringes of the Sarmatian settlement territory, such as the Dacians, the Quadi and Vandals, was even more neglected in Hungary.

Our knowledge of the archaeological heritage of the peoples of the Barbaricum is extremely patchy in Hungary. The long-time activity of the archaeologists working in the Szeged Museum can be strongly felt in the southern part of the Great Hungarian Plain, similarly to the intensive work of a handful of archaeologists in a few smaller areas. Very little work has been done in the Bačka in Yugoslavia, in the Banat, and in the northwestern and western areas of Romania. The number of published find assemblages is very low. Only a few new sites have been reported from the Banat since Bódog Milleker's overview, published in the late 19th century. New sites from the Bačka have only become known in the past few decades. The research and the interpretation of the archaeological assemblages from the Roman period in these two countries was coloured by a political bias, especially after World War 2: in Romania, some Sarmatian assemblages were attributed to the Dacians, while in Yugoslavia, the archaeological heritage of this Iranian people was associated with the Slavs of the Roman period.

The field surveys in the 1960s along the Devil's Dyke marked a major milestone in the research of this period. The exact chronological position of this earthwork rampart was clarified by trial excavations. Two other important discoveries were made during these field surveys: one was the Roman fort at Felsőgöd, the other a smaller Roman military building at Hatvan–Gombospuszta, both indicating Roman activity in the Barbaricum.

Fig. 4 shows the number of new excavations and publica-

Fig. 4. Number of excavations and publications



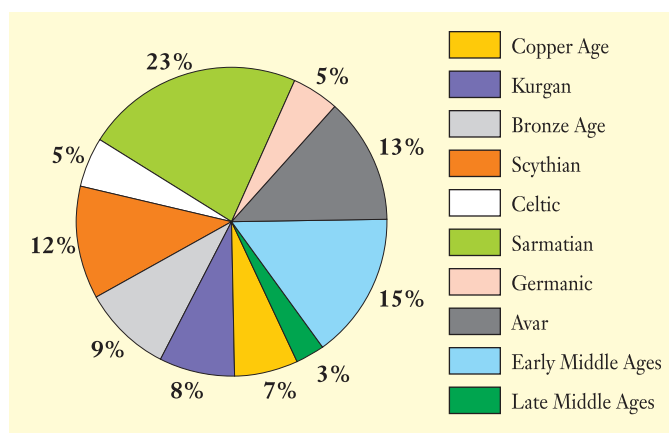


Fig. 5. Site distribution of the Microregion Research Project of the Great Hungarian Plain

tions. It is clear at first sight that the findings of only some 25 per cent of the excavations were published between 1951 and 1960, while only 19 per cent of the excavations conducted in the next decade, even though the number of archaeological investigations had almost doubled. The discrepancy between the number of excavations and the number of publications continued to rise in the ensuing decades. This state of affairs will hardly be remedied in the near future since the number of finds recovered from large-scale rescue excavations eclipses by far the assemblages known to date.

The systematic cataloguing and evaluation of the known find assemblages in the past decades has increased the number of known sites by many hundreds, even in counties that had not been particularly well investigated. The field surveys conducted in the Great Hungarian Plain revealed that the Sarmatian settlement network was much more dense than the modern one. The number of sites is very high, even if they are proportionately distributed over four and a half centuries. In Békés county, for example, 109 of the 535 sites representing various periods identified during the topographic survey of the 35 km² large area bordered by Gyomaendrőd, Szarvas and Örménykút were Sarmatian ones (Fig. 5).

The conspicuous difference between the number of sites identified during field surveys and the number of excavated sites reflects the paucity of investigated sites in a given area. As a result, a general analysis and evaluation of the find material is rather difficult owing to the uneven state of research, the lack of excavations and the badly documented or undocumented assemblages in local museums still awaiting publication. At the same time, the findings of the excavations preceding major construction projects and the so-called microregion projects, involving both field surveys and excavations in smaller areas, have vastly enriched our knowledge owing to the wealth of information provided by the find material and the large excavated surfaces.

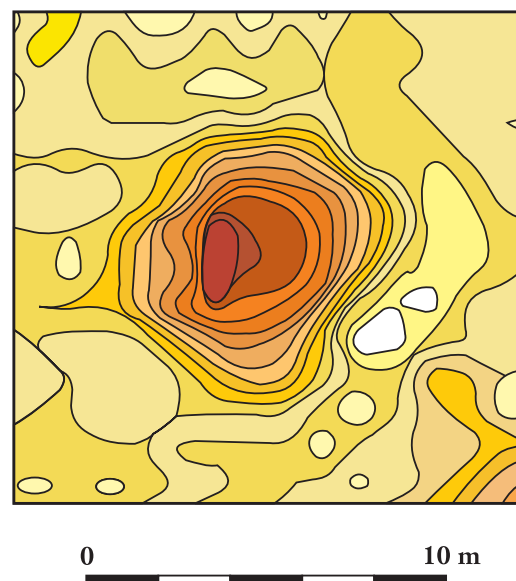
Major construction projects are usually preceded by one of three excavation types: linear, block-like or a combination of the two. The first type characterizes road con-

struction projects and the laying of gas and oil pipes. In these cases, the length of the excavated area is significantly larger than its width. One disadvantage of these investigations is that practically nothing can be learnt about the actual extent of the site, about the area falling outside the excavated territory. Another one is that the sections to be excavated are determined on the basis of the field survey preceding the excavation and the areas that appear to be 'empty' are not investigated, even if they fall within the planned line of the motorway or pipeline. One case in point is the Kompolt–Kistér site, where the surface features observed during the preliminary field surveys indicated the presence of two nearby sites. The rescue excavation conducted in the area between the two 'sites' revealed that the features identified during the field surveys were in fact part of the same site. The third disadvantage of linear excavations is the relatively small width of the excavated area. The planned course of a new road is usually 60 m wide in the case of motorways and 20–40 m in the case of smaller roads, meaning that in spite of the relatively large size of the excavated surfaces, a number of archaeological features cannot be interpreted.

The second type of major rescue excavations is the block-like type. The excavations conducted on the site of future shopping centres, petrol stations, border crossing stations and the extraction pits of the motorway constructions fall into this category (e.g. Csengersima and Polgár). In contrast to linear excavations, the length and width of the excavated area is more proportionate, providing considerably more information on the stratigraphy of a site.

The third type is the most advantageous, combining the advantages of the above two without their disadvantages. This type of rescue excavation, however, is far too rare: it is an option only in cases when there is a chance to excavate the planned exit areas and service station of motorways.

Fig. 6. Archaeomagnetic survey of a Sarmatian workshop at Gyoma



The research of the Barbaricum in Hungary entered a new phase during the past three decades not only in terms of the quantitative and qualitative increase of finds, but also as regards the use of various analytical methods in the investigation of a given site. In addition to traditional survey methods, aerial photography, geophysical surveys and subsurface probes are now also employed in site prospecting (Fig. 6). The reconstruction of the one-time environment of a settlement site has similarly become a more or less routine exercise.

THE CELTS

The study of the peoples who lived in Pannonia before the Roman conquest and of the spiritual and material culture of the native population has always been a part of Roman studies; in contrast, the study of the Celtic groups living in the areas east of the Danube during the Roman period has been largely neglected. This can in part be ascribed to the lack of excavations, and in part to the fact that while the survival of the local Celtic population can be traced rather accurately in Transdanubia, in the Barbaricum the Celtic population blended with the native population. Very little is known about this 'mixed' material culture and the few find assemblages can be dated within broad chronological limits only. As a result, the distinctive Celtic find types of the Roman period in the Barbaricum cannot be determined for the time being.

We know from Greek and Roman sources that Celtic tribes lived in the Danube–Tisza Interfluvium and on the northern fringes of the Great Hungarian Plain. Unfortunately, these sources are silent on the relationship between the immigrant Sarmatians and the local Celts. In his *Geographike* written in the 2nd century, Ptolemy lists the names of the Sarmatians' towns in this region. Some of

these names indicate a Celtic origin for these towns, suggesting that the Jazygians occupied these settlements and that the Celts probably continued their existence under Jazygian rule.

The different lifeways of the sedentary Celts and the semi-nomadic Sarmatians no doubt eased some of the tensions between these two peoples. The surviving Celtic population contributed much to the distinctive material culture of the Sarmatians of the Carpathian Basin, whose original eastern culture gradually faded.

THE DACIANS

The study of the Dacians has also been neglected in the Great Hungarian Plain. While working on his monograph about the Sarmatians, Mihály Párducz also collected the Dacian assemblages and the finds he believed could be associated with the Dacians. The first study offering a historical interpretation of the Dacian find material in the Great Hungarian Plain was written by Zsolt Visy in the late 1960s. One of the greatest difficulties was that the material in question was mostly made up of stray finds without any context that did not even allow a precise dating.

In the early decades of the 1st century, the Jazygians conquered the northern areas of the Danube–Tisza Interfluvium that had until then been occupied by the Dacians and they gradually moved into the Bačka as well. The Great Hungarian Plain, however, remained under Dacian rule until Trajan's wars. Curiously enough, there were no finds that supported the information contained in the written sources. Authentic Dacian finds were lacking from the one hundred years following the mid-1st century. The occasional Dacian vessel recovered from the burials of the earliest Jazygian groups in the northern part of the Danube–Tisza Interfluvium indicated the presence of a mixed population. The dating



Fig. 7. Dacian and Sarmatian finds from Gyoma. End of the 2nd century

and the archaeological interpretation of the finds from Jánosszállás and Hódmezővásárhely–Kakasszék was practically impossible. No ‘pure’ Dacian finds were known, only mixed Sarmatian-Dacian assemblages.

A Dacian settlement was unearthed at Szegvár. The finds from this site finally confirmed the historical picture projected by the written sources of the Great Hungarian Plain before the Sarmatian occupation. Finds dating from the last quarter of the 2nd century have been uncovered on the Sarmatian settlements at Újhartyán and Gyoma (Fig. 7). The Dacian finds from the second occupation phase of the Sarmatian settlement suggest that Dacian groups fled to the Sarmatian settlement territory in the face of the Vandals’ invasion of northeastern Hungary during the Marcomannic wars.

Dacian finds again appear sporadically in the final decades of the 4th century (for example at Kardoskút), indicating that the population groups fleeing the Huns also included Dacians.

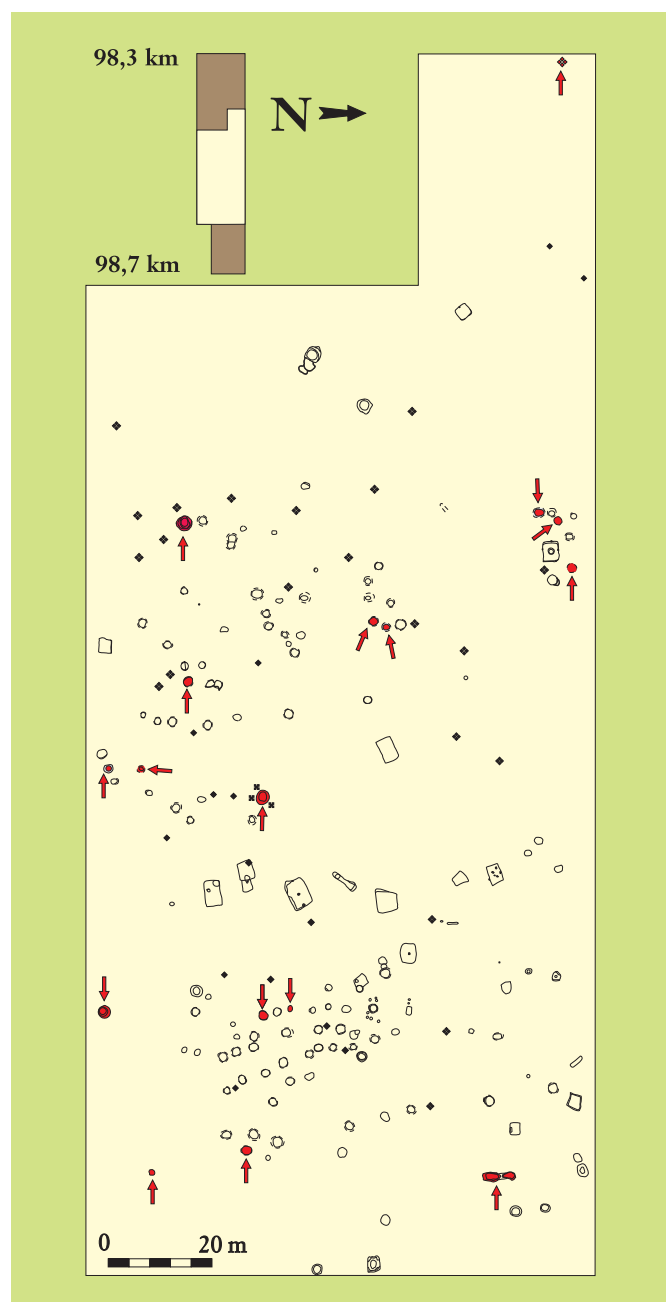
THE QUADI Gábor Márkus

Little research has been done on the Quadi in the Barbaricum, in part owing to geographical reasons since only the fringes of the areas occupied by this Germanic group fall within Hungary’s border. It is therefore hardly surprising that in his study of the Quadic finds in Hungary written in 1963, István Bóna relied heavily on the finds from Transdanubia. New advances in this field were brought by the field surveys and excavations in the Ipoly valley, in the course of which several Quadic and Sarmatian sites were identified. One interesting observation made during these surveys was that the settlements of these two peoples were not spatially separate in the territory east of the Danube Bend, but often lay quite close to each other, sometimes even sharing the same site. The finds collected during the field surveys were unsuitable for clarifying their chronological position. The excavations at Ipolytölgyes revealed intensive trade contacts between the Quadi and the Romans in the 2nd and 3rd centuries. The large-scale excavations in the 1990s marked a major turning point in the research of this period. The settlements yielding Germanic or mixed Germanic-Sarmatian assemblages investigated along the planned course of Road 2/A must be mentioned in this respect. The sites around Kompolt, lying by the Heves county section of the M3 motorway, yielded information of a different nature. Even though closed assemblages of Germanic finds were not found on these sites, various Germanic artefacts were recovered from several features (Fig. 8). The Sarmatian settlement can be dated to the period after the Marcomannic wars, when commerce with the neighbouring Germanic communities flourished along the borders.

Although we now have a fairly good idea of the archaeological heritage of the Quadi from the 2nd–3rd centuries,

this is not the case for the late period. It is unclear whether this can be ascribed to a genuine lack of Quadic/Suebic finds from the 4th century or the inability to recognize the finds for what they are. The Roman historian Ammianus Marcellinus mentions that as a result of the long co-existence of the neighbouring Quadi and Sarmatians, their customs and lifeways became very similar and it is therefore possible that the assemblages from the late period lack the distinctive and well datable Quadic and Sarmatian traits. The problem is the same in the areas where the settlement territory of the Quadi, the Sarmatians and the Vandals overlapped.

Fig. 8. Germanic finds from Sarmatian settlement features at Kompolt–Kistér



THE VANDALS

Gábor Márkus

The archaeological heritage of the Vandals, tribes of eastern Germanic stock who controlled extensive areas in Poland, Slovakia and the Ukraine, is known as the Przeworsk culture, after the eponymous cemetery unearthed in Poland in the early 20th century. As a result of the German, Polish and Slovakian studies in this field, we now have a fairly good idea of the internal development of the culture. In eastern Europe, the northern fringes of the Carpathian Basin marked the southern border of the culture's distribution, roughly from the Tarna river, through the Tisza bend to the Szamos and Kraszna valleys. This southern border zone has hardly been investigated and only a few sites of the culture are known. The scanty Hungarian material is nonetheless important owing to the fact that only on the northern fringes of the Carpathian Basin was there a direct interaction between the Vandal tribes and the Roman Empire. The first finds from Hungary came to light in the mid-19th century. All of these assemblages were recovered from the cremation burials of warriors (Lasztóc/Lastovce and Gíbárt). At the time they were dated to the Iron Age. Comparable find assemblages were found in the 1930s at Apa, Árdánháza/Ardanovo, Szolyva/Svaljava and Kékcse. The advances made in this field of research eventually led to the correct dating and the ethnic attribution of these graves.

The currently known graves of Vandal warriors number about two dozen. Most of these lie in Szabolcs-Szatmár-Bereg county (Tiszakanyár, Nyíregyháza-Árpád Street, Nagyvarásány, Kisvárdá-TV tower and Vásárosnamény-Hajnal Street), with two known from Heves county (Terpes and Sirok) and one from Romania (Bujánháza/Boinești). These burials can be dated to between the final decades of the 2nd century and the early 4th century. These graves were without exception cremation burials (either inurned or scattered cremation burials) and they all contained many weapons, mostly spears – often as many as two or three pieces –, shields and the occasional sword. In addition to weapons, the finds from these burials invariably included another important article of the equipment used by Vandal warriors, namely spurs that could be attached to the boots. Larger cemeteries of the Vandal population are known only from the neighbouring countries. Royal burials have not yet been found in Hungary, although István Bóna has suggested that the golden pin found at Vállaj had perhaps originated from a royal burial. Similarly to the other Germanic peoples, a shift from cremation to inhumation can be observed in the 4th century among the Vandals, probably under cultural influences from the Mediterranean.

The study of the Vandals' settlements began in the 1950s and has since then been continuous. Unfortunately, only smaller sections of the known settlements were excavated in earlier campaigns and even though larger areas have recently also been investigated at Csengersima and Beregsurány, their finds have not been published, meaning that these settlements cannot yet be set in a wider context. The distribution

of the known settlements reflects the extent to which an area has been investigated, rather than the actual, one-time settlement network. Most of these settlement sites are known from the Miskolc area ((Miskolc-Sötétkapu, Miskolc-Szabadság square, Miskolc-Szirma, Sajókeresztúr). Beside various pits, the settlements features included the typical houses of Barbarian settlements, such as the sunken house with two to four posts and without an oven uncovered at Ózd-Stadion. The ethnic attribution of these settlements is problematic, especially in the Sarmatian border zone, owing to the mixed nature of the pottery finds. Vandal pottery reflects a strong Roman influence from the turn of the 2nd–3rd centuries; this influence was largely technological and the Sarmatians' mediation can be assumed. The Vandal potters adopted the foot-turned potter's wheel and the earlier hand-thrown pottery was soon supplanted by wheel-turned wares that had earlier been wholly absent. The pottery finds from the settlements are dominated by 'Sarmatian' type wheel-thrown vessels and the ratio of the typical, traditional Przeworsk pottery is very low.

THE ARCHAEOLOGY OF THE SARMATIAN TERRITORIES

BURIALS

Eszter Istvánovits & Valéria Kulcsár

The past twenty-five years have greatly enriched our knowledge of Sarmatian burial rites and, indirectly, of their religious beliefs. Although many graves had been earlier unearthed (even if very few larger cemetery sections), only a fraction of these burials had been published according to modern standards. Grave drawings and cemetery maps, indispensable for the analysis of the burial rite, were rarely included and as a result there were many inaccuracies and, also, misconceptions in our knowledge of the various elements of the burial rite. One of the problems in this respect is the separation of the funeral customs that can be traced to the earlier, eastern Sarmatian homeland and the ones that only characterized the Sarmatians of the Carpathian Basin.

The exact dating of the graves from the earliest Sarmatian settlement territory in the northern part of the Danube-Tisza Interfluvium is rather difficult. The gold dress ornaments, earrings, torcs and gold and carnelian beads of southern Russian and Ukrainian origin found in female burials remained fashionable over a longer period of time. It seems likely that the grave assemblages lacking Roman articles from neighbouring Pannonia are the earliest ones. Graves with Roman brooches first appeared at the turn of the 1st–2nd centuries. The graves of the next group of Sarmatian immigrants included a number of more richly furnished male burials as well. The eastern Sarmatian sword with a ringed hilt and the golden strap end with a tamga, a



mark of the individual or the clan, are typical finds from these graves (*Figs 9–10*).

Considerably more female graves are known from the early period, in part due to the fact that male burials tend to be more poorly furnished and that the modest finds rarely enable a more accurate dating.

One of the most characteristic traits of the burial rite is the orientation of the deceased. The Jazygians of the Carpathian Basin buried their dead in a south to north oriented grave pit, with the head to the south. The graves of the next wave of immigrants, arriving at the close of the 2nd century, were usually oriented to the north. It has been demonstrated that in addition to a number of other features, such as the position of the horse harness in the grave, the types of horse harness and weapons, this indicates the arrival of a mounted group from the Don delta at the time of the Marcomannic wars.

It was earlier believed that the custom of raising a mound over the grave, so widespread among the eastern Sarmatian tribes, was not practiced in the Great Hungarian Plain, and that the newcomers adopted the custom of burying the dead in 'unmarked' graves. Burials mounds from this period have only been reported from two areas: the northern part of the

Fig. 9. Sword with ringed hilt from Újszilvás

Fig. 10. Golden strap end from Dunabaraszti

Fig. 11. Sarmatian tumuli at Vácszentlászló–Harmincadbányás



Great Hungarian Plain and some areas of the Bačka and the Banat. Few burial mounds, so-called kurgans, have survived in Hungary since most have been ploughed away. Some can still be seen in areas that have not been drawn under agricultural cultivation, in marshy or forested areas, such as the burial mound groups in the Hortobágy, the Sarmatian kurgans in the Gödöllő Hills and in the Bačka and Banat (Fig. 11).

Graves without a burial mound that were enclosed by circular ditches open to the south, a practice recalling eastern burial rites, were first observed in the Great Hungarian Plain in the early 1950s. It is generally assumed that a mound had originally been raised over the burials enclosed by ditches. The cemeteries containing burials enclosed by a circular ditch show a rather even distribution in the Great Hungarian Plain. Only a handful of sites with such graves were known until the late 1970s. By 1980, their number grew to thirty and today some fifty sites with graves of this type have been registered. Almost every larger Sarmatian cemetery contains such burials, suggesting that this custom was fairly widespread and that these grave ditches had probably been missed during earlier excavations.

The number of cemeteries in which the burial rite could be clearly be observed has increased greatly. It could be demonstrated in several cases that the graves enclosed by a ditch occupied a central position within a cemetery or a grave group, indicating that these were the burials of the *paterfamilias* or the ancestors of an extended family. The simpler burials were arranged around these graves. In other cases, the burials lay a little farther away and were arranged into rows. Cemeteries of this type were unearthed at Törökszentmiklós–Surány and Endrőd–Szujókereszt. At Lajosmizse–Kónya-major, the female and male burials lay in separate parts of the cemetery, while at Sárdorfalva–Eperjes the men and the boys were buried with their weapons in the central part of the small cemetery surrounded by a ditch, while the women and the lower ranking members of the community were buried around them.

A number of previously unknown elements of the Sarmatians' burial rites could be observed in the cemetery section excavated at Sződliget–Csörög in the mid-1990s. The postholes uncovered in one of the graves indicated that the deceased had probably been laid on a bier, a practice that has also been documented among the Avars. The remains of fire beside or inside some graves, perhaps the remains of a ceremony to commemorate the dead, were noted at this site for the first time in the Carpathian Basin.

Several differences can be demonstrated between the burials in the Carpathian Basin and those in the eastern steppe. The graves in the Great Hungarian Plain usually contain fewer finds than the ones unearthed in southern Russia and the Ukraine, and the burial rite itself is also less varied. One of the reasons for this is that the graves in the Great Hungarian Plain were often robbed and we can no

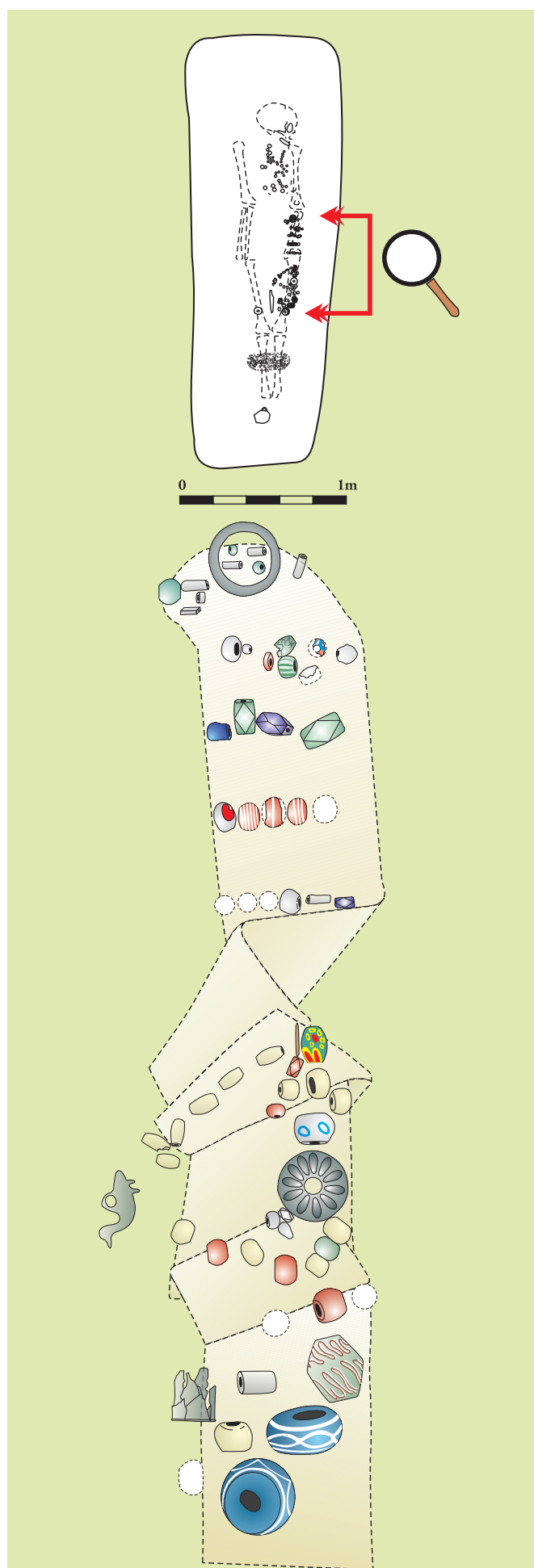


Fig. 12. Female burial, with the reconstruction of the belt.
Endrőd–Szujókereszt

longer tell what articles had been originally deposited beside the deceased and what the grave had originally looked like – whether it had a side-ledge or had contained a bier – and it is equally difficult to reconstruct the customs associated with the funerary rites. Another reason for this apparent ‘poverty’ is that the Sarmatians of the Great Hungarian Plain had settled far from their eastern kinsmen and there was practically no contact between them, this being the reasons that eastern articles were no longer deposited in the graves after some time. Another reason for the differences in the burial rites can no doubt be sought in the cultural impact of the neighbouring peoples, first of all the Romans.

The analysis of the burial rites offers many clues for ethnic attribution. The period preceding the Hun invasion saw the arrival of various population groups, as well as a tendency towards the ‘uniformization’ of the costume worn by these peoples, another difficulty when attempting the ethnic separation of grave finds. The burial rites, however, are the most conservative elements of a culture since they are bound to religious beliefs by a thousand strands. The analysis of the burial rites and the grave goods enabled the separation of a late Sarmatian/Alan group on the northern fringes of the Great Hungarian Plain. The cemeteries of this group were unearthed at Tiszavalk, Tiszakarád and Tiszadob. Beside the traditional costume articles and the burial rites, various artefacts from the east and articles modelled on eastern prototypes occurred among the grave goods. New eastern burial rites could also be observed. Comparable finds were made on some of the sites that were investigated during the rescue excavations preceding the construction of the M3 motorway. The finds from these excavations will no doubt contribute to a better understanding of this period.

The Sarmatians’ costume can be reconstructed from the carefully excavated and documented graves. In the early phase, round carnelian beads were worn around the neck and sometimes on the arms together with gold jewellery. Roman brooches (*fibulae*) and the distinctive bead-embroi-



Fig. 13. Straps of a buckled boot

dered costume of Sarmatian women appeared around the late 1st and the early 2nd century. The neck, the sleeves and the hemline of the overgarment was richly embroidered with colourful beads, as was the shift worn under it and the lower part of wide-legged trousers. The dress was fastened on the left side with a textile belt fitted with a metal ring. This belt was also profusely decorated with beadwork, rattles, bells and pendants that were believed to ward off evil (Fig. 12). Smaller knives were suspended from the belt. The gold jewellery of eastern origin was replaced by silver and bronze ornaments (earrings, torcs, bracelets, lunular and axe shaped pendants). In addition to the customary grave goods, such as spindle-whorls and vessels, metal mirrors too made their appearance – the latter were often broken before being deposited in the grave.

Male burials were rather modest compared to female ones. Roman brooches fastened the upper garment, the leather belt was fastened with an iron, bronze or silver buckle and a leather pouch containing a strike-a-light, flints, an awl or other smaller tools, was suspended from the

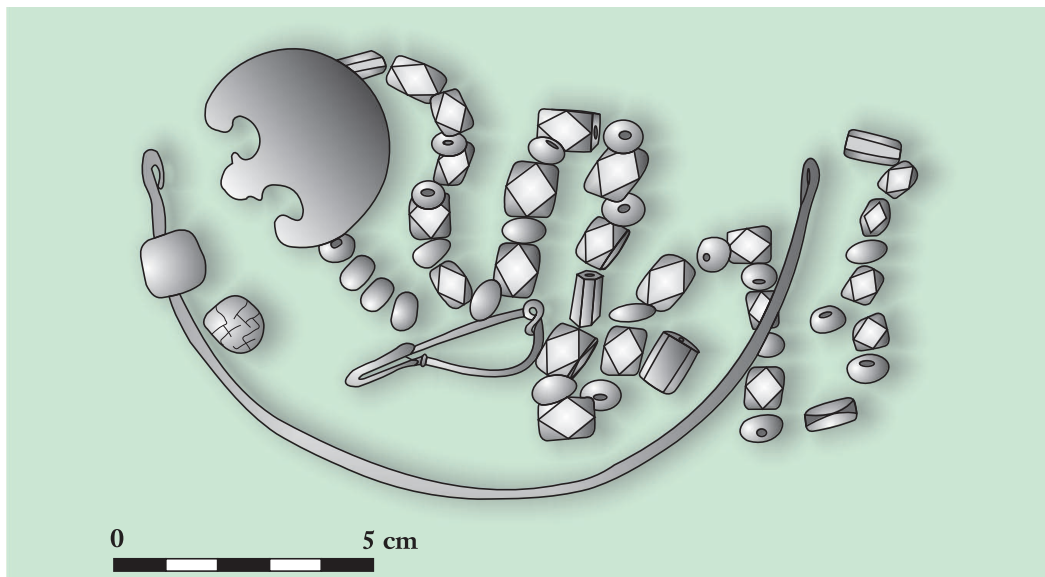


Fig. 14. Detail of a female burial with jewellery. Tiszaföldvár–Téglagyár

belt. The knife was kept in a wooden or leather case. Very few graves with weapons are known from this period.

Eastern costume articles again appear with the new population groups arriving at the close of the 2nd century. Female burials yielded belt pendants of *Cypraea* shell, a symbol of fertility, while the warriors' graves usually contained boot straps ornamented with narrow buckles and strap ends, as well as the occasional pair of spurs (*Fig. 13*).

Eastern articles again disappeared from the burials within a few generations and were replaced by Roman or local products. The appearance of funeral *obuli* in male graves, usually placed in a beaded pouch, can be ascribed to Roman cultural influence. Women's costume continued to be embroidered with beads and the popularity of silver and bronze jewellery, as well as of bead necklaces and bracelets remained unbroken. Articles of eastern origin appeared again with the arrival of groups fleeing the Huns at the end of the 4th century: marine shell talismans and gold jewellery in female burials and a wide array of weapons, buckles and strap ends in male ones. Several bracelets were worn on both arms and dresses were fastened with several brooches (*Fig. 14*).

SETTLEMENTS

Andrea Vaday

The Great Hungarian Plain is not a uniform region in terms of its geography and natural resources, this being one of the reasons that the settlements uncovered in various areas differ. Another reason for this diversity is to be sought in ethnic and economic differences.

Earlier excavations usually uncovered smaller settlement sections and only a fraction of the finds was published. A conceptual change could be noted in the reports on the smaller settlement sections investigated in the Middle Tisza region: in addition to the publication of the entire find material, the zoological finds were also included. The settlement features unearthed on these sites, however, were mostly storage and refuse pits, with the occasional house. The overall layout and the nature of these settlements could hardly be reconstructed from these pits, and neither could the internal chronology of the settlements be established.

A multi-period site was unearthed at Gyoma as part of the Microregion Research Project of the Great Hungarian Plain. In contrast to the earlier practice, the finds from the sites, representing various periods, were published in one volume, together with the zoological material and the results of the pollen analyses. It has by now become a standard procedure to publish not only the archaeological finds from an excavation, but also the analytical results and the findings of geophysical surveys and subsurface probes, if these techniques had been used for investigating a site. The information gained from more recent excavations have added a number of details to the rather sketchy picture of Sarmatian settlement patterns in the Carpathian Basin.

The semi-nomadic Jazygians who arrived here in the 1st

century probably established temporary campsites at first, none of which have yet been identified. Their lifeways only changed in the earlier 2nd century: while preserving their nomadic economy based on stockbreeding, settlements engaged in agricultural cultivation also appeared. Settlement structures show a great diversity, depending on the region, the function of the settlement and the ethnic composition of its occupations. It was earlier believed that the Sarmatian settlements in the central and southern areas of the Great Hungarian Plain were characterized by a few houses and many refuse pits, while the settlements on the fringes had fewer refuse pits and more houses. This general picture was based on the findings of rescue excavations conducted over small areas and the comparison of the few known sites from the southern and northern part of the Great Hungarian Plain.

The layout of a settlement is greatly influenced by the lifeways of its occupants. Settlements occupied over a longer period of time that retained their original layout usually have storage and refuse pits dug beside the houses. Since it was near-impossible to set up a finer internal chronology for the different settlement features owing to the smallness of the excavated area and the fact that the find material had not been analyzed in detail, settlements occupied for a long time that preserved their original layout became 'multi-pit' sites compared to more briefly occupied ones. Well-documented excavations conducted over larger areas offer more information on the settlement structure and its changes.

The Sarmatians established their settlements by water-courses and natural waters, on elevations rising slightly over the plain. The settlement layout was adapted to the natural terrain, with the settlement usually extending along the banks of a river or lake. Many settlements lay by streams that were probably still active during the Roman period, but have by now been filled up. Settlements lying farther from water were supplied by water artificially and in these cases there was no need for the settlements to follow the water-course, allowing it to grow and spread more freely. Road-side settlements probably followed the line of the road, resembling modern villages.

The field surveys conducted in the Middle Tisza region revealed that the Sarmatian settlements lay fairly close to each other. Some of these settlement chains were coeval, others were not. The former are only known from the late Sarmatian period, from the phase preceding the arrival of the Huns and from the Hun period. Most of them appear to have been larger farmsteads surrounded by arable lands and pastures, resembling the present-day clusters of farmsteads. The situation is slightly different in the case of settlement chains with sites dating from different periods. These settlements were most often established in the 2nd and 3rd centuries and remained occupied until the close of the 4th century or the earlier 5th century. This settlement pattern can most likely be explained by the practice of abandoning the settlement when the nearby fields became exhausted, with the occupants of the settlement moving closer to the new fields. In these cases, the successive layers of the settlement do not accumulate over



Fig. 15. Section of a Sarmatian settlement with the animal pens. Northern junction of the M5 motorway at Kiskunfélegyháza

each other, but simply 'shift' to a new location, meaning that the structure and internal layout of settlements with a longer use-life changed over time.

Although the overall size of these settlements can rarely be determined since not one single site has been completely excavated, size estimates can nonetheless be made for a few sites. On the testimony of the aerial photos and the field surveys, the settlement at Gyoma extended over an area of some 35–40,000 m², of which about 14,700 m² was excavated, while at Polgár–Kengyelköz, the aerial photos suggested that the settlement extended for another 6–700 m beyond the investigated 30,000 m² large area. At Kompolt–Kistér the field surveys suggested that the settlement extended for an additional 350–400 m to the west and some 200–250 m to north and the south beyond the 28,700 m² large excavated area, suggesting that the overall size of the settlement was around 190,000–192,000 m². At the nearby site of Kompolt–Kistértanya, the western boundary of the settlement fell into the 32,370 m² large investigated area, but the settlement itself extended well beyond this area. The above clearly show that even though much larger settlement sections are now unearthed than previously, we still know little about the overall layout of these settlements.

Nothing is known about the size and layout of the Jazygian 'towns' listed by Ptolemy, of which '*Partiskon*' can be identified with present-day Szeged. We know that many Sarmatian sites were clustered around the Roman watchtower by the crossing place on the Tisza. A similar cluster of settlements could be observed on the Barbarian side of the Roman border

near the Roman forts. The network of villages was no doubt fairly dense along the roads leading through the Great Hungarian Plain. A chain of roadside settlements has been identified in the Törökszentmiklós area, where settlements and cemeteries lay along a 7–8 km section of the road leading eastwards from the crossing place on the Tisza at Szolnok.

Ditch systems were observed on a number of sites. Some of these were no doubt defensive in nature, while others functioned as animal pens or as drainage ditches, and some no doubt enclosed individual homesteads (Fig. 15).

The relationship between the ditches and the settlements could be observed during the rescue excavations near Kiskunfélegyháza and Dusnok. The settlement at Polgár–Kengyelköz, occupied between the later 3rd century and the turn of the 4th–5th centuries, was bordered by a north to south oriented system of parallel ditches. The outermost ditch was the widest. A series of postholes was found on the floor of the inner, much narrower and shallower ditch, suggesting a ditch and palisade structure.

Comparable settlement features were unearthed at the Polgár–Csőszhalom-dűlő site. At Nagymágocs, a village occupied from the close of the 4th century to the mid-5th century was bordered by two ditches, one facing the Mágocs brook and one perpendicular to it. At Szentes–Berekhát, a 3rd–4th century settlement enclosed by ditches was unearthed during the rescue excavation preceding the construction of the bypass road. The roughly 5 m wide and 2 m deep trench had steep walls. It bordered the village towards the marshland, and together with the rampart constructed

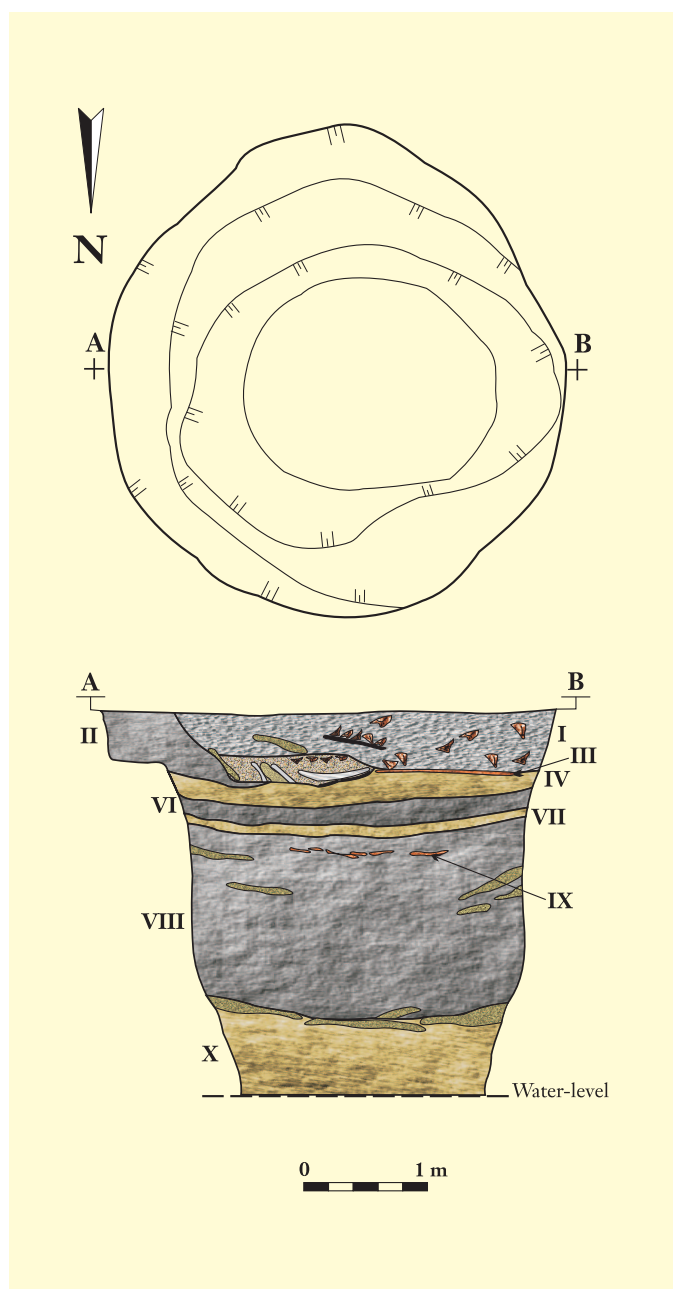


Fig. 16. Sarmatian well. Kompolt–Kistértanya

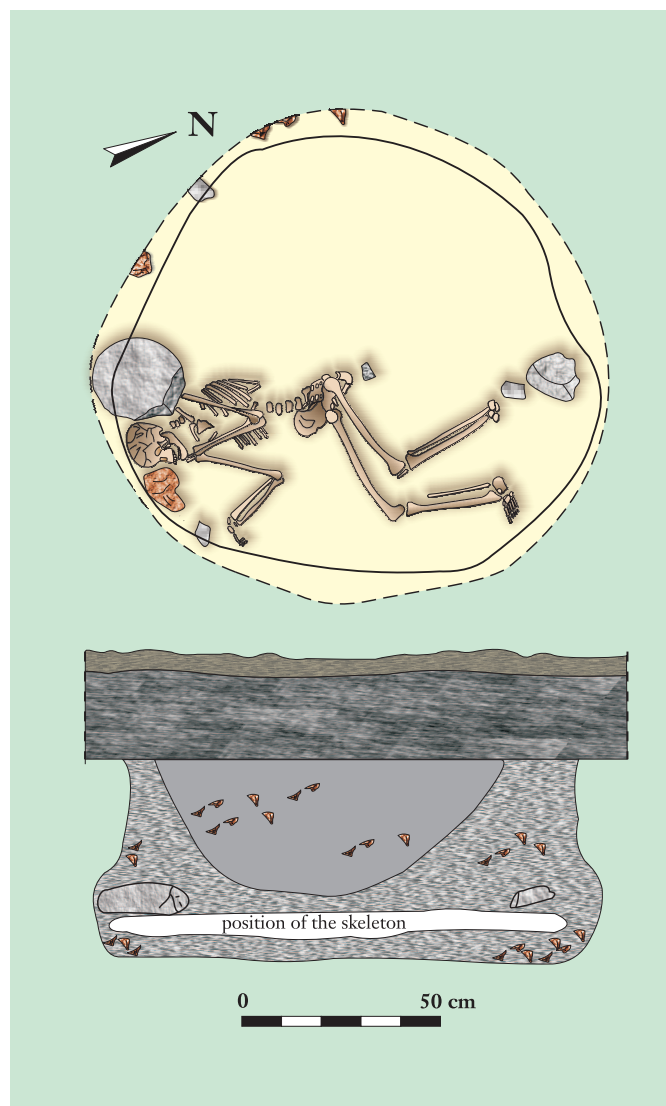
from the earth removed during the digging of the ditch, it protected the village from floods. A similarly wide and deep ditch was identified at the Tiszaöldvár–Téglagyár site on the side facing the Tisza. Besides offering adequate protection against floods, these ditch and rampart systems also had a defensive role, as the one with the palisade at the Polgár–Kengyel-köz site. A settlement and a late Sarmatian cemetery from the period after the abandonment of the settlement was found at Mezőszemere–Kismari-Feneke, together with a section of the Devil's Dyke. Another earthwork rampart ran parallel to the Devil's Dyke in the Sarmatian territory and behind this second earthwork there was a palisade construction with gates and ramps.

The sunken houses with wattle and daub or adobe walls were usually built on the higher-lying part of the settlements. At Polgár, smaller streets ran between the residential and the economic buildings. At Tiszaöldvár, at the Kompolt sites and at Gyoma, the settlement structure was looser. The location of the houses and their outbuildings did not appear to follow a systematic plan.

The workshops usually lay beyond the houses, near the boundary of the village, and the direction of the prevailing wind appears to have been an important consideration in their siting. Some workshops were found beside the craftsman's house. Wells and cisterns were dug either near watercourses or between the houses. They are often vital to determining the internal chronology of a settlement since shorter and longer periods can be distinguished in their fill (Fig. 16).

The houses were surrounded by beehive shaped or cylindrical storage pits. Agricultural settlements usually had

Fig. 17. Human remains thrown into a refuse pit. Kompolt–Kistértanya



more storage pits and the same holds true for the settlements from the periods when the population of the Great Hungarian Plain increased significantly owing to new waves of immigrants, and agricultural production was more intensive in order to provide for the population. Several oven and kiln types can be distinguished on the basis of the finds, including baking and drying ovens, as well as pottery kilns.

Some settlements were abandoned by their occupants, while others were destroyed during times of war as shown by their destruction layer. The human remains thrown into refuse pits can be linked to these troubled times, corresponding to the Marcomannic wars and the military clashes at the close of the Hun period (*Fig. 17*).

THE ARCHAEOLOGY OF THE NORTHERN AND NORTHEASTERN FRINGES OF THE SARMATIAN SETTLEMENT TERRITORY

Eszter Istvánovits & Valéria Kulcsár

The earliest settlements in the northeastern part of the Barbaricum in the Carpathian Basin are known from the Szatmár-Bereg plain. The Beregsurány settlement was probably established sometime in the final decades of the 1st century. The settlement at Csengersima, investigated in 1998–99, can be dated to approximately the same period. Traces of metal-working were also found at this site. The ratio of wheel-turned pottery is negligible in the rich ceramic material recovered from the settlement. The settlement structure and the various settlement features differed from the ones observed in

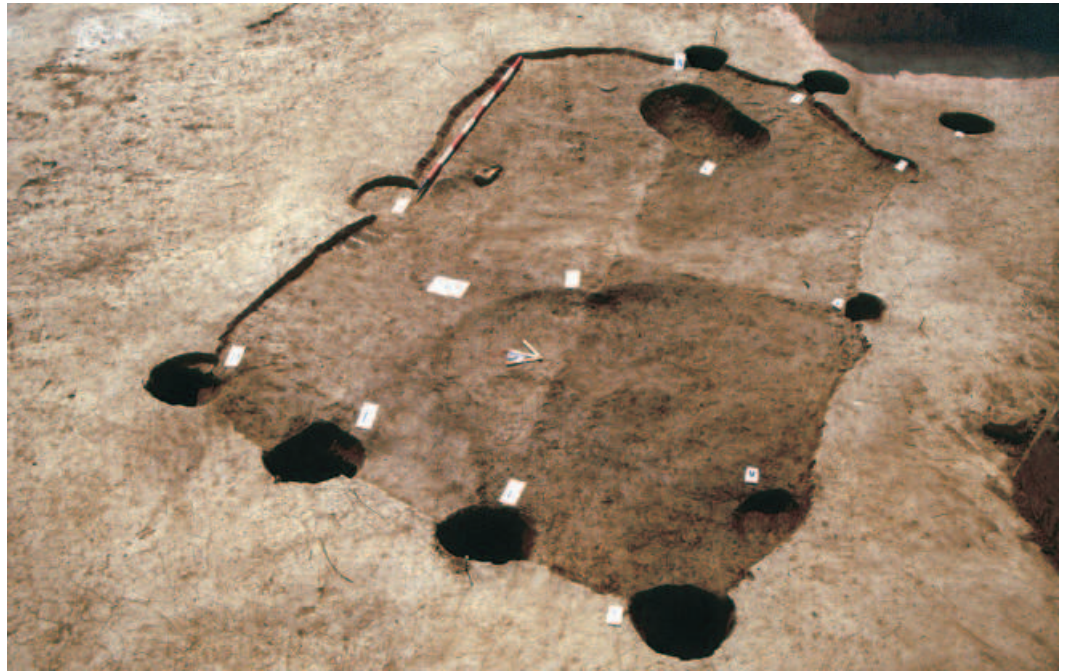
the Sarmatian heartland, owing to the differing geographic environment. The construction of timber-framed buildings is one indication of this. The best analogies to the archaeological finds from these two sites are to be found partly in the Germanic Przeworsk culture and partly in the Dacian territory, suggesting that the Dacians who previously occupied this area had encountered and mingled with the Germanic groups arriving from the north at a fairly early date. The immigration of Germanic groups before the mid-2nd century is also indicated by the finds from the burial ground uncovered at Malaya Kopania in the Sub-Carpathians. It has been suggested on the basis of the written sources that the early finds of the Przeworsk culture can be associated with the Lugii or the Buri, both Germanic tribes.

According to historical data, the Vandals/Victovali settled in the Upper Tisza region in the mid-2nd century, before the Marcomannic wars. The archaeological record confirms their presence in this area: this Germanic group can be identified with the second wave of the Przeworsk culture. The newcomers occupied the northeastern corner of the Carpathian Basin, including the plainland in the Sub-Carpathians. The cremation burials of this population, such as the ones uncovered at Kécske, Tiszakanyár and Kisvárdá-TV tower, contained iron shield bosses, spurs with large spikes, heavy double-edged swords and spearheads. Unfortunately, none of the find assemblages discovered earlier come from systematic excavations and not one single burial that could be associated with this population has been reported from the past two decades; the control excavations on sites such as Kisvárdá-TV tower did not yield any results.

The Vandals' southern and southeastern expansion was checked by the Sarmatians who, on the testimony of the archaeological finds, also reached this region sometime in the



*Fig. 18. Charcoal kiln (?).
Csengersima*



*Fig. 19. Timber-framed
sunken house.
Beregsurány-Barátság-kert*

mid-2nd century. Intermingling between the two populations proceeded quite rapidly in the contact zone between the two groups, as shown by a number of Vandal articles, such as shield bosses, found in Sarmatian graves.

The mixed Daco-Germanic assemblages of the type found at Beregsurány and Csengersima were supplanted by a new culture in the later 3rd century. A high number of grey, wheel-turned wares with stamped decoration was found. Even though the late Roman period settlement

partly overlapped with the earlier one at both sites, the distinctive stamped pottery was entirely absent from the ceramic inventory of the latter, indicating the chronological differences between the two, as well as the sharp break between the two material cultures (*Figs 18–19*).

The late Roman period settlement at Beregsurány was excavated by Dezső Csallány in the late 1960s. One of the largest potters' centres in Europe was uncovered on the bank of the Mic stream. Some forty thousand sherds were

Fig. 20. Pottery kiln. Csengersima



recovered from fifty-two grated kilns. Six similar potter's kilns were unearthed at Csengersima (Fig. 20).

In addition to the grey stamped vessels, many Roman wares, including wheel-turned pots and a variety of painted vessels were also found. The stamped pottery has much in common with similar wares turned out by the Roman pottery workshop of Porolissum in the nearby province of Dacia and the date of the sites too suggests that Roman potters were also active in the Barbaricum (primarily at Csengersima). Their appearance in the Barbaricum can be associated with the gradual deterioration of the situation in Dacia and its later evacuation and abandonment by the Romans. Grey pottery with stamped decoration had a fairly wide distribution, reaching even areas in Poland. The ethnic attribution of the peoples making and using this pottery is controversial since many different peoples are known to have lived in the area where it was distributed. No burials of the late Roman period have yet been found in the Szatmár-Bereg plain, adding yet another difficulty to resolving this question.

Neither do we know when life came to end on these settlements. The vessel forms would suggest that the potters were still active in the Hun period.

RESEARCH PERSPECTIVES

Andrea Vaday & Gábor Márkus

Until the 1970s, our picture of the Barbaricum was essentially based on the information provided by burials. The few inves-

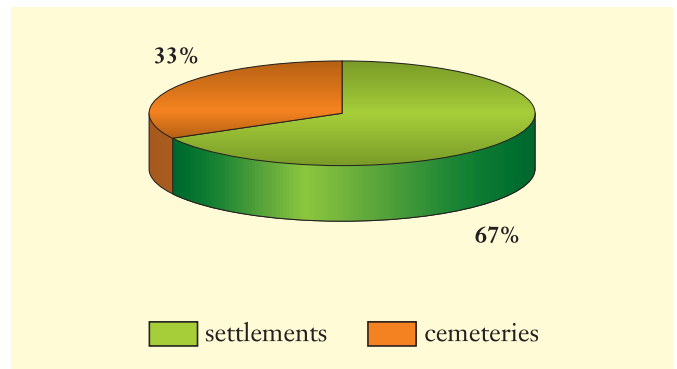


Fig. 21. Distribution of Sarmatian sites excavated between 1971 and 1995

tigated settlement sections did not play a decisive role in the interpretation of the archaeological heritage of the peoples who lived here. Even though the burials do offer a fairly good idea of attitudes to death, the funerary customs of different social groups and the changes in the burial rite over time reveal very little about day-to-day life, of which a better understanding can only be gained from the investigation of settlements. Until the mid-20th century, the ratio of the settlements was less than 1 per cent among the known sites of the Barbaricum. This ratio has since changed significantly (Fig. 21).

The publication of the find assemblages recovered from settlements and cemeteries, whose number has increased vastly owing to the more recent large-scale excavations, calls for the elaboration of new analytical methods and, obviously, for new ways of looking at the finds (Fig. 22).



Fig. 22. Sarmatian-Quadric settlement. Vác-Csörögi-rét

X. THE MIGRATION PERIOD



CROSS-ROADS OF PEOPLES AND CULTURES

Tivadar Vida

The significance of Hungary's migration period history and archaeology points well beyond the political and geographical boundaries of the Carpathian Basin. After crossing the Volga in 375 A.D. and driving westward the peoples fleeing their advance, the Huns set in motion population movements on a scale unprecedented in world history. The Carpathian Basin was greatly affected by these stormy events; each and every Barbarian nation and renowned historical person who shaped Europe's history passed through this region. Gaiseric, the Vandal king who sacked Rome in 455 and afterwards founded his African kingdom, set out from this region; Stilicho, the famed West Roman commander, was also of Vandalic stock. Leaving their Transylvanian and Lower Danubian homeland, the Visigoths marched against Italy through Pannonia in 408 under their leader Alaric. Odoacer, son of Edica, King of the Sciri, who in 476 deposed Romulus Augustulus, the last West Roman emperor, and established the first Barbarian state in Italy, grew up somewhere in the Danube-Tisza interfluvium. Theoderic the Great, King of the

Fig. 1. Fragment of the Lord's prayer written with Gothic uncial letters on a lead plaque; the currently known earliest relic of Wulfila's translation of the New Testament, found in a burial. Hács-Bédekepuszta, 5th century



Fig. 2. Byzantine Greek text on a cross, "Holy, holy, holy, is the Lord of Hosts". Závod, 7th century

Ostrogoths, who in 473 led his army against the Balkans and, later, against Italy, spent a part of his childhood in the Carpathian Basin (Fig. 1). The Hunnish rulers, Ruga, Bleda and Attila, who inspired universal fear in the nations of Europe, lived in the royal court built somewhere in the Maros region, as did Ardaric, the Gepidic king who led the Barbarian alliance that toppled the Huns. The Langobards moved to Pannonia after 510, during the reign of King Wacho, and led by Alboin in 568, they conquered the northern regions of Italy. Agilulf, one of the Langobard kings of Italy, was also of Pannonian descent.

Only the name of Bayan has come down to us of the khagans who founded the Avars' empire in the Carpathian Basin after their arrival in 568; the Avar empire was in part toppled by the military campaigns led personally by Charlemagne (in 791) and his son Pepin (in 796). In the 9th century, the southeastern areas of the Carpathian Basin came under Bulgarian rule, while the western regions under Carolingian sway. Arnulf, the later German Emperor, visited Pannonia on several occasions.

The migration period thus spans the centuries from the cessation of Roman rule in Pannonia to the arrival and settlement of the ancient Hungarian tribes (380/425–896/950). The ethnic and cultural mosaic of the region changed often during this period. There was an almost continuous influx of nomadic or seminomadic peoples and military groups from the east (Huns, Alans, Avars, Bulgars and Hungarians) who in their time attempted to subjugate the local population (the Sarmatians, Germans, Slavs and the local Romanized peoples; Figs. 2–3).

The material and spiritual culture of these Barbarian peoples was characterized by a constant change and interaction, under the obvious impact of the high civilizations of China, Iran and Byzantium. The population movements sweeping through Europe and Eurasia brought in its wake an exchange of cultural goods from the Great Wall of China to the Atlantic Ocean – the Carpathian Basin was one of the central settings of these momentous events. The late antique and Merovingian traditions can be traced in the economy, in the crafts and in spiritual culture until the close of the 7th century; by the 8th century, these traditions had merged with the culture of the eastern populations. The newcomers created their own Barbarian kingdoms based, in effect, on a compromise between their own élite and the local, late antique, Christian aristocracy in the more fortunate, western half of Europe that had once been part of the Roman Empire. In contrast, the successive waves of eastern peoples (Huns, Avars, Hungarians) repeatedly prevented



Fig. 3. The name BONOSA written with Latin letters on a gold pin. Keszthely–Fenékpuszta, horreum cemetery, 7th century

the emergence of an independent state in the eastern half of Europe, and thus also in the Carpathian Basin (Figs 4–5).

Not one single people survived the stormy centuries of the Migration period. Only the ancient Hungarians, the last to arrive on the scene, were capable of uniting the local population under their sway and gaining a foothold in Europe by creating an independent state. The early medieval finds from the Carpathian Basin constitute an invaluable archaeological source material for Eurasian history.

Fig. 4. Langobard fibula inscribed with Germanic runes. Bezenye, 6th century

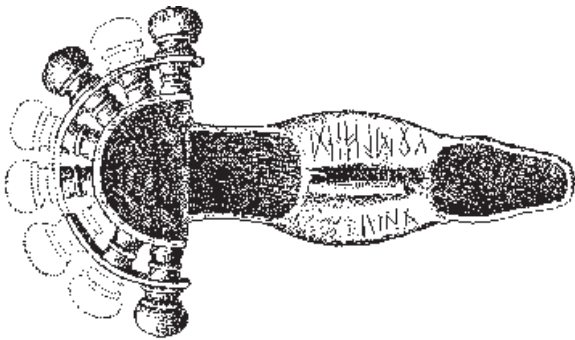
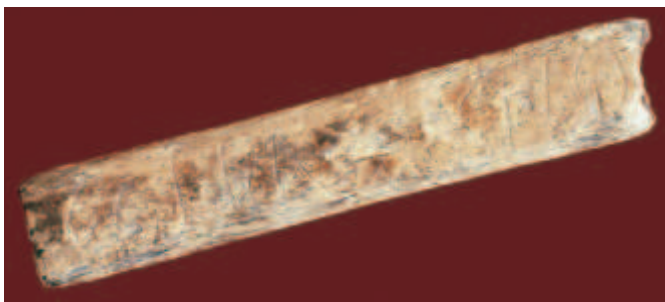


Fig. 5. Magical text written with Avar runes of the Eurasian Turkic type on a bone needle-case from a burial. Szarvas, 8th century



THE HUNS

HISTORY OF THE HUNS

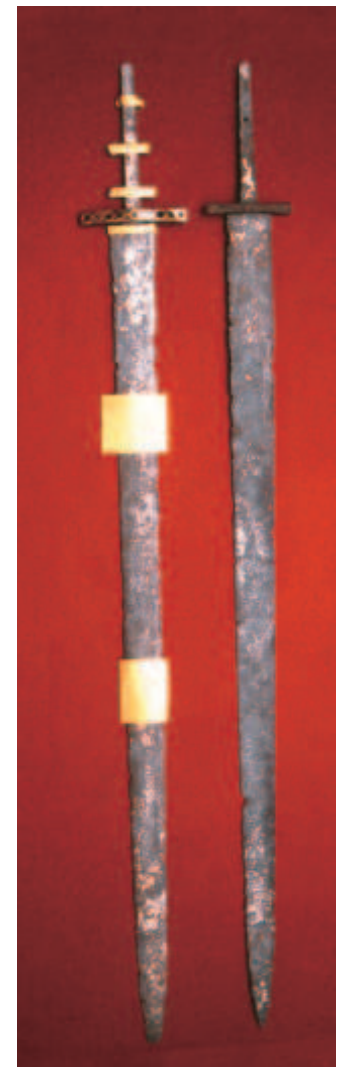
Ágnes B. Tóth

The Huns left an indelibly bad impression in the collective memory of the European nations, even though this people, appearing with their distinctive nomadic weapons and battle tactics, their nomadic costume and lifeways, did not have a purely negative impact on Europe. As the occasional allies of both halves of the Roman Empire, they often provided military support for the campaigns against other Barbarian nations. Their weapons, their costume, their extravagant ornaments wrought from Roman gold created a fashion throughout Europe.

The name, the ethnic origins and the language of the Huns can be traced to the *hsiung-nu* who had warred against the Chinese Empire for countless centuries. The Hun tribal alliance appearing in Europe had been forged in Central Asia and Western Siberia, where it was joined by various tribes speaking eastern Iranian and Turkic languages. Crossing the Volga in the 370s, the Huns first conquered and drove away the Iranian Alans and then turned against the Ostrogoths and the Visigoths living north of the Pontic. These attacks sparked off successive waves of migrations: the Visigoths, Vandals, Alans and Suebians all burst upon Roman territories. The Huns led their first campaign against Rome some two decades after their rapid Eastern European expansion. In the 420s, they transferred their headquarters to the plainland in the eastern half of the Carpathian Basin. At this time, the Hun troops were enlisted to aid the Roman war machine, fighting against the Visigoths and Burgundians and checking the repeated onslaughts of the Germanic peoples against Rome (Fig. 6).

In exchange for this military aid, Rome gave the Pannonian provinces to the

Fig. 6. Sword of a Hun dignitary from Pannonhalma



Huns; in this sense, the Hun period proper lasted for three decades in the eastern, and for some two decades in the western half of the Carpathian Basin. The attacks on the Eastern Roman Empire began under King Ruga and were continued by his nephews, Bleda and Attila. The Huns benefited enormously from the peace treaties concluding these wars: the military tribute, the ransom and the annual subsidies meant many tons of Roman gold coins. The middle third of the 5th century is a genuine 'golden age' in the archaeology of the Carpathian Basin since the aristocracy and their families (both the Huns and the Romans and Barbarians who joined them) paraded their wealth for everyone to see: their costume ornaments, the metal fittings of their weapons were made from gold, often inlaid with precious stones. After the two Balkanic campaigns in the 440s, Attila, who had by that time become king of his people, led his troops in another direction: historical memory has preserved his 451 expedition against Gaul. The Hun army ravaged the northern Italian towns, but never advanced as far as Rome. In 453 Attila died unexpectedly. His sons were unable to hold the empire together: the subjected peoples, mostly of Germanic stock (Gepids, Sciri, Suebians, Rugians and Sarmatians) revolted against the Huns and in 455 drove their remnants from the Carpathian Basin, carving up the territory between themselves and creating their own independent kingdoms.

HISTORY OF RESEARCH

Ágnes B. Tóth

Many find types of the archaeological assemblages of the Hun period, such as a few magnificent cicada fibulae, bronze cauldron fragments and diadems, had already made their way into archaeological collections by the 19th century. Most scholars, however, were misled by the misconception that the legacy of the Huns, who lived in this region with their army for over half a century, should be sought in the cemeteries with 'nomadic' finds, this being the reason that in the first synthesizing works on the Migration period, the heritage of the Huns was identified with the large 8th century Avar cemeteries, while the actual Hun period finds were defined as Germanic or Avar relics. The Hun and Germanic finds in Russian collections became known to Hungarian scholarship in the early 1900s. The excavations conducted in the Lower Volga region during in the 1920s yielded many comparable assemblages and the parallels to these finds could also be quoted from the Carpathian Basin. The correct determination of the Hun period finds from Hungary was largely based on these finds. Although the nomadic finds could now be separated from the other assemblages, it also became painfully clear that the ethnic attribution of the finds to one or another group – Huns, Germans, Sarmatians – of the Hun period could only be partially successful. Since the Hun occupation of the Carpathian Basin was assigned to the earlier 5th century, the heritage of the peoples fleeing the Hun advance and

of the Huns proper were both regarded as 'Hunnish'. In the 1950s, two seminal studies were published on the structure of Hun society, based on the archaeological finds (Gyula László's essay on the golden bow, a symbol of power, and János Harmatta's paper on the princely treasure from Szeged–Nagyszéksós).

An overview of the weapons and the costume of the mounted nomads in Attila's age and their spread from Central Asia to Europe appeared at roughly the same time. Research in the past two decades has brought to light an impressive amount of new finds and has also contributed to a better knowledge of the beliefs and funerary practices of the Huns, based on observations made during excavations. It became clear, for example, that the assemblages that had earlier been regarded as the remains of cremation burials were in fact sacrificial finds. The aristocracy and the élite can be easily identified from the extravagant grave goods accompanying their burials, either in solitary graves or in smaller grave groups; in contrast, the burials of the commoners, who were interred with more modest funerary goods that rarely include articles allowing a more precise dating, can still not be identified with certainty. Only the settlements of the sedentary Sarmatians are known from this period. Another difficulty in the identification of ethnic groups is that the costume and customs of the nomadic

Fig. 7. Gold mounts of a bow, buckle and strap end from a sacrificial assemblage found at Bátorfő





Fig. 8. Fibulae with precious stone inlay and gold dress ornaments from a woman's burial at Regöly

lords were copied not only by their subjects, but also by the aristocracy of other Barbarian peoples who had settled in the vast area extending from the Pontic to the Atlantic.

BURIALS AND SOCIETY Róbert Müller

The solitary burials of the Hun period were usually found accidentally and only rarely were they uncovered in the course of a well documented excavation. The artefact types from which the costume, the weapons, the lifeways and the religious beliefs of the Huns can be reconstructed are fairly well known. The written sources record that the Huns' empire was ruled by a king and that members of his family lorded over the subjugated peoples. Power was also exercised by the "picked men" (*logades*) and the retinue (*epitedeioi*). During the Huns' Pannonian rule, and especially under Attila's reign, these were often recruited from the ranks of the allied peoples, meaning that the power of the Hun tribal and clan leaders waned. The funeral of the aristocracy and the ruling élite was accompanied by a funerary sacrifice, buried separately from the grave. The first such find was discovered at Pécs-Üszögpusztá (1900) during vine cultivation, while the richest and most magnificent assemblage of two hundred articles, no doubt the treasure of a king or a high-ranking member of the aristocracy, was found at Szeged-Nagyszéksós (1912–1934). The assemblage included a gold torc, a fragmentary golden saddle, a sword, harness ornaments, a Persian electrum goblet, a cup and gold mounts for a wooden vessel. More recent finds have revealed that these assemblages were not the grave goods of cremation burials, but the remains of a sacrificial

offering that had been burnt on the funerary pyre and buried separately from the human and animal remains in the Inner Asian tradition. A sacrificial assemblage of this type was found in 1965 in the courtyard of the school at Báticaszék (Fig. 7). The finds included a 96 cm long double-edged sword encrusted with precious stones and a cloisonnéed pommel, the gold mounts of a small bow, belt and sword belt buckles and a gold strap end. The sacrificial assemblage from Pannonhalma, found in 1979, contained similar articles. The insignia of the deceased, a small composite bow covered with gold at the two ends and the grip in the centre, lay at a depth of 80 cm. One of the two swords was unornamented, the other was fitted with golden hilt mounts, its cross-guard was studded with garnets and its sheath was decorated with gold mounts bearing a scale pattern. The assemblage included two sets of horse harness: gold mounted bits with cheek-pieces, gold strap distributors and harness ornaments of pressed gold foil. The ribbons of sheet gold probably adorned a whip handle. The deceased had no doubt been one of the *logades*.

Men's typical weapon included the mounted nomads' efficient reflex bow, stiffened with bone plaques at the two terminals, and the three-edged arrows. The doubled-edged swords of the aristocracy were fitted with a cross-guard decorated with gold mounts and cloisonnéed gemstones, the hilt was topped with a large ornamental knob or a large flat bead. The weapon belt was held together with a gold or silver buckle, often ornamented with precious stones, and a gold strap end was fitted to its pendant end. The horse harness (bridle, bit with cheek-pieces, horsewhip) too was fitted with silver and gold mounts, as was the wooden saddle.

Women played an important role, as shown by the lavish finds in their burials, as well as by partial or symbolic horse

burials in female graves. Diadems covered with sheet gold and cloisonnéed precious stones arranged into several rows have been recovered from wealthy women's graves, such as the one found at Csorna. Round bronze mirrors, with one side plain, the other decorated with ribbing forming a radial pattern or arranged into concentric circles, were also placed into these burials. Crescent shaped lockrings and earrings, as well as small shoe buckles occur in both male and female graves.

The burials of the lower-ranking nobility are characterized by silver articles; however, the ethnic attribution of these burials is at least as difficult as that of the commoners' graves. A silver belt set, gold sword belt ornaments and boot buckles were found together with a late antique jug at Lengyeltóti in 1976. Another grave, a male burial uncovered at Mőzs in 1961, yielded animal bones (the remains of food offerings) and a clay jug, as well as three bird headed bronze buckles: one was used for fastening the belt, the other two for fastening the boot strap. More modest jewellery and costume ornaments were recovered from burials of Hun commoners at Tamási. The graves of the nobility and the commoners included both simple shaft graves and grave pits with a niche in one side, as for example at Keszthely.

The distribution of the best known finds of the Hun period – the copper and bronze cauldrons, cast in two or four separate pieces and then soldered together – from Inner Asia to France reflects the extent of the Huns' rule. The intact cauldrons from Törtel and Hőgyész were correctly dated to the Migration period when they were first published. Other specimens include the cauldrons from Várpalota and Intercisa. The majority of these cauldrons were found in Wallachia and the Carpathian Basin, the central Hun territory; the traces of burning observed on them suggest that they too had been thrown onto the sacrificial pyre before their burial. These cauldrons had probably been used in rituals or during the funerary feast. The cloisonnéed cicada brooches used for fastening garments, believed to possess magical apotropaic powers, are another distinctive find of the Hun period.

Most of these weapons, costume ornaments and cult objects have been found from the Caucasian foreland to France, over the vast area where the Huns' presence has been attested; however, their find contexts are so diverse that an ethnic attribution is rarely possible. It has since also become clear that the Huns should not be conceived of as wandering nomads, but rather as members of a constantly changing and shifting army, who formed the leading stratum in the conquered areas. This is why the ethnic attribution of the finds from the Hun period is fraught with uncertainties and why contradictory explanations abound in the interpretation of these finds. The leaders of the subjugated peoples and the confederates adopted both the fashion and the customs of the Huns. The Huns wore a pointed cap, a shirt, a caftan held together by a leather belt that was often ornamented with metal mounts, trousers and boots with a buckled strap. The articles of jewellery that can be dated to

the Hun period, but most certainly cannot be associated with the Huns, complicate this picture even more. Fibulae were not part of the Hun costume. The large plate fibulae cloisonnéed with garnets and often covered with gold are usually found in the high-ranking female burials of the auxiliary peoples. These graves, in which the pair of fibulae most often lay by the shoulders, were initially associated with the Germanic peoples, usually with the Ostrogoths. István Bóna has pointed out that comparable plate fibulae were also fashionable in areas that were occupied not by Germanic peoples, but by the Alani of Iranian stock. Graves with two pairs of fibulae can most likely be regarded as the burials of Alani in the Carpathian Basin. Other equally characteristic costume ornaments of Alan women were the W shaped pressed gold foils trimming the veil, such as the ones from the burials unearthed at Lébény and Regöly (Fig. 8). Another interesting feature of these Alan graves is that earrings and armrings were sometimes found in warrior graves, while typically male articles were occasionally deposited into women's burials.

The Huns were a horse breeding nomadic population, migrating between their summer and winter camps, living in tents on the way between the two. This is not contradicted by the fact that the reports of the East Roman envoys mention the villages they passed through during their journey since these settlements were most likely inhabited by auxiliary peoples, such as the Gepids. The Huns relied on the agricultural produce of these villages, as well as on the various services rendered by their occupants. Timber-framed, sunken houses from this period have been uncovered in Tansdanubia, for example at Mohács and Keszthely-Fenékpuszt. Typical nomadic articles – such as mirrors and cauldron fragments – have been found in the environs of Roman settlements, for example at Intercisa, proving the Huns' presence there.

THE SARMATIANS IN THE HUN PERIOD

Andrea Vaday

Many advances have been made in the past few decades in the identification of the archaeological heritage of the Sarmatians during the Hun period. In the 1950s, Mihály Párducz put the upper time limit of the late Sarmatian finds in the 470s and he also distinguished and defined the find types dating to the Hun period, based on the grave assemblages from Csongrád and a few smaller cemeteries (Fig. 9). Beside the local Sarmatian wares, a number of new vessel types, apparently adopted from the Germanic peoples living east of the Carpathian Basin, appeared among the Sarmatians' grave pottery. This pottery has much in common with the Sarmatian finds from the

Fig. 9. Cicada fibula from Tiszavasvári

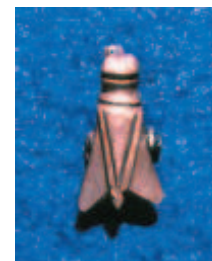




Fig. 10. Eastern gold fibula from a Sarmatian female burial uncovered at Gyoma-Ózed

Lower Volga region and the so-called Chernyahov assemblages from the Pontic.

István Bóna can be credited with determining the concept of the Hun period in Hungary and with separating the period represented by the arrival of various eastern peoples fleeing the Huns' advance from the actual decades of Hun presence in Hungary between 420–455. Interestingly enough, the Sarmatians somehow disappeared from the historical and archaeological scene in the evaluation of the Hun period (*Fig. 10*).

Many cemeteries, as well as large settlements were investigated during the past twenty-five years. These investigations confirmed the observations made during the topo-

graphical surveys that in the last third of the 4th century and in the Hun period, a chain of villages and smaller farmsteads appeared in the Great Hungarian Plain, reflecting the historical changes. In spite of the turbulent political situation, the provisioning of the increased population could only be ensured by an efficient, thriving agricultural production, stockbreeding and craft industry. It also became clear that while Sarmatian potters continued to make wares in the earlier tradition, they also produced pottery that was more suited to the taste of the newcomers. This again confirms that the local population lost its former political power and became one of the servicing peoples of the Hun armies (*Fig. 11*).

The excavations at Tiszaföldvár, an extensive settlement from this period, brought to light houses provided with cellars for storage and large storage pits for storing cereals; similar structures were found at Örménykút, where remains indicating local metalworking were also uncovered. Together with the already known cemeteries of this period, the finds from new burial grounds – such as the ones investigated at Tiszadob–Sziget, Deszk, Sándorfalva–Eperjes and elsewhere – complement the picture of everyday life.

The Gepids' expansion after Attila's death brought an end to the Sarmatian period of the Hun period; decimated by the wars, one part of the Sarmatian population fled elsewhere, while the other was absorbed into the new kingdom. This assimilation can be especially well traced on the fringes of the Gepidic Kingdom, where sites with both late Sarmatian and Gepidic finds have been found. The Gepids apparently drove out the earlier communities from the central areas of their kingdom. The descendants of the one-time Sarmatian communities have been anthropologically identified among the peoples of the Avar period.



Fig. 11. Sarmatian pottery of the Hun period from the Sarmatian settlement at Tiszaföldvár–Téglagyár

THE ROMANIZED POPULATION IN THE 5TH–6TH CENTURIES

Róbert Müller

The extent of Romanization was not uniform in Pannonia: it was stronger in the towns and along the *limes* than in the areas settled by the native population. The Barbarian incursions in the later 4th century, the settlement of the Gothic-Hun-Alan groups led by Alatheus and Saphrax as *federati* in 380 and, finally, the march of various Barbarian peoples through the province in the early 5th century led to a conspicuous decline in living standards. The written sources paint a rather gloomy tableau of the departure of the province's population and of how they carried away the worldly remains of Pannonian saints (*translatio*). The real situation was much less dismal. The province was only abandoned by the élite, the military leadership and the central administration, who drew their income not from the province, but from other centres of the empire – with the loosening of the strands binding them to the central power, the source of their wealth and very existence practically ceased.

The archaeological traces of the Romanized population differ in eastern and western Transdanubia since Pannonia came under Hun rule in several phases. After the departure of the Huns, Avitus, the new West Roman emperor briefly restored Roman control in the autumn of 455, but after Marcianus, the East Roman emperor gave Pannonia to the Ostrogoths, this territory was lost forever to the empire. Only the western fringes of the province, the eastern Alpine region was perhaps part of Odoacer's Italian kingdom between 476 and 490. The province's Roman population had the highest chance of survival in this area. It is rather striking that neither the Ostrogoths, nor the Langobards, nor the early Avars occupied this area. Neither can it be mere chance that Roman toponyms, such as Rába (Arrabo), Marcal (Mursella) and Zala (Salla), only survived in this area (Fig. 12).

The written sources also confirm that the Romanized population did not disappear after the cessation of Roman rule. In the 5th–6th centuries, there is repeated mention of Pannonian refugees who rose to a high ecclesiastic rank in Italy, Dalmatia, Gallia and Hispania. Suffice it here to mention Bishop Vigilius of Scarbantia, who was present at the Grado Synod of 572–577 and who probably moved to northern Italy with the Langobards in 568. According to the Langobard chronicles, the remnants of the Roman population left Pannonia at this time (Fig. 13).

A decline in the standard of Romanization can be



Fig. 12. Bone comb with an incised bird figure from Csákvár

noted from the late 4th century. The use of the luxuriously furnished villas can often be traced until the early 5th century. The spatial extent of the towns also decreased. The civilian settlements beside the military forts were abandoned and the population moved into the forts protected by the walls not only at Gorsium, but also at Arrabona and Aquincum. At Arrabona it could be observed that the military stone buildings soon fell into a state of disrepair after the arrival of this population and that buildings of wood on stone foundation, lacking the basic Roman comforts, were erected between them. Economic buildings were built against the still standing fortification walls. The household refuse quickly accumulated into thick deposits. Although the occupation of the town was continuous and the population regarded itself as Roman, the finds indicate that the local population was joined by Quads and Suebians arriving from the left bank of the Danube.

After the first third of the 5th century, the buildings were no longer built on a stone foundation; the roof of the simple buildings was supported by upright timbers. The arrival of new groups is indicated by the artificially deformed skulls in the burials, a sure sign of the Hun period. In Scarbantia, too, household refuse accumulated in the *forum* from the 370s and by the 5th century timber-framed houses on a stone foundation were the norm. Savaria's



Fig. 13. Green glazed jug from Csákvár

occupants also moved out of their comfortable homes and built themselves huts under the arcades. The 5th century buildings in the Tokod fort were built using the drywall technique and they had a simple, plastered clay floor. By the late 4th century the province's Romanized population had converted to Christianity and after the disappearance of Roman administration, the role of the state was taken over by the Church organization. A number of articles with Christian symbols are known from this period, but these do not necessarily mean that their owners were practicing Christians. Stone carvings and liturgical objects indicate the presence of a clergy and the existence of some sort of ecclesiastic organization (Fig. 14).

The precise dating of the material culture of the late antique population is no easy task. Coin circulation had virtually ceased and very few import articles signalling status, such as fibulae or certain types of glassware, reached the province. Local craft industry too declined, meeting local demand at an increasingly low level. Earlier objects remained in use and were eventually dis-



Fig. 14. Silver bowl (patena) decorated with early Christian symbols from Kismákfa

carded in a strongly worn condition or after becoming useless. A number of new artefact and jewellery types also appeared: these were introduced by the various Barbarian peoples who had been settled here. Most characteristic among these were pottery wares with smoothed-in decoration: from the last quarter of the 4th century, this pottery was produced by local potters throughout the province (the letters of the Latin alphabet can be seen on a jug with smoothed-in decoration from a grave uncovered at Csákvár).

Grave assemblages are similarly difficult to date. Very few coins occur in the rather poor burials and the few that have been found are strongly worn and unsuitable for dating. The number of graves without any grave goods is very high. It is generally accepted that the lack of grave goods can be ascribed to the Christian beliefs of the population, rather than to a general poverty. This is also confirmed by the sarcophagi and brick graves of the fine mausoleums uncovered in the cemetery of the Heténypuszta (Iovia) fort: the deceased were laid to rest

Fig. 15. Brick grave containing a burial with the deceased's arms laid across the chest, without grave goods, from the 4th–5th century cemetery at Keszthely–Fenékpuszta



with their hands clasped together and without any grave goods. The first burials in this cemetery date to the early 5th century and the finds indicate that this burial ground remained in use until the end of the century. With the exception of a few import articles, the graves contained local wares. None of the latest burials contained any grave goods. The largest late Roman cemetery, containing some two thousand burials, was uncovered at Csákvár (Floriana). In some sections of the cemetery, the burials often lay in four superimposed layers, the lower two containing exclusively late Roman graves, while the burial customs and the grave goods from the upper two levels indicated the joint use of the cemetery by the surviving local population and the newly arrived Germanic peoples, as shown by the graves containing the latter's typical articles and the burials containing artificially deformed skulls. A few graves were unusually richly furnished: three burials yielded bronze diadems covered with gold foil and inset with glass, gold and silver jewellery and four Byzantine gold *solidi*. Horse burials can be regarded as an unusual feature in this environment, as can a woman buried with a camel and a child burial with the child placed on the camel's hump.

All of the investigated cemeteries contained simple graves, brick graves in the Roman tradition and partial brick graves; the latter, a sure indication of the general impoverishment of the age, became more frequent in the late cemeteries (Fig. 15).

The Keszthely area occupies a unique position as regards the survival of the Romanized population. A sacral building, a so-called *cella memoriae* was erected over the earthly remains of a person venerated as a saint in the earlier 5th century and we also know that the Ostrogoths ordered the local provincial population to repair the defences and the buildings of the Fenékpusztá fort, destroyed sometime in the mid-5th century. They also rebuilt the Early Christian basilica. This population returned to the fort after the departure of the Ostrogoths; they did not leave Pannonia with the Langobards and they can undoubtedly be regarded as the ancestors of the Christian population living in this area under the Avar rule (see the section on the Keszthely culture).

GERMANS AND ALANS IN TRANSDANUBIA IN THE 5TH CENTURY

Róbert Müller

THE OSTROGOTHS

Although contemporary sources mention several Germanic peoples who had settled in Pannonia (Suebi, Heruls, Rugi, Sadagari), earlier scholarship linked all major 5th century find assemblages to the Goths, in spite of the fact that this people occupied a part of Pannonia for no more than seven-



Fig. 16. Ornamental pins in the Pontic tradition from Kilimán

teen years (between 456–473). This can in part be attributed to the written evidence, especially Jordanes' mid-6th century chronicle which drew heavily from Cassiodorus' history of the world. From the 2nd century A.D., the Goths slowly migrated to the northern Pontic from their northern Pomeranian homeland. The Visigoths settled west of the Dniester, conquering Dacia after the evacuation of the province, while the Ostrogoths' territory lay between the Dniester and the Don. This is where the Huns dealt them a decisive blow around 375. Their king, the famed Emmanaric, also fell in the battle. Some groups fled to the Visigoths, but the majority stayed and became allies of the Huns, participating in almost all of their campaigns.

Together with Hun and Alan groups, the first Ostrogoths arrived under the leadership of Alatheus and Saphrax after eastern Pannonia had been given to them in the treaty concluded with Theodosius I. Many attempts have been made to identify their archaeological heritage, but only the finds dating from the turn of the 4th–5th centuries and originating from the Pontic can be securely linked to this people (Sármellék–Égenföld, Kilimán–Felsőmajor; Fig. 16).

The greater part of this population left for Western Europe and Italy in successive waves, first with the Vandals led by Geiseric in 401, later with the Goths under Radagaisus in 405 and, finally, with the Visigoths of Alaric and Athaulf in 408; only smaller groups remained in Pannonia. A cemetery with ninety-six burials and a smaller settlement used by an eastern Germanic population (perhaps Goths) in the earlier and mid-5th century has been uncovered at Mözs. The finds included late Roman and Hun period jewellery, as well as the typical fibulae of the Germanic costume. About one-half of the deceased had artificially deformed skulls (Fig. 17). The associated settlement yielded late antique vessel types and pottery with smoothed-in patterns, as well as an assortment of metal finds. A house with a roof resting on six posts was also uncovered.

The Ostrogoths did not join Germanic peoples of the Carpathian Basin who, after Attila's death, revolted against the Huns. Following the crushing defeat by the Nedao river, the retreating Huns posed a threat to the Goths who had remained in their original homeland by the Pontic. Marcianus, the East Roman emperor took up the Goths' offer and concluded an alliance with them in order to curtail the power of Avitus, the West Roman emperor. The Goths received Pannonia as part of the bargain. Led by three kings, the Ostrogoths occupied their new homeland in 456. The destruction of the Fenékpusztá fort indicates that this occupation was by no means peaceful. Jordanes relates that Valamer settled in the land between the Scarniunga and Aqua Nigra rivers, Thiudimer "*iuxta lacum Pelsois*" and Vidimer between the two. Of the geographic names recorded by Jordanes, only *Pelsois* can be identified with Roman *Pelso*, i.e. Lake Balaton. There is now a general consensus that the area occupied by the Ostrogoths lay in the area between Lake Balaton and the Sava mouth, rather than in the north-western part of the province. They were constantly at war

Fig. 17. Male burial from the eastern Germanic cemetery at Mözs-Icsei-dűlő



Fig. 18. Artificially deformed skull from the Ostrogothic cemetery at Keszthely-Fenékpusztá

during their brief stay in Pannonia, looting their neighbours and ravaging the province before leaving in 473. Vidimer and his people moved on to Hispania, Thiudimer and his son Theoderic marched to the Balkanic territories of the East Roman Empire, from where they began the conquest of Italy in 489; after founding the Ostrogothic Kingdom, he went down in history as Theoderic the Great.

The determination of the archaeological heritage of the Ostrogoths is in part based on our knowledge of their settlement territory and in part on comparisons with finds from northern Italy, obviously taking into consideration the time spent in the Balkans between 473 and 489. Archaeology is at present incapable of determining the date of an object with an accuracy of within seventeen years. It must also be borne in mind that many decades may elapse between the manufacture and the burial of an artefact. The same assemblage will fall within the Hun period if dated to 450 and to the Ostrogothic period if dated to 460. Another difficulty in the case of the Ostrogoths is that, being Christians, they did not place food and beverages into their graves, meaning that their burials do not contain pottery, and neither were weapons deposited into men's graves. Thus, the only chronological anchors are elements of the women's costume. This is why the female burial from Dabronc-Ötvöspusztá has been variously linked to the Ostrogoths, the Suebi and the Sadagari. The written sources and the archaeological evidence – the reparation of the defences after the destruction in 456, the renovation of the buildings inside the fort and the reconstruction of the early Christian basilica – suggest that Thiudimer established his seat at Fenékpusztá. A cemetery with thirty-one burials that can be associated with the Ostrogoths on the basis of the burial rite and the grave goods was excavated south of the fort (Fig. 18). The custom of artificially deforming the skull was adopted by several peoples of the Hun period, includ-

Fig. 19. Ostrogothic fibula from Balatonszemes



ing the Ostrogoths (artificial deformation was observed on twenty-one of the twenty-nine skulls suitable for morphological analysis). The finds from this cemetery share numerous similarities with the grave goods from a family burial ground with sixteen graves excavated at Balatonszemes (*Fig. 19*).

THE SUEBIANS

The traditional settlement territory of the Suebians lay north of the Pannonian section of the Danube. Smaller groups moved to northwestern Pannonia already during the Roman Imperial period. In the Hun period this Germanic group retreated to the mountains, returning to the northern Pannonian area only after the battle by the Nedao river in 454 (Ménfőcsanak, Tatabánya, Esztergom). They expanded their settlement territory after the departure of the Ostrogoths in 473 (Szabadbattyán, Dunaújváros, Hács-Béndekpuszta, Dabronc, Kapolcs; *Fig. 20*). In the early 6th century, the Suebians came under Langobard rule; their presence can be recognized among the burials in the northwestern part of the Szentendre cemetery.

In the last decades of the 5th century, the finest jewellery of the local Germanic aristocracy in Italy and the Carpathian Basin was characterized by large fibulae and buckles

ornamented with chip carving. Finds ornamented in this style have recently been found at Répcelak.

GERMANIC PEOPLES IN THE GREAT HUNGARIAN PLAIN DURING THE 5TH CENTURY

Ágnes B. Tóth

The successive waves of population movements sweeping through the Great Hungarian Plain during the last decades of the 4th century are also confirmed by the archaeological record. Finds such as small silver plate fibulae, buckles with the tongue resting on the buckle ring resembling the ones of the Chernyahov–Marosszentanna culture, distributed in the Ukraine and Romania during the late Roman period, appear in the cemeteries of this period, indicating the arrival of new population groups from the east. Two main groups can be distinguished on the basis of certain differences in the burial rite. One can be located to the northern fringes of the Great Hungarian Plain, the line of the Csörsz Ditch (the Tiszadob group; *Fig. 21*), the other along the northeastern and eastern line of this ditch system (Ártánd group). Both groups show a blend of Iranian (Sarmatian and Alan) and Germanic

Fig. 20. Finds from a goldsmith's burial. Dabronc–Ötvöspuszta



Fig. 21. Fibulae and beads from Tiszakarád–Inasa





Fig. 22. Plate fibulae from Mezőkövesd–Mocsolyás

(Gepidic) traits, with Iranian elements dominating the Tiszadob group, and Germanic ones the Ártánd group. Impressive finds from this period have been uncovered during the rescue excavations preceding the construction of the M3 motorway: a number of new cemeteries have been found, often together with the associated settlement, as at Szihalom. Some of the Tiszadob type cemeteries were abandoned in the first decades of the 5th centuries, during the major population shifts preceding the Hun period (Tiszakarád), while in others the latest burials date to the Hun period or its end. It would



Fig. 23. Silver gilt buckle from Biharkeresztes–Ártánd–Nagyfarkasdomb

appear that a few cemeteries in the Ártánd area remained in use until the later 5th century, with burials still being made in them during the Gepidic rule (Biharkeresztes–Ártánd).

The costume of the high-ranking women of the various Germanic peoples (Gepids, Ostrogoths, Sciri) was more or less identical during the mid-5th century. Their typical ornaments are known from dozens of graves (Tiszalök, Balsa, Mezőkászony and Gyulavári). The grave goods from a recently excavated burial at Mezőkövesd–Mocsolyás allow a fairly accurate reconstruction of the deceased woman's costume (Fig. 22).

Most striking among these ornaments is the pair of large

silver plate fibulae and the silver belt buckle. A pair of gold plated earrings with a polyhedral pendant inlaid with precious stones lay by the skull. The pair of silver bracelets, the fingerrings, the necklace strung of amber and glass beads and the tiny shoe buckle are all ornaments encountered in other graves of the period. These jewellery sets reached Italy, Gallia, Hispania and Northern Africa with the Germanic peoples who departed from the Carpathian Basin and successive generations of the wealthy women of the Crimean Goths too wore such jewellery.

The mid-5th century saw the revival of chip carving, a late antique decorative technique. It first appeared on rectangular buckles worn by women; by the late 5th century eastern Germanic fibulae were also ornamented with this technique (Gáva). This ornamental style was popular among the Gepidic and Gothic aristocracy from the Upper Tisza region to Italy. This style attained its greatest popularity during the prosperity under Odoacer's rule in Italy (Fig. 23).

The southern part of the Danube–Tisza interfluvium was settled by the Sciri in the later 5th century. Together with their Germanic brethren, the Sciri fought with the Huns as their vassals. After Attila's death in 453, they joined the Germanic confederation and after driving away their former overlords, they created their own kingdom. One of the most magnificent finds associated with the Sciri was found at Bakódpusztá in the mid-19th century. The necklaces, lion headed bracelets, fingerrings, earrings inset with precious stones, belt buckle and gold foil from graves 1 and 2 are masterpieces of goldwork from the middle third of the 5th century. In view of the fine craftsmanship of the gold jewellery, it seems likely that the deceased buried in these two graves were relatives of Edeco, King of the Sciri mentioned in the historical sources and that they were also relatives of Odoacer, Edeco's son, who was to play a prominent role in history. The third grave was the burial of a lady of their court, laid to rest with her silver fibulae. The kingdom of the Sciri was destroyed in the late 460s, during the battles fought with the Ostrogoths; their rule, lasting no more than some fifteen years, is preserved in the few grave finds from the southern part of the Danube–Tisza interfluvium.

THE GEPIDS

Ágnes B. Tóth

HISTORY

The names of the major Germanic tribal alliances emerging in Germania during the 1st century have been preserved in Roman historical works. The ancestors of the Gepids were part of the Gothic tribal alliance; their original homeland, called *Gothiscandza*, lay somewhere along the lower reaches of the Vistula on the Baltic coast. On the testimony of the



Fig. 24. Burial of a Gepidic woman in a coffin hollowed from a tree trunk. Hódmezővásárhely–Kisbomok

surviving personal names, their language was Gothic. The first contemporary and reliable mention comes from 291, when as allies of the Vandals they fought against the Tervini and Taifals.

Based on this brief mention, the Gepidic homeland has been variously located to the area northeast of the Carpathians and to the northeastern part of the Carpathian Basin. Judging from their role in the Hun period, their kingdom lay somewhere in the eastern half of the Carpathian Basin and their best-known king, Ardarich was one of Attila's most loyal allies. The amassed treasure of the Gepidic royal dynasty was buried at this time in Szilágysomlyó (Șimleul Silvaniei in Romania). The royal insignia – gold medallions, an onyx fibula and a magnificent swearing-in ring – were apparently received from the Roman emperors, while the fibula pairs had no doubt adorned the royal ladies of the family. The latest pieces in the treasure were the mount ornamented gold cups, suspended from the belt in the Hun fashion. The Gepidic army participated in all of the Huns' military campaigns, fighting in the Balkanic wars in 447–449 and in the Battle of Catalaunum of 451. After Attila's death, the vassal people rose up against Attila's sons

under the Gepids' leadership and after the fall of the Hun empire they settled in its central territory, lying in Transylvania and the Tisza region, moving into the Srem after the departure of the Ostrogoths. Although they soon lost the latter, the Gepidic kingdom in the Tisza region flourished under Gunderit. The royal burials from Apahida near Kolozsvár/Cluj in Romania date from this period. After the departure of the Goths there was no-one to challenge their rule and their firm position was also cemented by their alliance with Byzantium (Fig. 24).

A new people, the Langobards of Germanic stock appeared in Transdanubia during the first decades of the 6th century. Relations between the two peoples remained peaceful until the 540s and the peace was also sealed with dynastic marriages. Hostilities between these two peoples erupted when they became embroiled in the conflict between the East Roman Empire and the Italian Gothic kingdom. In 535, at the outbreak of the war, the Gepids occupied Sirmium, a town on the route connecting the Balkans with Italy, and transferred the seat of the Gepidic kingdom to this town. By so doing, they lost Byzantium's support, and the emperor allied himself with the Langobards against them. The two Germanic peoples first clashed in 552, in a battle fought somewhere in the Srem. The Langobards emerged victorious from this battle. In 565, Justinus II, the new Byzantine emperor again supported the Gepids in the hope that he would be able to reclaim this strategically important town for his empire. The Langobards found willing allies against the ominous numeric superiority of the Byzantine-Gepidic alliance in the Avars, who had appeared on the European scene a few years earlier. The troops led by Alboin the Langobard king, and Bayan, khagan of the Avars, inflicted a crushing defeat on the Gepidic army led by Kunimund who, in spite of Byzantium's promises, was not helped by Roman troops. In 567, the Gepidic kingdom perished: most of the warriors fell in battle, while others joined the Langobards, who began their long trek to Italy the next year. The Gepidic villages in the Great Hungarian Plain under Avar rule are mentioned in later sources and we also know that Gepids participated in the Avars' military expeditions in the early 7th century.

HISTORY OF RESEARCH

Of the various archaeological finds brought to light in the 19th century, only the more spectacular finds made from precious metals reached various museums. The first Gepidic find came to light at Kisselyk (Șeica Mica in Romania): the grave containing earrings and a fibula can be dated to the late 5th or the turn of the 5th–6th centuries. Although the grave finds from the Great Hungarian Plain and Transylvania were not unearthed during systematic research projects, the increasing number of 'Merovingian style' assemblages eventually brought the recognition that

they represented the archaeological heritage of the Gepids known from the historical sources.

The earth-moving operations accompanying the major river regulations in the late 19th century brought the discovery of many cemeteries. The finds from these cemeteries, including weapons and pottery, were conscientiously collected and sent to the local museum. These finds caught the interest of a few, mostly amateur antiquarians, who began the systematic exploration of these burial grounds and the separation of the grave goods according to burials. The first cemetery plans, drawings and photographs of burials were made at this time. The cemetery at Szentés–Berekhát was excavated and published by Gábor Csallány, the burial ground at Marosveresmart (Unirea) by Márton Roska, the graves at Mezőbánd (Band) and Marosvásárhely (Tîrgu Mureş) by István Kovács, who also correctly determined their date and ethnic attribution. From the 1930s, a series of cemeteries were uncovered in the Great Hungarian Plain; their date and ethnic attribution was aided by the Byzantine coins found in the burials (Hódmezővásárhely–Gorzsa, Kiszombor, Szőreg). These new finds eventually inspired the first detailed overview of the Gepids of the Great Hungarian Plain (Gyula Török, 1936). An upsurge of interest in the Gepidic heritage could also be noted in Transylvania after World War 2. The first Gepidic village was uncovered at Malomfalva (Moreşti, Romania) and the accumulation of new finds soon led to a series of synthesizing studies. A few errors found their way into the general evaluation of these assemblages; one of these was that only the cemeteries and settlements dating to the earlier 6th centuries were linked to the Gepids; the later 5th century finds were considered to be Ostrogothic, while the cemeteries surviving into the Avar period were determined as being entirely Avar (Kurt Horedt). Hungarian scholars convincingly proved that the archaeological heritage of the Gepidic kingdom in the Tisza region and Transylvania was uniform both chronologically and typologically (István Bóna). Dezső Csallány's monograph on the archaeology of the Gepids was published in 1961; unfortunately, only a few graves of the Szolnok–Szandaszőlős cemetery, excavated in the 1950s, were included. Many of the grave assemblages uncovered in the past decades are still unpublished (Hódmezővásárhely–Kishomok, Kisköre, Tiszafüred, Biharkeresztes–Ártánd, Derecske). Beside cemeteries, several settlements from this period were also investigated: while the first excavations only uncovered smaller settlement parts with a few buildings (Battonya, Szarvas, Tiszafüred, Biharkeresztes–Ártánd, Eperjes), investigations over larger areas were later conducted in the Middle Tisza region (Tiszafüred, Rákóczi-falva, Kengyel), offering a wealth of new information on the internal layout of these settlements, as well as on their interrelations, their hierarchy, the settlement density and their adaptation to the environment. The already published volumes of the archaeological site survey of Hungary, especially the ones on the sites in the Körös region, have considerably enriched our knowledge of this period.

CEMETERIES AND SOCIETY

The cemeteries in the Great Hungarian Plain outline the boundaries and the major centres of the Gepidic settlement territory. Most sites lie along major rivers – in the Tisza, Maros and Körös region – with a concentration around the fording places (Szolnok, Szentés, Szeged). In the 6th century, the Gepids disappeared from the Upper Tisza region, although the most lavishly outfitted graves, especially solitary burials and smaller grave groups dating from the later 5th century, all lie in this area. Recent excavations have yielded a wealth of new data on the extent of the Gepidic occupation. In the late 5th century and early 6th century, Gepidic groups still controlled the section of the Csörsz Ditch west of the Tisza (Mezőkeresztes–Cethalom; Fig. 25). The importance of this area is indicated by the fact that



Fig. 25. Fibulae from a Gepidic woman's burial. Mezőkeresztes–Cethalom

warriors were buried here even after the fall of the Gepidic kingdom (Egerlövő).

The first burials in the cemeteries of the Middle Tisza region date to the last third of the 5th century. Most of these burial grounds were used until the mid-6th century or slightly later, indicating that they were the final resting place of successive generations. Burial grounds with several hundreds of graves have been uncovered at Szentés–Berekhát (306 graves) and Szolnok–Szandaszőlős (237 graves). The same changes can be assumed in Gepidic society during the 5th century as in the case of the other western Germanic tribes, such as the Franks, Alemanns, Bajuvars and, slightly later, the Langobards. The creation of the Gepidic kingdom was followed by a period of stability, with the people effectively 'populating' the area carved out for the kingdom. This process is reflected in the archaeological record by the presence of permanent settlements and the appearance of flat cemeteries (the so-called *Reihengräberfelder*), in which the deceased were laid to rest oriented to the east, but buried according to pagan rites with their weapons, jewellery and an assortment of personal articles, as well as vessels containing food and drink for the journey to the afterworld, in spite of

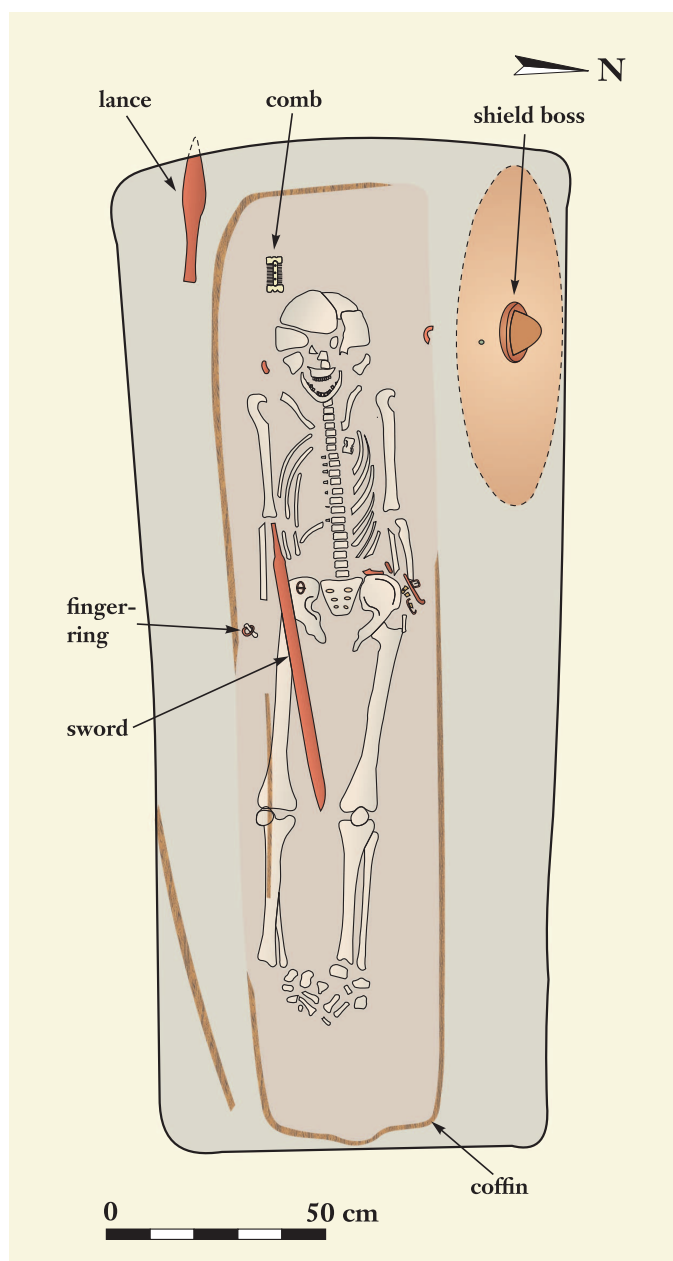


Fig. 26. Burial of a Gepidic warrior. Szolnok–Zagyvart

the spreading conversion to Christianity. The one-time social position of the deceased can usually be reconstructed from the grave goods, even if this is sometimes difficult owing to the high number of plundered graves. No royal burials have yet been discovered in the Tisza region. The highest-ranking men in the cemeteries were the members of the aristocracy: they were buried with their weapons, usually a double-edged *spatha*, a spear and a shield, as well as the occasional helmet and mail (Figs. 26–27).

Men in a less exalted position were buried with a spear and a few arrowheads. Very few truly ornate costumes and magnificent weapons are known: most of the finds in this category are simple buckles, strap ends, sword belt buckles and the like. High-ranking women were better provided with or-



Fig. 27. Iron shield boss with gilt knobs from Hódmezővásárhely–Kishomok

naments: fibula pairs decorated in the animal style and silver gilt belt buckles. The womenfolk of the commoners wore the modest bronze copies of these ornaments. Some of these ornaments indicate that the Gepids maintained close ties with several other Germanic tribes (the western Germanic tribes, the Ostrogoths and the Germanic tribes of Scandinavia) and that they traded regularly with the Byzantine Empire. The same can be said of the Gepids of Transylvania: a similar process can be reconstructed from the archaeological record, although the cemeteries are slightly smaller and the earliest burials usually date to the turn of the 5th–6th centuries. The finds of the first Gepidic occupation of Sirmium (473–504) are practically undistinguishable from the earlier Ostrogothic finds made in the same style. New advances in this respect can be hoped from future research in Sirmium since we know that Kunimund, the last king of the Gepids, minted coins bearing his monogram and that an Arian bishop was also active in this town. Relics of the Christian faith have been found in the cemeteries of the Great Hungarian Plain: quite a few female burials contained crosses or reliquaries. Pagan beliefs did not disappear completely, as shown by the boars and predatory birds depicted on the jewellery, and the use of various amulets, such as bone maces (the so-called Donar pendants), found in women's and children's burials.

SETTLEMENTS

Settlement remains have been found in areas lying quite far from each other over the entire area of the Gepidic settlement territory in the Great Hungarian Plain (Battonya and Egerlővő). Most settlements lay by rivers or smaller watercourses, usually on elevations overlooking them. The systematic field surveys also revealed that the smaller settlements formed a loose chain along one-time watercourses, often outlining the dried-up bed (for example along the one-time meanders of the Körös rivers). These smaller settlements usually consisted of a house, a few outbuildings, a workshop and storage pits. Although the contemporaneity of these farmsteads and hamlets cannot be proven in every case, the dispersed nature of the Gepidic settlement network is obvious. It was earlier assumed that the large cemeteries belonged to larger villages, but no such villages have yet been found. The remains of above-ground houses have only been found in Transylvania. The buildings in the Great Hungarian Plain were 4–18 m² or, more rarely 25–35 m²

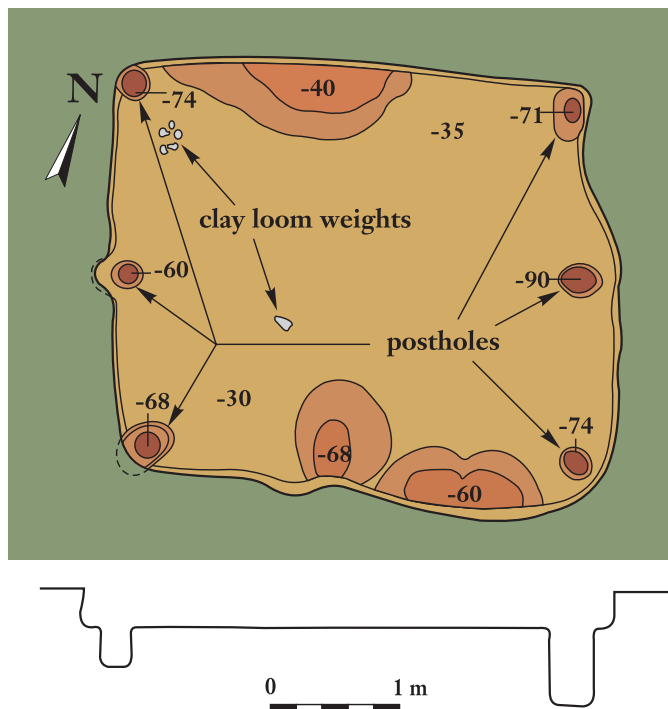


Fig. 28. Groundplan of a Gepidic house. Szolnok-Zagyvart

large sunken houses with wattle-and-daub walls and a roof supported by upright timbers. Only temporary fireplaces were detected in most of these houses (Fig. 28).

Traces indicating household craft activity were observed in some of these buildings. The storage pits are testimony to grain cultivation, as are the large storage jars. The plant remains from Eperjes included millet, wheat and six-row barley. Sickles and other implements, such as a hand-turned grain-mill (Szolnok-Zagyvart) and an open-air baking

Fig. 29. Gepidic pottery from Tiszafüred and Törökszentmiklós



oven have also been uncovered. The refuse pits contained the bones from both domestic and hunted animals (at Eperjes the domestic animals included cattle, horse, sheep and pig), as well as fish, which is hardly surprising in view of the location of these settlements near water. Conical clay loom weights occurred regularly in the house debris, suggesting that vertical looms were used at these settlements. Bone working was practiced at many sites: the rectangular two-sided combs made from antler used by the Gepids were made in these workshops, together with bone spoons, bone skates and small bone amulets. The pottery workshops produced vessels fired in kilns divided into a fire-box and a firing area with a grate. These vessels included some of the most elegant wares: stamp decorated cups and bowls (Fig. 29). The slag remains indicate metalworking. The tools and implements, such as knives, sickles and awls, needed in day to day life were no doubt also made on smaller settlements, while articles calling for more specialized skills, such as the double-edged swords, were either the products of the large central workshops or imports.

THE LANGOBARDS

Róbert Müller

HISTORY

The best-known source for the Langobards' history is the chronicle of their deeds recorded in the 7th century and Paulus Diaconus' late 8th century work. The latter, however, contains many distortions about the Langobards' stay in Pannonia. Historical and archaeological research in the past decades, especially István Bóna's studies, have enabled a fairly accurate reconstruction of the history of the first





Fig. 30. Bird and S shaped fibulae inlaid with semi-precious stones from Vörs

two thirds of the 6th century. The Langobards' ancient homeland lay in the Lower Elba region. They are first mentioned in the 5th century as an especially "fierce" Germanic people in connection with Tiberius' victory over them. In the winter of 166/167, a Langobard army marched from their homeland to Pannonia and, after crossing the Danube somewhere between Arrabona and Brigetio, they attacked the province, but suffered a crushing defeat.

They disappear from the written sources until 489, when they appear by the Lower Austrian section of the Danube; their migration is well documented by the archaeological finds. In 505–507, they established themselves firmly on the right side of the Danube and after defeating the Heruls in 508–510, they occupied northern Transdanubia, roughly down to Lake Balaton. During the Byzantine-Ostrogothic war, they became allies of Emperor Justinian I and around 535–536, the Langobards also gained possession of southern Transdanubia. Following the death of the mighty Wacho (c. 510–540), Audoin annulled the alliance with the Gepids and in 547 occupied southwestern Pannonia, extending the Langobard rule to Istria. Audoin was succeeded by Alboin, who continued the war against the Gepids. In 566, Byzantium again took the Gepids' side and dealt a crushing defeat to the Langobards. Alboin then allied himself with Bayan, the Avar khagan and in the spring of 567 their combined armies defeated the Gepidic Kingdom, whose territory was subsequently occupied by the Avars. The Langobards realized that their new neighbours were considerably more dangerous than the Gepids had been. They renewed the alliance, and after torching their settlements and plundering their cemeteries, they left Pannonia on Easter Sunday, 568. By May, the Langobard conquest of northern Italy had begun. The Langobards' kingdom in Italy was eventually conquered by the Franks in

774. Their art, a blend of late antique and Mediterranean elements, had a demonstrable impact on early medieval art. Many features of their language and legislation survived in Italy even after the fall of the Langobard Kingdom (*Fig. 30*).

HISTORY OF RESEARCH

The first finds that could be associated with the Langobards were brought to light in 1885, when Ágost Sőtér uncovered sixty-seven burials of a Langobardic cemetery at Bezenye. These finds were at the time, and for some time afterwards, dated to a later period since owing to a misinterpretation of the written sources, the Langobards were believed to have been a nomadic people without permanent settlements. Additional confusion was caused by the fact that in 1935, richly furnished Langobard graves and late 6th century Avar burials were found at a site near Várpalota, leading to the mistaken belief about Langobard groups living under Avar overlordship (Joachim Werner). In 1956, István Bóna reviewed the find assemblages that had come to light until then and proved that between 510 and 568, the Langobards had gradually occupied all of Pannonia and, also, that the Langobard finds shared numerous similarities with the earliest northern Italian relics of this people. His findings were confirmed by the grave finds from the roughly four hundred burials unearthed between 1958 and 1978.

About three-quarters of the currently known burials were excavated by István Bóna (Hegykö: 1957–58, Szentendre: 1961–63, Kajdacs: 1965–73, Tamási: 1969–71); smaller cemeteries and grave groups by Károly Sági (Vörs: 1959–61), Attila Kiss (Mohács: 1960), Péter Tomka (Fertőszentmiklós: 1971, Gyimót: 1995), Károly Sági and

Róbert Müller (Keszthely–Fenéki Road: 1973–74) and Andrea Vaday (Ménfőcsanak: 1995). The history and the archaeology of the Langobards in the Carpathian Basin was summed up by István Bóna in a monograph (1974) and in a series of entries written for an encyclopaedia (1983).

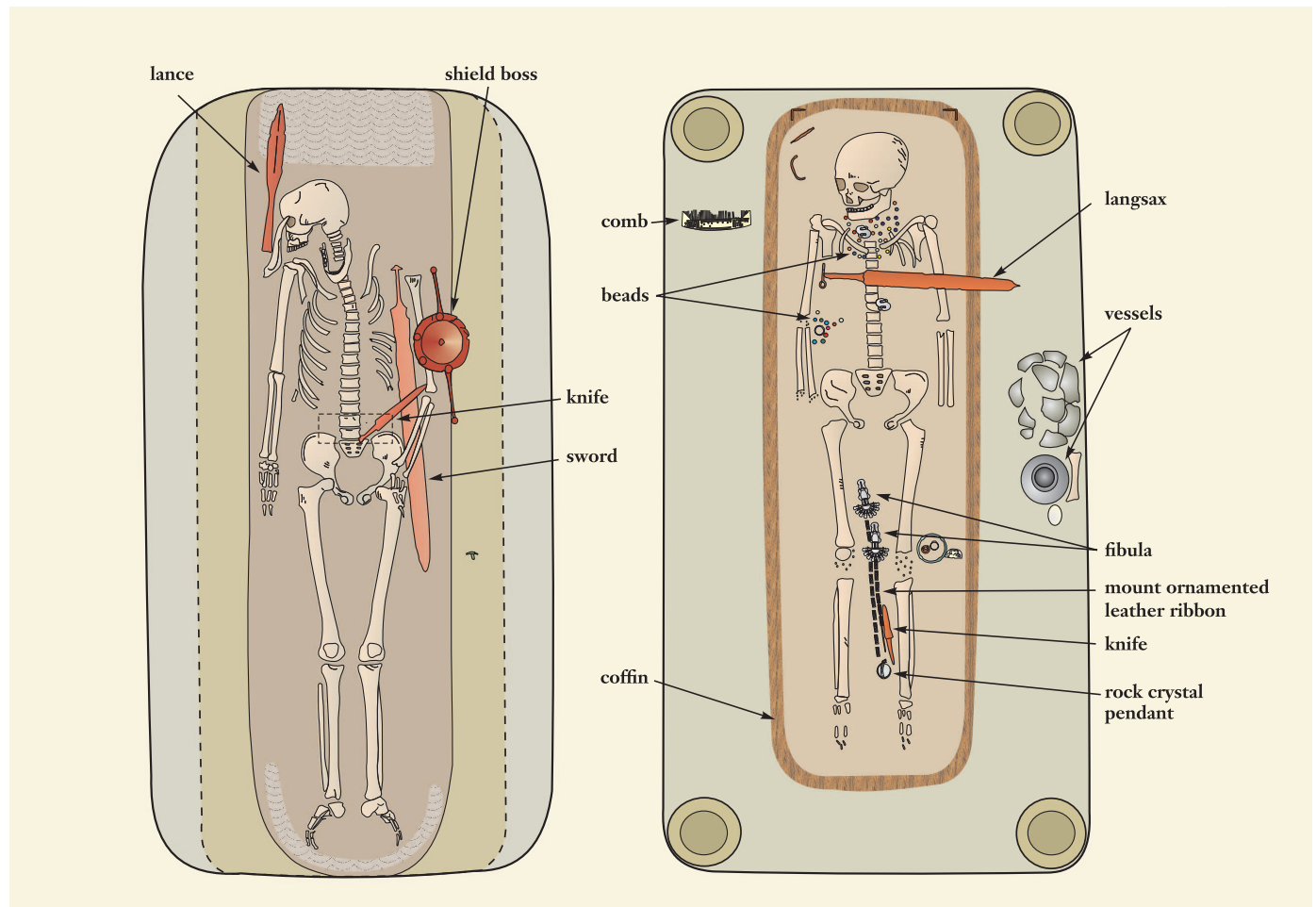
CEMETERIES AND SOCIETY

The Langobards' archaeological heritage is known mainly from their burials. While still in their homeland in the Lower Elba region, they cremated their dead and placed the ashes in an urn; in the later 5th century they adopted the inhumation rite, similarly to the other Germanic peoples. Interestingly enough, the Kajdacs cemetery, opened around 536, contained ten inurned burials. Since this area had never been subjected to deep ploughing, it is quite possible that this ancestral burial mode was also practiced in other Langobard communities, but its traces were obliterated during later centuries by agricultural activity (these urn burials lay at a rather shallow depth at Kajdacs). Huge grave pits were dug for the inhumation burials: the 3–5 m² large pits were usually 3 m deep, with the burials of high-ranking

individuals often being 5 m deep, meaning that some 20 m³ of earth had to be moved. The deceased was placed in a coffin hollowed out from a split tree trunk. The remains of these coffins could be observed in many burials. The skeletal remains bear out the surviving descriptions that the Langobards were tall, the men often as high as 190 cm, the women between 165–170 cm. The depictions show the men with their hair parted in the middle and cut straight, sporting a beard (*langobard* means 'long beard'). The long tunic worn by the men was fastened with a belt fitted with a bronze or iron buckle. Belts ornamented with rectangular silver or iron buckles are extremely rare in Pannonia. Suspended from the belt was a pouch in which a knife, a whetstone, tweezers, scissors, an awl or a flint was kept. The tight-fitting trousers were held together by a textile band above the ankles. Buckled shoe straps are extremely rare. Warriors were buried with their long double-edged sword kept in a wooden sheath; the large wooden shield with an iron handle and iron boss was laid onto the coffin, while the lance was thrust into one end of the grave pit (*Fig. 31*).

The women did not wear earrings, bracelets or finger-rings. These jewellery articles were adopted from the local Romanized population in southwestern Pannonia (today

Fig. 31. Langobard burials: man with his weapons (Kajdacs) and richly bejewelled Langobard woman (Szentendre)



part of Slovenia). The women fastened their hair or kerchief with a pin and they often wore a necklace of plain beads. The richly furnished grave found at Keszthely–Fenéki Road contained a necklace strung of gold pendants inlaid with precious stones, a gold plaque with coin imprints and filigreed gold beads. The plundered burial also yielded the bone plaques covering a jewellery box and an ornate bone container.



Fig. 32. *Fibulae from the Fertőszentmiklós cemetery*

Langobard women wore a linen blouse fastened with a pair of disc, bird or S shaped brooches, tucked into a long skirt. They too had a buckled belt; their pouch usually held spindle whorls, a small knife or scissors, a sewing needle and, occasionally, a strainer spoon. Free married women usually also had a linen or leather ribbon attached to the belt; wealthier women ornamented this ribbon

with punched silver or bronze mounts. Pinned onto this ribbon were a pair or lavishly decorated knobbed fibulae, and a disc or ball carved from semi-precious stone, rock-crystal or glass was fastened to its end. The craftsmanship of the Langobard goldsmiths is preserved in the chip carved silver fibulae encrusted with stones and the magnificent cloisonnéed and filigreed gold ornaments (Fig. 32).

The burial customs reflect the survival of certain elements of the ancient Germanic beliefs (the worship of Odin and Donar, the deposition of food offerings), even though the royal dynasty had converted to Christianity; we know that after the break with Byzantium, they succumbed to Arianism. Many features of Christianity can be noted in the cemeteries of the so-called Hegykő group, a label designating the archaeological finds of a Langobard-Germanic population living west and south of Lake Fertő and along the lower reaches of the Lajta river. The date of these cemeteries is indisputable on the basis of the Langobard finds, and the abandonment of these cemeteries also indicates that the communities who buried their dead in these burial grounds left Pannonia together with the Langobards. The burial rite and the costume that can be reconstructed from the finds, however, differ from the other Langobard burial grounds in Hungary. The men's weapons and the women's jewellery include many Alemann-Frankish products from the Danube valley. Female burials often contained earrings, bracelets and fingerings. The ribbon attached to the belt was shorter as shown by the fibula pairs found by the waist and a silver key was often fastened to this ribbon. It has been suggested that this population can perhaps be identified with the Rugi or the vanquished Heruls.

Langobardic society can be reconstructed from the 7th century law codes and the grave goods. The basic unit of society was the *fara*, both a military and family unit. The tribal

organization began to disintegrate in Pannonia, the leading role was assumed by the community of free warriors whose wives were also free. Genuine power was concentrated in the hands of the ruler and his armed retinue, although the princes and the leaders of the major *fara* also had their own armed retinue. The aristocracy lived in manor houses and buried their dead in small graveyards (Gyöngy, Kápolnásnyék, Mohács), while the commoners used larger cemeteries. The semi-free and the servants came from the ranks of the Germanic population and the remnants of the Romanized population of Pannonia.

SETTLEMENTS AND SUBSISTENCE

In spite of a number of carefully planned research projects, no Langobard settlements or houses have yet been found. It seems likely that the Langobards did not adopt the Central European custom of constructing sunken houses and continued to build above-ground structures, as indicated by the 'house of the dead' found in cemeteries. Their communities often moved into the forts, watchtowers and villas abandoned by the late provincial population, as shown by the pottery and typical jewellery found on these sites. The burials reveal much about their lifeways. The frequent occurrence of cattle, sheep and goat bones in the graves indicates that the Langobards were primarily stockbreeders. Warriors' horses were often buried near their one-time master. The fowl and egg finds from the Tamási cemetery, where one-third of these finds came from wild goose and wild duck, reflect the importance of hunting (Fig. 33).

Fig. 33. *Small container carved from antler. Keszthely–Fenéki Road*



The Langobards' pottery underwent a considerable change during their stay in Pannonia. In their ancestral homeland, their pottery consisted of hand-thrown, coarsely tempered and poorly fired vessels. They became acquainted with the potter's wheel when they reached the Danube, and during their sojourn in Pannonia they adopted a number of late antique vessel forms. The ratio of pottery ornamented with vertical or oblique channelling and impressed decoration declined, to be replaced by wheel-thrown, pear shaped vessels ornamented with impressed geometric patterns. Similar finds from Italy can be associated with the earliest Langobard occupation.

THE EARLY AND MIDDLE AVAR PERIOD

(568–turn of the 7th–8th centuries)

Tivadar Vida

HISTORY

In 568, the Asian Avars settled in the Carpathian Basin. This steppean nomadic population was of a mixed stock: more recent archaeological research has confirmed the information contained in the written sources that the Avars had in part emerged from Inner and in part from Central Asia. The Chinese and Persian documents suggest that the Inner Asian group of the Avars had fled westward from the territory ruled by the Juan-Juan, who in 552 had been defeated by Turks in the region of the Gobi desert. They were joined by the Hephthalite Huns from Central Asia. The envoys of the *uarchonitai* as the Avars were called in the Byzantine sources (*uar* and *Hun*, surviving in the Hungarian toponym Várkony) were already negotiating in Constantinople in 558 and, encouraged by Iustinian, they subjugated the nomadic and semi-nomadic tribes of southern Russia (Sabirs, Kutrigurs and Utrigurs), conquered the Ant and attacked the Franks. The Avars settling in the Carpathian Basin in 568 were joined by other steppean population groups; their ruler, Bayan was the first to unite Transdanubia, the Great Hungarian Plain and Transylvania in a single state (*Fig. 34*).

Between 568–626, the Avars conducted a series of campaigns against Byzantium, ravaging the border forts and towns in the Lower Danube region (Sirmium, Singidunum), taking many thousands of captives back with them.

Byzantium paid an annual subsidy of tens of thousands of solidi to ensure peace – this subsidy amounted to 200,000 gold solidi in 626. Many Slavs settled in the Balkans after the wars launched by the Avars.

The Avars conducted their most ambitious campaign against Constantinople in 626. Gepids, Slavs, Bulgars all participated in the siege, as did a Persian army stationed by the Bosphorus. The siege ultimately failed, and the Orthodox Church commemorates the liberation of Constantinople to this very day. This defeat signalled the weakening of Avar power, and the neighbouring peoples immediately moved to exploit it. Around 626, a Frankish merchant called Samo created an independent ‘state’ on the north-western fringes of the Avar Empire. The Avars’ eastern European subjects revolted in the 630s; the Bulgars of the Kuban region created their own khaganate under Kuvrat, with the blessing of Constantinople. The Slavs of Carinthia and Dalmatia too won their independence.

In 670–80, the Onogurs, a population fleeing the Khazars, arrived in the Carpathian Basin. Their archaeological identification is uncertain. The appearance of new weapon types, such as the sabre, and new rites could equally well be the result of internal development. What is clear is that the Avar settlement territory was expanded with the occupation of the Vienna Basin and southern Slovakia; new cemeteries were opened and new political centres were established, the latter suggesting acute internal conflicts. The reorganized Avar leadership was at first characterized by the former busy activity in foreign policy. In 678, the khagan’s envoys met with Constantine IV, around 680 the Avars occupied Lauriacum (Lorch, Austria), whereby the river Enns marked the border of the khaganate; this was also acknowledged by the Franks in a peace treaty signed in 692. The personal names and the titles of the dignitaries recorded in the written sources indicate that the Avars spoke a Turkic tongue, although a part of the leadership apparently spoke Mongolian. The anthropological finds too reflect this mixed picture: Mongoloid elements dominate the élite, while the Europid elements of the commoners suggest not only eastern European nomads, but also Germanic groups and remnants of the local Romanized population.

HISTORY OF RESEARCH

The archaeology of the Avar period essentially grew out of 18th–19th century aristocratic and royal collections (Nagyszentmiklós treasure: 1799, Jankovich collection: 1820s); only in the earlier 19th century did the Hungarian National Museum acquire major finds from this period. The identification of the Avars’ archaeological heritage was greatly aided by the richly furnished graves from Kunágota (1858), Ozora and Szentendre (1871) that contained the gold coins of Byzantine emperors dating from 566–670. Ferenc Pulszky was the first to note that these finds dated from the Avar period. Graves from the Avar period were uncovered



Fig. 34. Avar lances from the Budakalász cemetery



Fig. 35. Richly furnished Avar female burial from Zamárdi–Réti földék

over the entire territory of Hungary (Vilmos Lipp, Lajos Márton, Mór Wosinszky, Ágost Sőtér). In his 1905 study, József Hampel erroneously assigned the Avar finds to the Hun period, but this mistake was soon corrected (Géza Nagy, András Alföldi, Paul Reinecke). In his search for the broader context of these finds beyond the Carpathian Basin, Nándor Fettich called attention to the similarities shared not only with the Merovingian and Italian finds of western Europe, but also with the Martinovka culture of southern Russia. The study of the Avars' archaeological heritage in the neighbouring countries was also begun after 1945 (Anton Točík, Darina Bialeková, Zlata Čilinska, Kurt Horedt, Sándor Nagy). Gyula László's ethnographic approach to cemetery analysis, although outdated by now, contributed greatly to a better understanding of Avar society; he offered imaginative reconstructions of the Avars' eastern style costume, in part based also on the Central Asian frescoes. His pioneering studies in clarifying the Shamanistic and early Christian traditions of the Avars' beliefs allowed a glimpse into the mindset of this people (Fig. 35).

In her analysis of the 704 burials of the Alattyán cemetery, Ilona Kovrig distinguished three main chronological groups and thus created a chronological framework for the period that is still valid today. István Bóna's comparison of the ar-

chaeological record and the written sources provided a sound historical basis for the threefold division of the Avar period into an early, a middle and a late phase. The changes in the material culture of the Avar period was for a long time explained with the arrival of new population groups (568: arrival of the first Avar groups, 670/80: arrival of the second Avar groups, 700/720: arrival of the third Avar groups). Gyula László linked the arrival of the earliest Hungarian speaking populations to the new immigrants of 670/80 (his so-called "double conquest" theory), but this hypothesis has since been discarded since it cannot be proven because of the many gaps and inconsistencies in the written sources and the inconclusive archaeological evidence. New advances have been made in the research of the nature of the contacts with the eastern steppe (István Bóna, Péter Tomka), with the Merovingian world (Attila Kiss, Tivadar Vida), Byzantium and Italy (Éva Garam, Csanád Bálint), the Slavs of the Carpathian Basin (Béla Miklós Szőke) and the Keszthely culture (Róbert Müller). From his overview of the burial customs of the period, Péter Tomka concluded that there was a continuity between the early and the middle Avar period. The interpretation of Avar culture as a Byzantine fringe culture has also been proposed (Csanád Bálint, Falko Daim). New cemetery analyses have contributed to a finer internal chronology of this period (Falko Daim, Éva Garam). An overview of the pottery of the early Avar period is now also available (Tivadar Vida). Recent

Fig. 36. Early Byzantine jug inlaid with silver and copper, decorated with a hunting scene, from the Budakalász cemetery



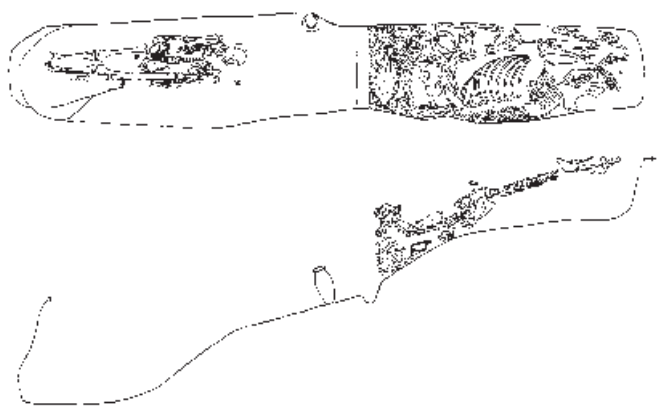


Fig. 37. Grave pit with a side-niche. Animals were placed into the shaft, while the niche for the human burial in its corner was covered with a stone slab. Szegvár–Oromdűlő

excavations in a number of cemeteries (Budakalász, Gyenesdiás, Kölked, Szarvas, Szegvár, Táp, Zamárdi) and settlements (Dunaújváros, Kölked, Szekszárd) have provided a wealth of new information on Avar society and the economy and lifeways of this people (Fig. 36).

CEMETERIES AND SOCIETY

The number of graves from the Avar period totals some sixty thousand; about one-third of these burials can be assigned to the early and middle Avar period. One of the main tasks in the research of this period is the separation of the archaeological heritage of the Central and Inner Asian immigrants from the Eastern European steppean groups, the late antique and Byzantine population, as well as the Germanic and Slavic finds. This diversity is also reflected in the burial customs. The first Avar groups buried the spears and horse harness burnt on the funerary pyre into shallow pits. The custom of presenting these funerary sacrifices was brought from Inner Asia since good parallels to this practice are known from Turkic territories. The nomadic aristocracy often buried the horse, either in the same or in a separate grave pit. Occasionally, the horse was skinned, with the skull and the foot bones carefully wrapped into the hide before being placed into the grave together with the harness (bit, stirrups, bridle, reins, girth buckle) and the weapons (bow, spear, war axe), as for example at Zalakomár.

One group of the Eastern European mounted nomads

who joined the Avars buried their dead into grave pits with a side niche, a custom that can be traced to the Caucasian foreland (Szegvár, Öcsöd; Fig. 37). The cremation burials unearthed in Transdanubia can be associated with the Slavs who settled in this area during the 7th century (Vác, Kehida, Zalakomár). The dead were provided with meat and beverage in vessels for the journey to the afterworld. Various amulets – capsules, lead and bone pendants – or early Christian relics, such as crosses and bullae, were also placed into the grave. One indication of the Shamanistic beliefs of the Avars is a depiction of the Tree of Life carved onto a bone artefact from Homokrév (Mokrin).

Avar society can be reconstructed from the various burial types. At the peak of the social hierarchy was the ruler, the khagan, who together with his family controlled and directed the strongly centralized administrative organization. The khagans and the other nobles were buried in secret, in solitary graves, with no more than one or two members of their family. The most magnificent Avar period burial of the Carpathian Basin was found in a sand quarry on the outskirts of Kunbábony in 1971. The royal burial contained the various insignia of power and rank. The deceased had been lain on a

Fig. 38. Ceremonial belt from the khagan's burial at Kunbábony





Fig. 39. Stirrups and girth buckles from Kehida

bier covered with silver gilt plaques; the funerary shroud was embroidered with gold plaques. His belt, fastened with a Byzantine gold buckle, was ornamented with gold mounts inland with glass and garnets (Fig. 38).

His weapon belt, bow and eastern type sword were covered with gold mounts. The insignia included a golden drinking horn and a bird-headed whip with gold mounts. A pouch, a dagger and a wooden drinking cup were suspended from the belt. The food and beverages for the journey to the afterworld were placed into a golden jug and a Byzantine amphora. The 60–65 years old man was of Baikal type Mongolid stock and as a member of the ruling dynasty he was perhaps one of Bayan's descendants. The locations of the burials of the high-ranking members of the Avar royal dynasty suggest that the early Avar centre lay in the Danube–Tisza interfluve (Bócsa, Kecel). Other high-ranking individuals and military leaders were laid to rest in small family graveyards in the centre of their settlement territory (Szentendre, Csóka, Szegvár). The armed commoners lived in villages: the graves of the Avar warriors ruling them lay in the centre of the flat cemeteries

Fig. 40. Iron folding chair inlaid with silver from the Zamárdi cemetery



containing many hundreds of west–east oriented burials. These Avar warriors were interred with their weapons, ornate belts and their horse; their graves were surrounded by the burials of their family and servants. The structure of the early Avar cemeteries reflects a society based on the extended family and the clan. The cemeteries with many thousands of graves in eastern Transdanubia (such as the ones at Zamárdi and Budakalász) indicate unusually large settlements. This sudden population growth can no

doubt be linked to the population movements and re-settlements brought about by the Avars.

A heavy cavalry equipped with pikes and lances formed the backbone of the Avar army. A light cavalry recruited from the mounted nomads and infantry troops of Slavs and Gepids were also part of the army. Iron stirrups, making riding infinitely easier, were introduced to Europe by the Avars (Fig. 39).

All that survived of the Avar warriors' reflex bow in the burials are the bone stiffening plaques; the arrowheads kept in the quiver were quite large and match the types known from the Eurasian steppe. The foot soldiers were equipped with Merovingian type swords, lances and wooden shields with an iron shield boss.

Early Avar burials abound in gold and silver articles owing to the Byzantine subsidies paid in gold, the various gifts and the war booty, and it is therefore hardly surprising that most of them were robbed after the burial. The surviving Byzantine imports include amphorae, coins, folding chairs,



Fig. 41. Disc fibula with a portrayal of Christ from Keszthely–Fenékpuszta

silk, scales and their weights, earrings, crosses and belt ornaments (Fig. 40).

Recent excavations at Budakalász, Kölked, Környe, Szekszárd and Zamárdi in eastern Transdanubia have yielded numerous finds that in terms of their form, ornamentation (animal style, stamping), ornamental technique (niello, inlay, punching) and costume (belt pendants, shoe mounts, weapon belt) suggest the presence of Germanic groups (Gepids) of the Merovingian Age. The many burials generously furnished with gold prove the presence of a local, high-ranking Germanic aristocracy under the Avar rule.

A number of finds whose best analogies can be quoted from Italy and the Balkans indicate the presence of a community preserving late antique traditions in the Keszthely area (disc fibulae with early Christian symbols, ornamental pins, earrings with basket and lunula pendants; Fig. 41). Their centre lay in the late Roman fort at Fenékpuszta, where they built a three-nave church, used also for burial. The descendants of this population can be identified with the Christians whom the sources mention as having survived until Charlemagne's campaign (Fig. 42).

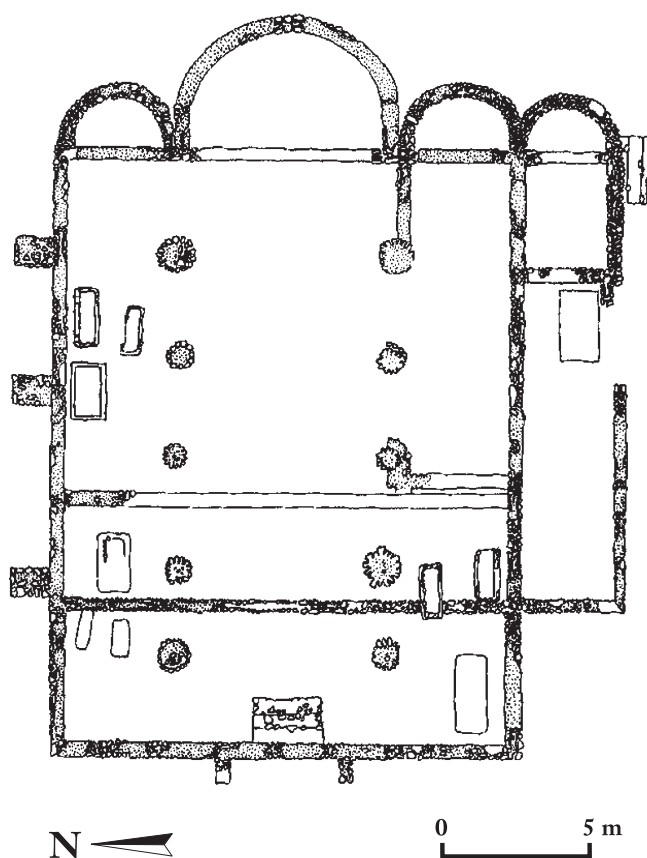


Fig. 42. Three-nave church in the late Roman fort at Keszthely–Fenékpuszta. 6th–7th century

THE MIDDLE AVAR PERIOD

The transitional period between the colourful early and the late Avar period is called the middle Avar period. Although the exact chronological boundaries of this period are still debated, most scholars now accept a dating between the mid-7th century and the early 8th century. We may speak of a new archaeological period because the early Avar traditions, blending steppean, late antique and Merovingian elements, merged into a uniform new culture coloured by new cultural impacts. The survival of certain jewellery types (earrings with large bead pendants, beads), pottery and other craft traditions, burial customs (horse burials, grave pits with niches) indicate that the middle Avar period is essentially rooted in the preceding age, proving the survival of the earlier population. At the same time, we witness the appearance of new costume ornaments and a novel decorative style (interlace patterns, griffins), as well as of new artefact (sabres, stirrups with rounded, horseshoe shaped or straight foot plates, bits with side-bars) and jewellery types (earrings with pendants, neckrings, clasps). In the background of the changes we may assume the arrival of new Eastern European peoples (the Bulgars) fleeing the Khazars. The royal burials of the middle Avar period (Ozora, Igar) indicate the emergence of a new centre. The

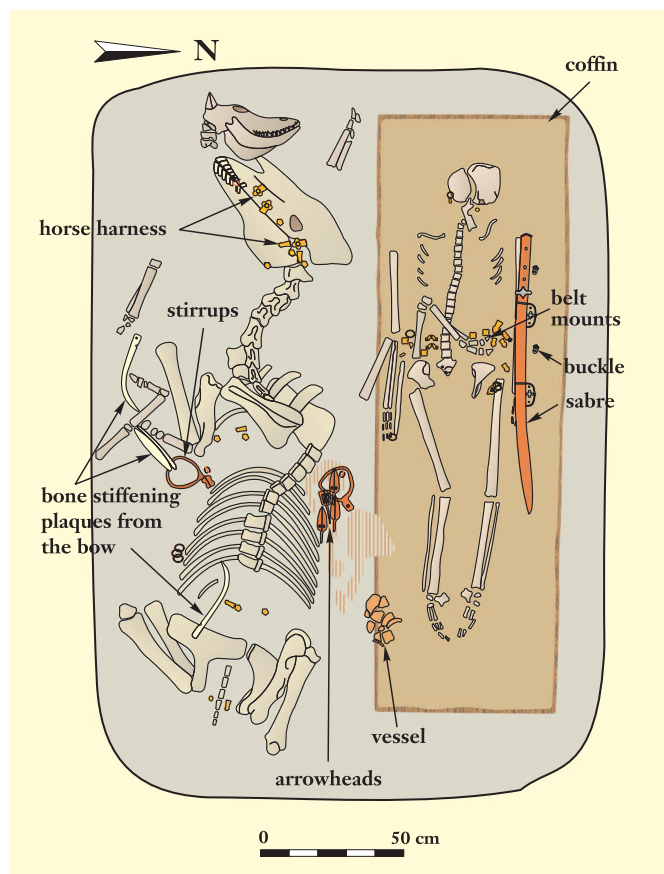


Fig. 43. Warrior buried with his horse and sabre from Gyenesdiás

graves of the aristocracy, buried with their sabre and horse, are another indication of these changes (Ivánca, Dunapentele, Budapest; Fig. 43).

CRAFTS, COSTUME AND IMPLEMENTS

In view of the essentially eastern nature of burial customs, the weapons and the social structure, it may come as somewhat of a surprise that the 'type fossils' of early Avar craftsmanship, such as metal artefacts and vessels, can be traced to late antique, early Byzantine and Merovingian traditions (Fig. 44). There are few genuine Byzantine imports: most of the 'Byzantine' articles are copies made by local craftsmen. The richly furnished burials suggest that the craftsmen producing the prestige articles, the goldsmiths buried with the tools of their craft, enjoyed a high standing in contemporary society (Kunszentmárton, Mezőbánd/Band, Csákerény). The jewellery of the early Avar period includes earrings with pyramidal and spherical pendants, worn by both men and women, silver bracelets with flaring terminals, necklaces strung of colourful glass beads and elaborate neck ornaments with a Byzantine flavour (Deszk, Szegvár).

The high-ranking men wore a kaftan-like coat, their rank indicated by the ornate belt fastened with a magnificent



Fig. 44. Orate belt ornaments from a female burial of the Avar cemetery at Budakalász

buckle. The origins of the Avars' gold, silver or bronze mounted belts with pendent straps can be traced to Byzantine and Iranian influences; this belt type was highly popular on the fringes of the Byzantine empire, among the barbarian peoples of Italy, the Central Danube Basin and the Pontic region. It is hardly surprising therefore that the ornamental repertoire of the shield shaped belt mounts and rounded strap ends (Tree of Life, fishes, birds, palmettes, deer and combinations of dots and lines), as well as their orna-

mental technique (granulation, filigree, stone inlay, chip carving) was drawn from the Mediterranean world. The men kept the flints in small pouches and attached a knife to their belt. Women wore earrings, colourful bead necklaces and bracelets. The use of disc fibulae ornamented with late antique and Germanic motifs indicates a familiarity with contemporary European fashion. The pins found beside the head and on the breast served to fasten a veil or a cloak. Women also had a pouch in which they kept toiletries and cosmetics (tweezers, ear scoops, ointments, herbs) together with the occasional tool (needles, knives, spindle whorls).

Eastern craft traditions can be assumed in the case of saddle-making, certain weapons (bows), wood and bone working and hand-thrown pottery. Traces of iron smelting have been found at Zamárdi and Tarjánpuszta in Transdanubia. Simple vessels were apparently produced on the household level, while good quality, more carefully made wares were

manufactured by specialized potters. The remains of a potters' settlement with a number of pottery kilns have been uncovered at Szekszárd in the Sió valley.

SETTLEMENTS AND SUBSISTENCE

Although the systematic research of Avar settlements was only begun a few decades ago, a number of important advances have been made in this field (Dunaújváros, Kölked, Szekszárd). 3–5 m wide rectangular sunken houses with a gabled roof, as well as economic buildings and storage pits have been uncovered on early Avar settlements. The structure of these houses and their internal division can be reconstructed from the position of the postholes. A total of thirty-nine houses and six open-air ovens were uncovered at Dunaújváros, a settlement dating to the early and middle Avar period, while a hundred and fifty houses were excavated at Kölked.

The long use of these houses is evidenced by the stone or clay domed ovens in one of the corners; similar ovens were often also found in the open areas between the houses. The houses and the settlement itself were enclosed by ditches, serving in part for drainage, in part for preventing the animals from straying away and also for delimiting the area of individual homesteads. The siting of the houses indicates a loose, dispersed settlement adapted to the terrain. The form and structure of the houses, as well as the layout of the settlement remained unchanged during the middle Avar period and corresponded to the Eastern European model. The pottery finds from these settlements include both wheel-turned grey and black table wares and hand-thrown vessels used for cooking, storing and eating (Fig. 45). The high ratio of sheep and pig among the animal bones indicate that the Avar population was not nomadic, but pursued a sedentary lifeway.



Fig. 45. Wheel-turned vessels from the Avar cemetery at Budakalász

THE LATE AVAR PERIOD

(turn of the 7th–8th centuries–811)

Béla Miklós Szőke

HISTORY

The 8th century was a time of slow, peaceful transformation in the history of the Avar khaganate. Lower-ranking dignitaries, the *khatun*, the *yugurrus*, the *tudun*, the *khapkan*, the *tarkhan*, etc., first appear beside the *khagan* at this time, the reflection of a rather stratified, vassal society. There were a few local conflicts with the Bavarians (703, 714) and the Slavic tribes in the Alpine region (around 740), while relations with the Langobards of Italy were essentially friendly. The ascension of Charlemagne brought an end to this peaceful period: the political balance in Western Europe was rapidly disrupted. In the autumn of 791, the Frank ruler turned against the Avar khaganate with the intent of making the Avars, whose fame as a fierce and formidable people had not diminished, subjects of the Carolingian Empire.

The Frank army marched against the khaganate in three columns along the Danube. The Avars' delaying tactics doomed the campaign to failure since Charlemagne neglected to organize his lines of supply. By the time his army arrived to the Rába mouth, the majority of his horses had fallen, his army had been decimated by the lack of food and water, as well as by various plagues, forcing him to turn back without a decisive battle. (One relic of this campaign is the gilt copper chalice ornamented with an engraved interlace pattern and inscribed with the Bavarian goldsmith's name on its nodus – CUNDPALD FECIT – found at Petőháza in 1879.) The campaign against the Avar khaganate nonetheless brought to light the internal problems besetting the kingdom that had until then been successfully concealed from the world. These internal conflicts can be documented among the aristocracy (as reflected by the armed clashes between the khagan and the *yugurrus* in 795 and the *tudun*'s independent foreign policy between 796–803) and among the lower echelons of Avar society (reflected in the flight of the *khapkan* to somewhere “*inter Sabariam et Carnuntum*” to escape the Slavs' enmity in 805) and they would no doubt have eventually led to the disintegration of the khaganate even without the repeated Frankish incursions (795, 796).

By 811 it became clear that the disintegration of the Avar khaganate was irreversible. Charlemagne called the interested parties to Aachen to discuss the new *status quo*. Transdanubia and the Drava–Sava interfluvium were officially incorporated into the Carolingian administration as *Pannonia provincia(e)*, while vassal principalities were created north of the Danube and south of the Sava. The fate of the khaganate's territories east of the Danube is uncertain. Based on two entries in a Byzantine source, the *Suda Lexicon* (*Abaris* and *Bulgaroi*), it is usually assumed that around 803–804 this territory came under the control of Krum, the



Fig. 46. Wooden bucket with iron hoops. *Söjtör*

Transylvanian gold and salt mines came under Bulgar control in the late 820s (Fig. 46).

HISTORY OF RESEARCH

The most typical find of this period is the griffin and tendril ornamented belt set. It is therefore hardly surprising that the history of the research of this period is essentially an account of the many efforts to classify these belt sets. In the 1930s, András Alföldi and Nándor Fettich demonstrated that these cast bronze belt ornaments, formerly regarded as part of the archaeological legacy of the late Roman, Hun or Sarmatian period, could in fact be assigned to the late Avar period. However, there is still no consensus about the absolute chronological boundaries of this period. Some scholars linked the appearance of these late bronze ornaments to the arrival of Kuvrat's sons to the Carpathian Basin in 670, while others dated these finds a good fifty years earlier (620–630), and it has also been suggested that this date lies somewhere around 710–730 (Fig. 47).

The end of this period is similarly uncertain. Scholars in neighbouring countries tend to equate the end of the Avar period with Charlemagne's first expedition (791), while others date the latest finds to the 830s and 840s; still others believe that the Avars lived to see the arrival of the ancient Hungarians (895–900). Gyula László operates with these uncertainties in his “double conquest” theory, according to which Kuvrat's sons and the population arriving with them included



Fig. 47. Strap end decorated with an animal combat scene and a woman riding a griffin from a late Avar belt set. *Budakalász*

Bulgar khan. However, since the lexicon was compiled at a considerably later date than the events themselves, the information contained in these two entries are little more than *topoi* and should hardly be taken at face value. It seems more likely that the Avars created some sort of state that was loosely bound to both the Carolingian Empire and – temporarily – to the Khazar khaganate. Only the territories south of the Maros and the region of the



Fig. 48. Gilt bronze earring with bead pendant from Gyenesdiás

some Hungarian speaking groups – the “white Hungarians” of the Kiev annals – who were followed by their brethren, the “black Hungarians”, a few centuries later.

Many attempts have been made in the past fifty years to classify these cast bronze belt sets, to distinguish chronological groups and to create a reliable internal, relative chronology. However, none of the groupings proposed so far is valid for the entire territory of the Avar khaganate since most of these classifications were not based on a theoretically sound set of criteria, but rather on certain find assemblages – often incorporating unique and individual articles – from one particular cemetery (e.g. Ilona Kovrig’s evaluation of the Alattyán cemetery, Éva Garam’s of the Tiszafüred burial ground and Falko Daim’s of the Leobersdorf graves). The lack of a firm theoretical basis led to a number of inconsistencies even in the typological systems that to a certain extent replicated Western European models and tried to create a typological sequence based on certain mount types of all the then known belt and harness sets that would be valid for the entire Carpathian Basin (Gábor Kiss, Csaba Szalontai, Livia Bende). Other attempts at typological ordering based on mathematical statistics and seriation proved fruitless for the same reason (Peter Stadler, Josef Zábajník). Similar attempts were made for the classification of harness sets (Éva Garam), weapon types (Éva Garam, Attila Kiss), jewellery types (Béla Miklós Szőke) and the fine pottery of the period (Éva Garam, Darina Bialeková) (Fig. 48).

Very little was known about the settlement patterns of the late Avar period until quite recently. The systematic field surveys enabled the reconstruction of settlement patterns for larger areas, while the excavations preceding major construction projects (railroad, motorway and water reservoirs) brought to light extensive settlement remains, often an entire village (for example in the Little Hungarian Plain and the Little Balaton region). The finds from these excavations are dominated by pottery, animal bones and charred grain that allow an insight into the subsistence, the diet and the lifeways of this period.

CEMETERIES AND SOCIETY

No burials of the aristocracy have yet been found and there is similarly little data on the graves of the lower-ranking nobil-



Fig. 49. Man buried with his belt. Jászapáti

ity. The flat commoners’ cemeteries contain many hundreds of graves and they are rarely a continuation of earlier ones. Small burial grounds, containing a few dozen burials became the norm towards the end of the Avar period (Hortobágy–Árkus, Söjtör, Brodski Drenovác). The grave pits and the burial modes show a great diversity: graves pits with a ledge along one side and biritual cemeteries used jointly with Slavic communities, containing both inhumation and cremation

Fig. 50. In situ position of clasps in the grave and the ornaments after restoration. Gyenesdiás





Fig. 51. Mosaic bead. Zalakomár

burials, are quite common on the fringes of the settlement territory in south-western Slovakia, south-western Transdanubia and Transylvania. The pagan custom of providing the deceased with food and drink is reflected by the cattle, sheep, goat, pig and poultry bones found in the graves together with pottery vessels and iron hooped wooden buckets; in certain communities the practice of placing one or more harnessed horses into

the grave of high-ranking individuals also survived. Horses were harnessed with bridles ornamented with metal mounts, a bit with S shaped side-bars, a pair of stirrups with a wide, straight foot plate and, occasionally, a saddle. Warriors wore a belt with at least two, but often up to six pendent straps ornamented with cast bronze fittings (a buckle, mounts, hole guards, large and small strap ends; Fig. 49). The earliest mounts were rectangular and decorated with griffins or, more rarely, with tendrils and geometric patterns. These were followed by wide, shield shaped mounts bearing tendril patterns and, occasionally, the figure of a griffin or some other animal. The latest types are the narrow, shield shaped mounts ornamented with openwork tendril designs, animal figures, scale motifs or engraved and punched palmettes that were fixed to the belt in groups of three. Rounded mounts with tendril, geometric and figural patterns were apparently only used in certain areas of the khaganate. The large strap ends usually bear an animal combat scene or griffins and, later, tendril and palmette patterns. The warriors were bur-

ied with their weapons (bows with bone stiffening plaques, trilateral arrowheads, sabre, lance, battle-axe).

The women wore earrings with a glass pendant and necklaces strung of melon seed shaped and other small beads. The upper garment was fastened with a pair of round clasps (Fig. 50). Plain wire bracelets and fingerings of wire or sheet metal were also quite popular.

By the end of the period, ornamented belts became more rare and new western weapon types appear (the *langsax*, a long single-edged sword, winged spears, socketed barbed arrowheads). Women's jewellery too changed, reflected in the appearance of earrings with beaded pendants echoing western types, wire ornaments, necklaces strung of segmented and mosaic beads (Fig. 51), as well as rings with a shield shaped bezel.

CRAFTS

One major change compared to the earlier Avar period was that the belt mounts, formerly produced from a variety of materials and with various techniques, were now made from cast bronze, while their ornamentation became restricted to a few basic motifs, such as griffin and tendril patterns; the ornamental repertoire too showed a definite tendency toward uniformization throughout the Carpathian Basin. Belt ornaments were mass-produced for the commoners, with the workshops turning out large series of mount types. However, very little is known about the activity of these workshops or their supply areas, the actual range of their products, their contact with other workshops or about the origins of the bronze- and goldsmiths working in them and where they learnt their craft. It seems unlikely that the belt ornaments or the composition of belt sets reflected some sort of 'ideology' as had been previously assumed (Fig. 52). A few belt sets made from precious metal have also been



Fig. 52. Late Avar bronze belt set ornamented in the griffin and tendril style, a knife and a bone disentangler from Zalakomár

found (Hohenberg in Austria, Mikulčice in Slovakia, Mátyásfalva, Kolozsvár/Cluj and Szamosfalva/Someşeni in Romania, Presztovác in Croatia). Some scholars consider these to be direct Byzantine imports, but it seems more likely that they were made by local craftsmen trained in Byzantium who worked for the Avar aristocracy.

The Nagyszentmiklós treasure, a magnificent artistic assemblage of the late Avar period, would deserve a separate chapter. Found in 1799 at Nagyszentmiklós (Sînnicolau Mare in Romania), the treasure consists of twenty-three gold vessels (jugs, bowls, cups, chalices, rhytons, etc.), a set fit for a royal banquet. The earliest pieces were made in the later 7th century, but the complete set was only assembled later. Although successive generations of archaeologists and art historians devoted many studies to its artistic evaluation, as well as to the clarification of the many stylistic traditions and their cultural context (József Hampel, Géza Nagy, Josef Strzygowski, Alois Riegl, Tibor Horváth, Nicolai Mavrodinov, Nándor Fettich and others), it is still unclear when and where its pieces were made and for whom, why it had been buried and whether it wielded a direct or indirect influence on the metal workshops of the khaganate – until these issues are clarified, the association of certain late Avar artefacts with a so-called Nagyszentmiklós horizon is tenuous, to say the least.

SETTLEMENTS

The settlement excavations throughout the Carpathian Basin have brought to light hundreds of settlement features. The settlements in Transdanubia are characterized by rather densely settled sites, while those in the Tisza region tend to have a looser layout, with houses lying 20–50 m from each other and enclosed by ditches (Fig. 53).

Measuring 3 m by 4.5 m, most houses were sunken and had a saddle roof with a stone or clay oven (the former being typical in Transdanubia, the latter in the Great Hungarian Plain). Many of these houses had a wood-lined well, a covered earthen shed or stall (especially in Transdanubia), a covered

Fig. 53. Late Avar house with a stone stove. Lébény–Bille-domb

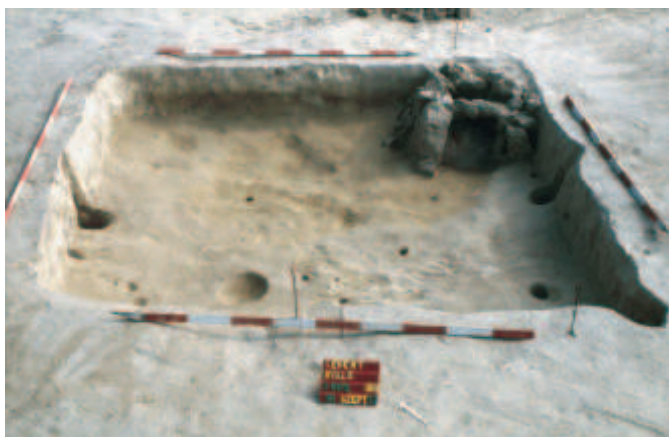


Fig. 54. Baking lid for baking bread and meat or an ember cover from Hunya

storage pit usually also lined with wood, a baking oven set in the side of a larger pit and pits used for a variety of activities, indicating that most of the formerly nomadic Avar communities pursued a sedentary, peasant lifeway. This is also indicated by the iron agricultural tools and implements (iron plough fittings, sickles, scythes, scissors, knives, awls), the household and table pottery, as well as the storage jars (yellow wheel-turned mugs, cups, flasks, a wide range of pots and bowls, grain drying basins, pans, ember covers or baking lids) and various other articles (spindle whorls, loom weights, grinding stones, whetstones). The exact dating of these settlements is often impossible since a reliable typological and chronological sequence for the pottery is still lacking. Most of the settlements can therefore only broadly be dated to the late Avar period (Figs. 54–55).

One controversial issue is whether certain vessel types found in the Danube–Tisza interfluvium and the Great Hungarian Plain (Eperjes, Hunya, Örménykút, Tiszafüred, Veregyház) reflect chronological differences or can be simply ascribed to the different lifeways and cultural contacts of the communities living here. The well-definable distribution of hand-thrown clay cauldrons, the ember covers or baking lids, the high number of storage jars and the distinctive ornamental motifs (stamped grid patterns and Saltovo type incised decoration) suggest that these pottery wares appeared after the disintegration of the late Avar khaganate (Eperjes and Hunya phase). The Slavic settlement at Gergelyugornya in the Upper Tisza region, yielding typical Slav pottery, such as pans and grain

Fig. 55. Short scythe and sickle from the Avar cemetery at Budakalász



drying basins, can be dated to this period, as can the Danubian Bulgar settlements in the Middle Maros region, around Maroskarna/Blandiana (Romania), with their polished black and red pottery.

The finds and observations made on the settlements investigated in the central area of the Avar khaganate have stimulated fresh approaches to the analysis of the settlements on the fringes and the classification of the pottery wares formerly lumped together as 'Slavic' according to form, function, ornamentation and manufacturing technique. The early phase of the hillforts protected with ramparts north of the Danube (Mikulčice, Pobedim) offer a glimpse into the border forts of the late Avar khaganate.

THE CAROLINGIAN PERIOD

(811–896)

Béla Miklós Szőke

HISTORY

The administrative unit (*Pannonia provincia[e], Oriens*) created on the eastern periphery of the Carolingian Empire at the turn of the 8th–9th centuries was reorganized in 828 since the province of *Pannonia Inferior*, lying in the Drava–Sava interfluvium, was wrested from the empire following the rebellion of Ljudevit dux in (819–822) and the Bulgar expansion in its wake (828). Its strategic role was transferred to southern Transdanubia. The area between the Rába and the Sava became the new *Pannonia inferior*, while the areas to its north and west were incorporated into *Pannonia superior*; the Alpine region was divided into four counties (Friaul, Istria, Carinthia and the Krajina). The appearance of the first counties in Pannonia, for example Rathbod and Rihharius' *comitatus* along the Upper Danube and in the Savaria/Szombathely region, as well as Privina's *comitatus* with Mosaburg as its centre in Lower Pannonia, can be roughly dated to this period (Fig. 56).

Missionary activity on the eastern fringes of the Eastern Frank Empire was from the very beginning entrusted to the Bavarian bishopric (as shown by the bishops' conference held in 796): southern Transdanubia between the Rába and the Drava up to the Danube and the Balaton region was assigned to Salzburg, the area to its north to Passau, while the regions farther to the north and west to Regensburg; the area south of the Drava was missionized by the Patriarch of Aquileia.

Of the vassal states established north of the Danube, the Great Moravian Principality under Moimir (c. 830–846), Rastislav (846–870) and Svatopluk (870–894) were constantly at war with the Carolingian Empire. These conflicts were typically early feudal in nature since the price of peace was always the confirmation of the fealty and taxation. The minute that this state of affairs threatened



Fig. 56. Man buried with his sword and the restored sword. Garabonc-Ófalu

to break down, the seigneur – first Louis (II) the German and Arnulf after him – immediately enforced his will and placed the next in line of the Moravian ruling dynasty on the throne. From the mid-century Rastislav repeatedly emerged victorious from these military clashes and, emboldened by his success, he attempted to gain his independence in ecclesiastic matters also, first with Pope Nicholas I's support (855) and, later, with Emperor Michael III's (863). The latter sent Constantine (Cyril) and Methodius to Moravia, who fulfilled their missionary tasks not only there, but also in Pannonia (866). Pope Hadrian II appointed Methodius bishop of Sirmium (870), an early attempt of the papacy to undermine the autonomy of the provincial church. The Salzburgians arrested Methodius and imprisoned him in a monastery; he was only set free some years later, after the conclusion of the Forchheim peace treaty (874) that stipulated that he could only missionize in Moravia. Pannonia again came under Salzburg's control.

The political structures created in the early decades of



Fig. 57. Finds from a male burial of the Carolingian period: spurs, flint, strike-a-light, knife, buckle. *Alsórajka*

the 9th century remained unchanged in the second half of the century. Nowhere did a major new power emerge on the eastern fringes of the empire. The concept of a 'Great Moravian Empire' is an invention of modern historiography, based on the misinterpretation and misrepresentation of an expression, *Megale Moravia*, in Constantine Porphyrogenitus' *De administrando imperio* (c. 13, 38, 40–42).

While there is an abundance of fairly reliable information on the territories under the Carolingian Empire's direct sphere of influence, very little is known about the territories east of the Danube. That the Middle Maros region, the Bácska and the Banat came under Bulgar control is borne out by both the written sources (in 892, Arnulf called on the Bulgars not to transport salt to the Moravians) and the archaeological record. In contrast, the areas north of the Maros are not mentioned in the surviving historical records and neither are there securely dated archaeological finds that would confirm that the Danube–Tisza interfluvium and the southern part of the Great Hungarian Plain was part of 'Greater Moravia' or, for that matter, of the Bulgar khanate.

HISTORY OF RESEARCH

Mosaburg, one of the administrative centres of Pannonia, the seat of Privina and Chozil's *comitatus*, was identified with the Zalavár–Vársziget site in the 19th century, although its systematic investigation was only begun in the 1950s. The excavations begun by Géza Fehér (until 1954) were continued by Ágnes Cs. Sós for over 40 years at Zalavár and its immediate surroundings (until 1992) and are now coordinated by Béla Miklós Szőke. The Lower Zala valley, the broader environment of Mosaburg/Zalavár has also been systematically investigated and a number of settlements and burial grounds have been identified and excavated. The discovery of other sites from this period (mostly cemeteries), was largely accidental, rather than

the result of systematic research (Sopron, Győr, Sárvár, Szombathely and Kaposvár; Fig. 57).

The archaeological investigation of Mosaburg/Zalavár was for a long time coloured by the fact that it shared a number of similarities with the vassal principalities emerging on the ruins of the Avar khaganate (the Old Moravian, Old Croatian and Nyitra Principalities). These were generally regarded as the ancestors of certain modern nations and it is therefore quite understandable that the finds from the hillforts, manor houses, churches, servicing villages and cemeteries were seen as representing the archaeological heritage of the 'state-forming' nation of the given principality. This is why the archaeological finds from the Moravian Basin came to be determined as "Great Moravian", and all the other territories, where finds resembling the Moravian ornaments and other articles came to light, automatically became part of the "Great Moravian Empire". The finds from Zalavár were defined as Slavic – Moravian Slavic – and the site itself was interpreted as a Slavic princely centre in Pannonia. Zalavár thus became the centre of 'Slavic research' in Hungary (Fig. 58). The possibility that these similarities should rather be attributed to a supra-regional and supra-national cultural identity fostered by the Carolingian Empire and that there were no rational grounds for assum-

Fig. 58. Jewellery from a girl's grave. Zalavár–Vársziget, cemetery by St. Mary's Church



ing an ‘independent’ Slav principality in Pannonia was not even considered – as a matter of fact, Charlemagne’s vision of the Carolingian state stood in stark contrast with such a line of development.

No distinctive archaeological assemblages of the Carolingian period, differing markedly from the late Avar and Conquest period finds, have yet been identified in the territories east of the Danube. Knowing that the Hungarian conquest of the Carpathian Basin was not preceded by the arrival of Hungarian groups to this region, this gap could only be filled by dating a part of the late Avar finds to the 9th century. In the lack of a systematic classification of the late Avar assemblages, this remains on the theoretical level.

CEMETERIES

Following the disintegration of the Avar khaganate, the earlier uninhabited marchland – the area between the Wienerwald and the Enns in the west, and between the Zala river and Graz in southwest, as well as the Muraköz region – was gradually occupied by (western) Slavs and ‘Avars’ from the east, and by ‘German’ settlers from the Carolingian Empire. The archaeological and anthropological analyses of the cemeteries uncovered in the past decades indicate that the new counties – including Mosaburg/Zalavár and its environs – were populated by warriors, craftsmen, merchants and other folk in search of a better life, such as Danubian Bulgars, southern (Dalmatian Old Croatian) and western (Moravian) Slavs, Germans (Alemanns, Bavarians) and northern Slavic (Wilz) groups, who added new hues to the already colourful mosaic of the mixed local population, made up of western (Duleb) Slavs and late Avars. This population buried its dead in extensive graveyards – often with a thousand or more burials – around the churches and in smaller burial grounds containing the graves of a few related extended families, lying in pagan sacred groves far from the churches. The latter reflect the survival of pagan customs, such as the deposition of food and drink offerings for the journey to the afterworld (hens, eggs, the occasional pig, sheep or goat, clay vessels, wooden buckets), of partial animal burials (such as cattle skulls, a custom popular in the Upper Danube valley from Tulln in Austria to the Sopron area) and of cremation (as shown by the house of the dead in Alsórajk).

The relatively small élite that emerged by the mid-9th century was buried in the most prominent section of the churchyard cemetery; in accordance with the Christian precepts, they were usually laid to rest with few or no grave goods, although a few articles indicating the rank of the deceased were sometimes deposited into the grave: women were buried with magnificently crafted silver or gold earrings, metal buttons, disc fibulae and fingerings, while men with an ornate spur set. The costume of the commoners was more or less identical. Men wore a belt fastened with a plain iron buckle from which they suspended a wooden sheath

covered with leather in which they kept a wide bladed knife with a fuller and a leather pouch usually containing flints, an iron strike-a-light, a comb and a razor. Each community had its warriors, who were buried with their bow and arrows, a winged lance, an axe, a sword or a long battle knife (the so-called *langsax*) and spurs. Women’s jewellery included a variety of wire ornaments, as well as a pair of cast gilt bronze earrings in the shape of a grape bunch, a pair of plain or glass buttons, necklaces strung of segmented and mosaic beads, as well as bronze fingerings with a shield shaped bezel. A narrow bladed knife with an antler handle was often stuck into their belt. A needle case of iron or bronze and a spindle with the clay spindle-whorl was often also placed into women’s graves.

While the burials of the Carolingian period can be easily distinguished from the preceding period in Transdanubia, the Drava–Sava interfluvium and in the Little Hungarian Plain (the small burial ground uncovered at Bélapátfalva can also be assigned here), there are few criteria for identifying the burials from this age in the Great Hungarian Plain.

SETTLEMENTS

The internal layout of the villages, the houses, storage pits, wells and pits for various activities changed little compared to the preceding late Avar period. In some cases, the presence of certain settlement features, such as baking ovens (Balatonmagyaród–Hídvégpuszta), smithies (Zalasabar–Borjúállás-sziget) or iron furnaces (Nemeskér) suggests that the settlement was populated by servicing peoples. The typical seats of the new aristocracy were modelled on the Carolingian *curtis*: a manor house with a private church enclosed by a palisade (Zalasabar–Borjúállás-sziget, Břeclav–Pohansko in Bohemia, Gars–Thunau in Austria). The next tier in the settlement hierarchy was

Fig. 59. Well lined with wood. Zalavár–Vársziget



Fig. 60. Antler salt-box decorated with a cross and animal figures from Zalavár-Vársziget



represented by genuine urban settlements such as Mosaburg/Zalavár, with its multi-roomed houses set on posts or raised log cabins (15–17 m by 8–10 m) and various, similarly multi-roomed economic buildings. Some storage pits and wells were lined with wooden planks (Fig. 59); other wells and some workshops had a dry walling or a wall of sandstone set into clay.

The *manufatura*-like workshops produced good quality, thin-walled pottery. Beside the earlier ovoid and globular vessels, wide-mouthed pots with a pronounced shoulder and a tapering base ornamented with incised bundles of wavy or straight lines and oblique impressions made with a comb were also produced. Fine wares, table sets changed too: carefully polished jugs, two handled table amphorae, bowls, cups, lids and flasks with golden-brownish hues evoking antique forms make their appearance (Fig. 60).

The settlement finds from the Great Hungarian Plain reflect the onset of the 9th century more markedly than the grave assemblages. Hand-thrown vessels, such as cauldrons, baking lids and certain pots types disappeared by the mid-century (as did stamped ornamentation), to be replaced by wheel-turned pottery that, similarly to the wares in Transdanubia, differed from the pottery of the preceding period (the Örménykút phase) in form, ornamentation and manufacturing technique (reflected, for example, in the use of new tempering agents). Since wheel-turned cauldrons and other wares characterizing the pottery of the ancient Hungarians are not known from this period, its end can be dated no later than the early 10th century.

MOSABURG/ZALAVÁR

In the early 830s Privina, the founder of the Lower Pannonian *comitatus* and its centre at Mosaburg, was banished from Nyitra by the Moravian prince Moimir. Privina made his way to Ratbod, the prefect of the eastern province. He was christened in St. Martin's church in Treisma (Traismauer in Austria) on the orders of Emperor Louis (II) the German and placed in Ratbod's charge. Some sort of conflict arose between them and Privina first fled to the Bulgars with his retinue, then to Prince Ratimar of Siscia, and was eventually given refuge by Count Salacho of the Krajina, who around 838–840

managed to reconcile the two. Louis the German too forgave him and granted him a fiefdom in Lower Pannonia, “where he settled and began building a fortress on an island in the marshes of the Sala river [Zalavár-Vársziget], collecting the peoples around him and becoming a great lord of the country.”

Called variously *Civitas Privinae*, *castrum Chezilonis* and *Mosapurg* in the sources, the settlement flourished between 840 and 900. The southern part of the island, where Privina and his son Chozil lived with their household, was protected by a palisade erected on top of a rampart. The northern part of the island – similarly enclosed by a palisade of durmast oak – was occupied by the ecclesiastic dignitaries under Privina's court priest. The Archbishop of Salzburg and his retinue were given lodgings in this area during his visits. The entire island was fortified with a stone-faced, timber-framed ditch around the end of the century.

Following the construction of his fortified manor house, Privina began the building of a church (*infra munitamen*) that was eventually consecrated on January 24, 850, by Archbishop Liupram of Salzburg (836–859). On Privina's request, Bishop Liupram sent him craftsmen from Salzburg who “built an imposing church” in Privina's town (*infra civitatem Privinae*). Liupram also made sure that the church in which “the martyr Adrianus was laid to

Fig. 61. Aerial photo of St. Adorján's Church. Zalavár-Vársziget





Fig. 62. Finds from the cemetery by St. Adorján's Church. Zalavár-Vársziget

rest" would be suitable "for monks to chant hymns in it." According to the *Conversio*, a church dedicated to St. John the Baptist was also built in the town (*in eadem civitate*). There were an additional sixteen churches outside the town (*foris civitatem*) in Privina's time, and another twelve were built under Chozil until the early 870s, some of which were consecrated by Adalwin, the new archbishop of Salzburg (859–873) (Fig. 61).

Only four of these thirty-one churches were uncovered during the archaeological investigations conducted over the past fifty years. One of these churches is known from a survey prepared by Giulo Turco in 1569. The church of the Benedictine monastery, dedicated to St. Adorján and later transformed into a border fortress, was a three-nave hall church with an apsidal sanctuary. The fact that this church stood in the southern part of the island, where Privina and Chozil had their manor house, and that graves from the 9th century and the Árpáadian Age were found in the churchyard suggest that the forerunner of the Benedictine church dedicated to St. Adorján was St. Mary's Church, built in 850 (Fig. 62).

The remains of a pilgrim church were uncovered by the southern section of the palisade enclosing the northern part of the island. The apsidal sanctuary adjoined a three-nave basilica; the aisles, separated by a row of pillars, adjoined the apse with a straight wall. A spacious *narthex* adjoined the rectangular stair turret and the gallery; a round steeple was built along its western façade. The most unique architectural element was the sunken semicircular corridor leading to the martyr's grave under the altar of the main sanctuary and the wreath of three chapels opening from this corridor. A cemetery of the Carolingian period surrounded the church. The casting pit of a large bell was found beside the

church, together with the clay mould and the workshop where the stained glass windows had been made. Both workshops are unique industrial monuments. The church was no doubt built by Liupram, Bishop of Salzburg, who between 850/54–859(870) also built St. Adorján's Church *infra civitatem Privinae* (Fig. 63).

The third church was found north of Vársziget, on another island called Zalavár-Récéskút; it was the private church of a manor house. The rectangular stone church, measuring 20.5 m by 12 m, had a semicircular apse, a gallery and a quadrangular stair turret. It was transformed into a three-nave church with a row of pillars separating the aisles sometime in the 9th century. The church was built from flat sandstone slabs and Roman stones laid into mortar, with a floor of granite in the naves and terrazzo floors in the apses.

A single nave wooden church with a straight-ended sanctuary and a narthex in its western part was found by the manor house enclosed by a palisade at Zalasabar-Borjúállás-sziget. The foundation of a rood screen was uncovered in front of the apse. The groundplan of the church was outlined by the empty area surrounded by graves and a few larger stone blocks that had originally supported the horizontal wall plate (Fig. 64).

Fig. 63. Capital from Zalavár-Vársziget



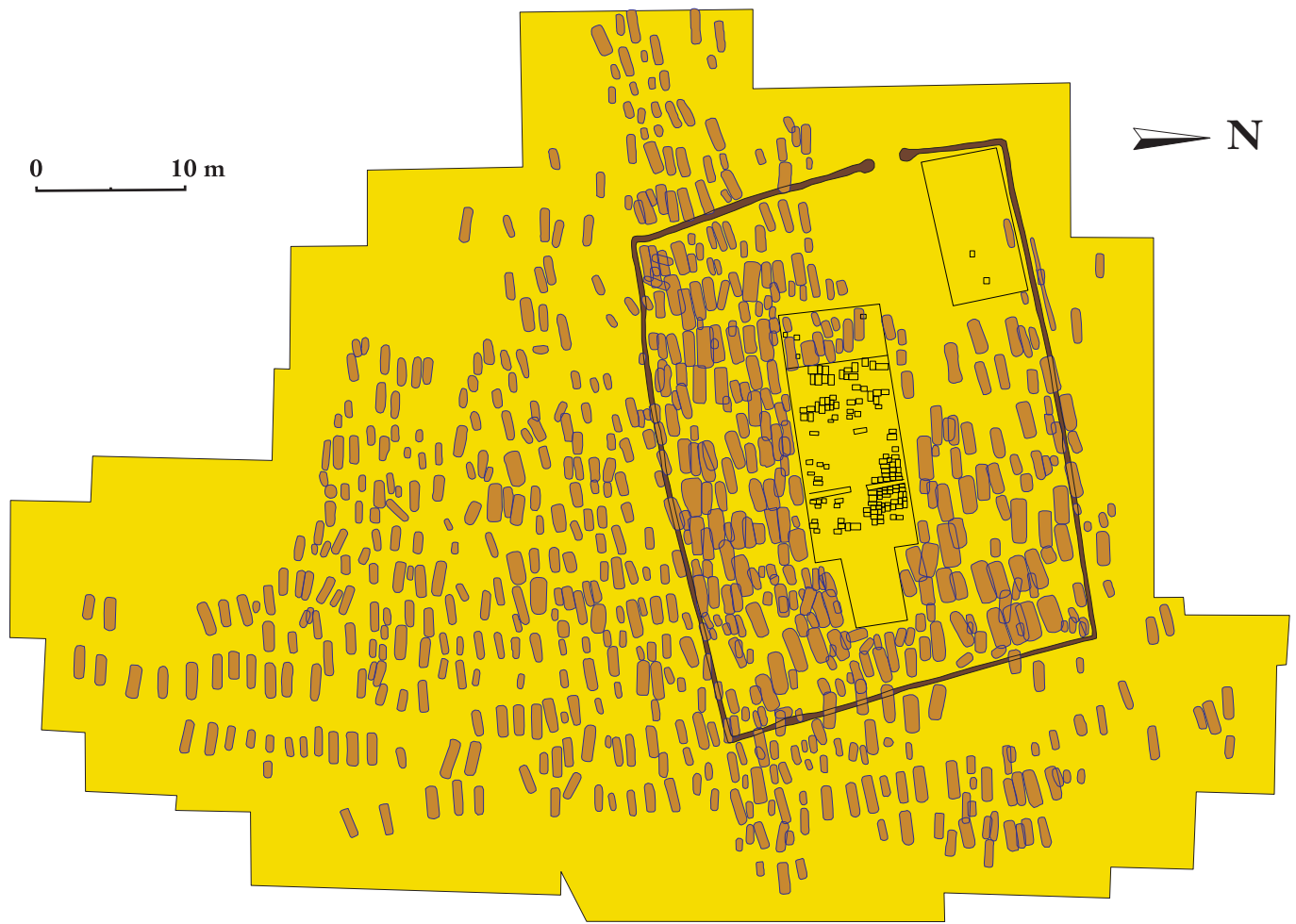


Fig. 64. Carolingian manor house and church. Zalasabar–Borjúállás-sziget

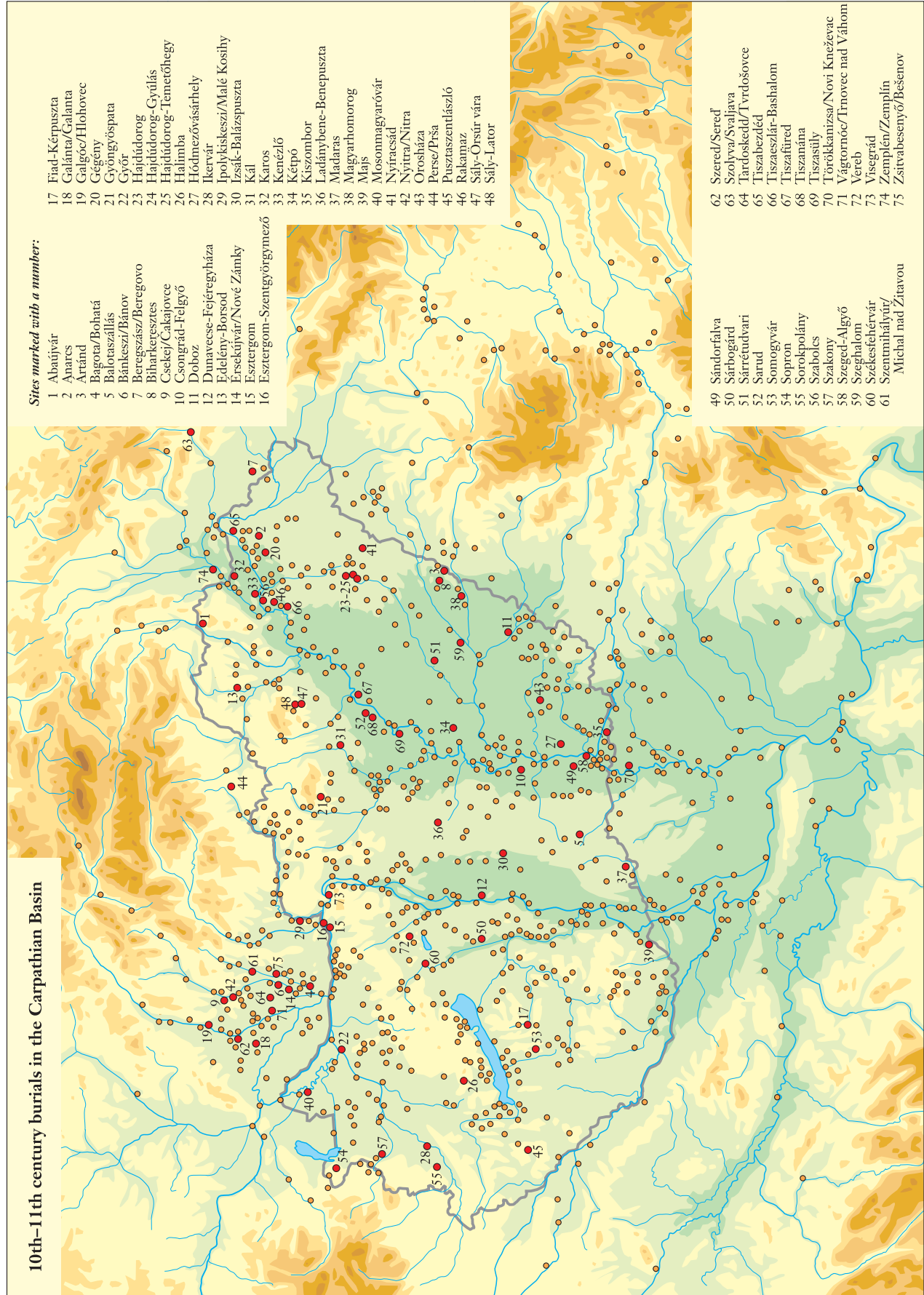
XI. THE CONQUEST PERIOD



10th–11th century burials in the Carpathian Basin

Sites marked with a number:

- 1 Abaújár
- 2 Anarcs
- 3 Ártánd
- 4 Bagota/Bohatá
- 5 Balotaszállás
- 6 Bankeszi/Bánov
- 7 Beregszász/Beregovo
- 8 Biharkeresztes
- 9 Csekej/Cakaiovece
- 10 Csongrád-Felgyő
- 11 Doboz
- 12 Dunavecse-Fejéregyháza
- 13 Edelény-Borsod
- 14 Érsekújvár/Nové Zámky
- 15 Esztergom
- 16 Esztergom-Szentgyörgymező
- 17 Fiad-Képuszta
- 18 Galánta/Galanta
- 19 Galgóc/Hlohovec
- 20 Gégeny
- 21 Gyöngyöspata
- 22 Győr
- 23 Hajdúdorog
- 24 Hajdúdorog-Gyűlás
- 25 Hajdúdorog-Temetőhegy
- 26 Halimba
- 27 Hodmezővásárhely
- 28 Ikervár
- 29 Ipolykiszéki/Malé Koshih
- 30 Izsák-Balázpuszta
- 31 Kal
- 32 Karos
- 33 Kenézlő
- 34 Kétpó
- 35 Kiszombor
- 36 Ladánybence-Benepuszta
- 37 Madaras
- 38 Magyarhomorog
- 39 Majs
- 40 Mosonmagyaróvár
- 41 Nyírácsád
- 42 Nyitra/Nitra
- 43 Orosháza
- 44 Perse/Přisa
- 45 Pusztaszentlászló
- 46 Rakamaz
- 47 Sály-Osúr vára
- 48 Sály-Lator
- 49 Sándorfalva
- 50 Sárbogárd
- 51 Sárrétudvari
- 52 Sarud
- 53 Somogyvár
- 54 Sopron
- 55 Sorokpolány
- 56 Szabolcs
- 57 Szakony
- 58 Szeged-Algyő
- 59 Szeghalom
- 60 Székesfehérvár
- 61 Szentmihályút/
Michal nad Žitavou
- 62 Szered/Sereď
- 63 Szolyva/Svaljava
- 64 Tardoskedd/Tvrdošovec
- 65 Tiszabездé
- 66 Tiszaeszlár-Bashalom
- 67 Tiszafűred
- 68 Tiszanána
- 69 Tiszasilly
- 70 Torókanizsa/Novi Kneževac
- 71 Vágtornóc/Trovec nad Váhom
- 72 Vereb
- 73 Visegrád
- 74 Zemplén/Zemplín
- 75 Zsitvabesenyő/Besenov



THE ARCHAEOLOGICAL RESEARCH OF THE CONQUEST PERIOD

Károly Mesterházy

The Hungarian National Museum was founded in 1802 by Count Ferenc Széchenyi. This date ensured an elegant second place for the museum among the European museal institutions that were not founded by royalty. One of the cores of the museum's collection was Miklós Jankovich's collection, purchased by the Hungarian National Museum in 1832. Jankovich (1772–1846; *Fig. 1*) had collected the antiquities of Hungary since his youth. It is therefore hardly surprising that he acquired the finds from a solitary grave, the burial of a warrior and his horse found by herdsmen at Benepusza. The finds from the grave included harness ornaments and weapons, as well as some thirty to forty coins issued by Berengar, King – and, later, Emperor – of Italy. Jankovich prepared a detailed report of the finds the same year (1834), published in volume II of the *Magyar Tudós Társaság Évkönyvei*. This report in effect laid the foundation for determining the archaeological heritage of the Hungarian Conquest period.

The next similar grave assemblage came to light at Vereb in 1853, although the finds were only published a few years later, in 1858 by János Érdy. The political atmosphere created by the reprisals following the 1848–49 Revolution and War of Independence was not conducive

Fig. 1. Miklós Jankovich (1772–1846)



Fig. 2. Flóris Rómer (1815–1889)

to the emergence of a movement to save antiquities; only after the Compromise of 1867 were spectacular advances made in this respect. New museums and antiquarians' associations were formed for collecting and safeguarding the finds, and a number of archaeological journals were also launched.

The chief *spiritus rector* behind these achievements was Flóris Rómer (1815–1889; *Fig. 2*) who founded two journals, *Archaeologiai Közlemények* (1859) and *Archaeologiai Értesítő* (1869) and he also organized a circle of regular contributors to publish the finds. Rómer can be credited with determining the function of the very first sabretache plate, found at Galgóc. The growing number of finds were published in synthesizing articles: in 1892, for example, Géza Nagy assembled a more or less complete list of the then known graves containing the burial of a warrior with his horse.

The number of graves and finds rose dramatically, in part as a result of industrialization and intensive agricultural activity, and in part owing to the preparations for the celebration of the millennial anniversary of the Hungarian Conquest. Systematic excavations were begun for the recovery of Conquest period finds. Most of the professional archaeologists and enthusiastic laymen were priests and teachers in ecclesiastic institutions, but their ranks also included village and town teachers, civil servants, lawyers, landowners and doctors. The intellectual



Fig. 3. József Hampel (1849–1913)

leaders of Conquest period archaeology all worked in the Hungarian National Museum. One of the most influential scholars among them was Ferenc Pulszky (1814–1897), the then director of the museum, whose ideas decisively shaped the research of this period. Géza Nagy (1855–1915) was primarily interested in the theoretical issues of Conquest period research; many of his observations are still valid today.

One major advance in this field of research was József Hampel's (1849–1913; Fig. 3) typological ordering of the finds and his analysis of their ornamental style. Commissioned by the Hungarian Academy of Sciences, he also wrote the archaeological section of the volume *A magyar honfoglalás kútforrása* [The Sources of the Hungarian Conquest], published for the Millennium, in which he assembled the corpus of 10th–11th century Hungarian graves and cemeteries. In 1905, Hampel published an updated version of this study in German; in 1907, he compiled the catalogue of the finds from the 10th–11th century cemeteries brought to light between 1900 and 1906. The increase in the number of known assemblages was indeed spectacular. Hampel's works projected one particular image of the ancient Hungarians for foreign scholarship. His work received favourable reviews in neighbouring countries, and scholars such as the Czech Josef L. Pic (1847–1911) and his successor, Lubor Niederle (1865–1944) – who was rather popular owing

to his views on Slav nationalism – made use of his data that fitted with their own ideas in their works.

Hampel had the entire museum collection at his fingertips and his opinions were rarely challenged. Many authors simply quoted Hampel's illustrations instead of precisely describing and evaluating their finds. However, his views on the ornamental style of the ancient Hungarians were rejected in favour of Géza Nagy and Julius Strzygowski's opinions, who linked the art of the Conquest period to the artistic traditions of Iran and Central Asia.

World War 1 brought a break in the research of the Conquest period. After the war, the former area of Hungary shrunk to one-third of its original size. The line of research begun by Hampel and Nagy was continued not in Hungary, but in Kolozsvár, where Béla Pósta (1862–1919), who started his career in the Hungarian National Museum, and his students, Márton Roska (1880–1961) and István Kovács (1880–1955) lectured at the university.

They were the pioneers of professional fieldwork, organizing archaeological seminars in which they emphasized the need for making photos and drawings of the excavated graves and, also, of the cemetery itself. They also stressed the importance of interpretations based on the observation of even the tiniest detail and the meticulous analysis of the burials grounds. Pósta was the first to call attention to the find assemblages in the museums of Russia.

After 1920, there emerged two major centres of Conquest period studies. One was in Szeged, to where the Archaeological Institute of the Kolozsvár University had re-

Fig. 4. Fethich Nándor (1900–1971)





Fig. 5. Gyula László (1910–1997)

located after World War 1. The archaeologists working in the Móra Ferenc Museum uncovered a series of Conquest period cemeteries, often as the ‘by-products’ of the excavations conducted on prehistoric and Migration period sites. The other centre was Budapest, where Conquest period studies shifted towards art history. The two most influential scholars of the period came from this circle. As a matter of fact, Nándor Fettich (1900–1971; Fig. 4) essentially continued Hampel’s work. His main strength lay in the detailed description and technical analysis of Conquest period metalwork and in his search for the broader artistic context of this metalwork. He always worked with the original publication of a given find or quoted the relevant entry in the museum acquisitions register. His reconstructions of manufacturing techniques often led to erroneous conclusions – for example, he overrated the influence of nomadic metalwork on the art of the ancient Hungarians during their sojourn in Levedia. Gyula László’s work (1910–1997; Fig. 5) took an entirely different direction. He began his career in the Hungarian National Museum; between 1940–1949 he moved to Kolozsvár, lecturing at Posta’s department, until he was forced to leave. He was eventually given a post in the Archaeological Department of the Eötvös Loránd University in Budapest in 1957, where he remained until his retirement in 1980. Before accepting the university lecturing post, he directed

the Medieval Department of the Hungarian National Museum. László tried to reconstruct the original artefact from each archaeological find: saddles, bows, quivers, bow-cases, male and female costume, horse harness, as well as how these artefacts had been made by the one-time goldsmiths, saddlers, smiths and potters. Drawing copiously from ethnographic analogies, he also tried to reconstruct the life and beliefs of the ancient Hungarians. His reconstructions were not always received favourably, especially among his contemporaries. László was an excellent speaker; his lucid style and eloquence made his books and lectures extremely popular. Gyula László was the last in a generation of scholars, who viewed the archaeological heritage of the Conquest period through the prism of the warriors buried with their horse.

In the decades after World War 2, the study of the Conquest period was regarded as a form of nationalism. Instead, the research of the life and archaeological remains of the Slavs and the ‘working people’ became a compulsory exercise. The excavation of the Kérpusztá cemetery (1950–51) and of the Halimba cemetery (1952–54) was conducted under this ‘ideological banner’.

Béla Szőke’s (1913–1961; Fig. 6) study on the Bjelobrdó culture (1959) and, some time later, his monograph on the same subject (1962) opened a new chapter in Conquest period archaeology. In Szőke’s interpretation the society of the ancient Hungarians was made up of a leading élite, a middle

Fig. 6. Béla Szőke (1913–1961)





Fig. 7. Anton Točík (1918–1994)

class and a mass of commoners. The latter could only be identified with the population of the cemeteries that had until then been regarded as Slavs since there was no other mass of commoners in the Tisza region. This novel approach was greatly influenced by Zdenek Vaňa's 1954 study, in which he argued for the eastern origin of many 10th–11th century finds and noted that these 'eastern' artefacts had appeared together with the ancient Hungarians. Alán Kralovánszky (1929–1993) proved that the most dense concentration of S terminalled lockrings were to be found in those areas of the Tisza region that had been settled by the ancient Hungarians, the obvious conclusion being that this article could hardly be regarded as an ethnic marker of the Slavs. György Györffy provided a historian's view of the cemeteries in the Upper Tisza region (the Kabars in the princely retinue). Together with a typology of cemetery types, Szőke also offered a detailed analysis of the find types from the commoners' cemeteries, proving that their majority was of eastern origin and that their appearance in the Carpathian Basin could be linked to the arrival of the ancient Hungarians. Anton Točík

(1918–1994; Fig. 7), one of the doyens of Slovak archaeology, too spoke with admiration of Szőke's findings and confirmed his major findings with the assemblages from various Slovak cemeteries.

A new generation of archaeologists appeared in the 1960s, many of whom were Gyula László's students from before 1957. The students who had graduated before 1957 outnumbered the preceding generation, not to speak of the graduates who started their archaeological career after 1960. Many of them remained committed to the old research techniques and agendas. István Dienes (1929–1995; Fig. 8) devoted his scholarly efforts to the study of the aristocracy and the middle class, to the ancient Hungarian in the 'old' sense and in this field he made a lasting contribution to Conquest period archaeology (ceremonial belts, sabretache plates, horse harness). He also wrote a number of studies on the art and beliefs of the ancient Hungarians, as well as on the settlement patterns of this period. His book on the Conquest period, published in 1972, remains unsurpassed even in the light of more recent publications, including the spate of books that appeared on the occasion of the 1100th anniversary of the Hungarian Conquest (the reason being that most publishers commissioned collections of studies on a particular subject). János Győző Szabó (1929–1986) worked in Heves county for most of his life; the research of settlement history and settlement patterns

Fig. 8. István Dienes (1929–1995)



figures prominently in his work (the Sarud area, Gyöngyöspata and a general description of Heves county). In contrast to Dienes, he tried to strike a balance between a broad range of research themes and many periods, sometimes with little success. Both Dienes and Szabó hoped to present the finds from their excavations in the successive volumes of the *Corpus of Conquest Period Finds*, a series whose publication was planned since 1966; however, this was denied to both of them. They left a rich legacy. Alán Kralovánszky's oeuvre too remained a torso. Together with Kinga Éry, he finished the gazetteer begun by Géza Fehér (1962), but he was unable to complete his investigation of the royal centres. Elvira H. Tóth's excavations too were left to her successor, Attila Horváth.

This generation of archaeologists also explored settlements in their research of the past. The research technique introduced by István Méri (1911–1976) in the 1950s was perfected by his students. His excavation of a 10th century settlement at Visegrád was continued by Júlia Kovalovszki. The Conquest period village at Doboz dates from roughly the same period. Gyula László too excavated a village from the Conquest period at Csongrád–Felgyő, although he left the evaluation of the finds to his students. A number of 10th century settlements have since been investigated (e.g. Sálylator, Esztergom–Szentgyörgymező); the observations and finds made at these sites have greatly enriched our knowledge of the ancient Hungarians' lifeways.

The generation beginning its career after 1962 tended to specialize in a particular field of Conquest period studies. They usually chose their excavation sites with the aim of solving a specific problem. Studies on settlement history and settlement patterns too became important research themes. Beside a number of smaller cemetery sections, Attila Kiss (1939–1999) excavated a large commoners' burial ground at Majs, whose finds were published in 1983. He also wrote an outline of the Conquest period settlement history of Baranya county. Kornél Bakay contributed to a better understanding of the early history of Székesfehérvár by re-publishing the Conquest period cemeteries in the area. His excavations in the Ipoly valley clarified a number of problems in that region. Similar investigations were conducted in Hajdú-Bihar county (Károly Mesterházy), in the Szeged area (Béla Kürti), in Budapest (Katalin Melis), in Szabolcs and Veszprém counties (Péter Németh and Ágota Perémi). The finds from Transylvania, the Partium and the Banat were reviewed by István Bóna in a volume on the history of Transylvania.

The excavation of cemeteries continued, together with the publication of their finds, although the latter proceeded at a considerably slower pace. The number of unpublished new graves totals between six to eight thousand; the published ones include the burial grounds in Baranya county and the cemeteries of Sorokpolány and Ikervár, whose finds were published in a volume on Vas county. The three cemeteries at Karos, the burial grounds at Szabolcs–Váralja and Pusztaszentlászló were described and evaluated in three separate

volumes. Sadly enough, an important publication offering an overview of the assemblages from southeast Hungary only included a selection of the finds from this region (Csanád Bálint). A number of cemeteries from Slovakia were published by Maria Rejholcová (Csekej, Érsekújvár, Bagota), Gabriel Fusek (Nyitra), Milan Hanuliák (Ipolykiskeszi), Gábor Nevizánsky (Zsitvabesenyő), and Anton Točík (Szentmihályúr, Tardoskedd, Tarnóc, Galánta, etc.), who also published the graves with horse burials from Szered, Perse, Vörösvár, Bánkeszi and other sites.

A series of studies were devoted to the distribution and the chronology of individual articles, as well as their possible reconstruction. The ancient Hungarians brought with them a number of eastern artefact types, such as saddles (Csanád Bálint, László Révész, Károly Mesterházy, Elvira H. Tóth), earrings with globular pendants (Attila Kiss, László Révész), lyre shaped buckles (László Révész), rosette shaped harness ornaments (Károly Mesterházy, László Révész), sabretache plates (László Révész, Elvira H. Tóth, István Erdélyi, János Győző Szabó), quivers and bow cases (László Révész, Károly Mesterházy, István Dienes), pottery wares (Károly Mesterházy, István Fodor, Judit Kvassay, Miklós Takács), ceremonial belts (István Dienes, László Révész), stirrups, bits (István Dienes, László Kovács) and various weapons (László Kovács). Certain jewellery types, such as S terminalled lock-rings (Károly Mesterházy, János Győző Szabó, István Bóna, László Kovács), as well as neckrings and bracelets (János Győző Szabó, László Kovács, Géza Fehér) were also discussed in separate studies.

A number of monographs were devoted to the coin finds (László Kovács) and to the overall chronology of the period. A spate of studies discussed the earthen forts (István Bóna) and the society of the ancient Hungarians (Károly Mesterházy, István Fodor, István Bóna), as well as the import finds and the trade relations of the period (Károly Mesterházy, Csanád Bálint). Burial customs (Csanád Bálint, Sarolta Tetamanti, László Kovács, Milan Hanuliák), and the art and beliefs of the ancient Hungarians (Csanád Bálint, István Fodor, Károly Mesterházy) continue to hold the fascination of many scholars.

The catalogue prepared for the exhibition commemorating the 1100th anniversary of the Hungarian Conquest, the studies in the four volumes of *A honfoglalásról sok szemmel* [Aspects of the Conquest period] and the series of studies published elsewhere provide an accurate picture of the current state of research. A number of foreign scholars (Jochen Giesler, Mechthild Schulze-Dörrlamm, Svetlana A. Pletnyeva, Andrzej Koperski) have also made valuable contributions to Conquest period studies. Their work and the exhibitions organized in various foreign museums are essential for bringing Conquest period archaeology into the mainstream of international research.

László Révész's excavation and publication of the Karos cemeteries represent a milestone in the research of the Conquest period, as do István Bóna's studies and the countless new essays on the culture of the ancient Hungarians.



Fig. 9. Log cabin in the earthen fort at Edelény-Borsod during excavation

10TH–11TH CENTURY SETTLEMENTS

Mária Wolf

The investigation of medieval settlements began much later than that of cemeteries. The recognition of 10th–11th century rural settlements for what they were was for a long time impeded by the prevailing historical view that the ancient Hungarians of the Conquest period were a nomadic people and that their oft-changing campsites could hardly have left a trace in the archaeological record. The systematic investigation of medieval villages and rural settlements, including the ones from the 10th–11th centuries, was begun in the 1950s. The growing number of investigated sites allow the reconstruction of the internal layout of these rural settlements, as well of their houses and other buildings, the setting of the everyday life of the ancient Hungarians.

The most common settlement features found on these settlements are sunken houses measuring 2–3 m by 3–4 m, usually rectangular or quadrangular in plan with rounded corners. Their walls were in part comprised of the pit wall and in part of a wattling of twigs daubed with clay. Roofs

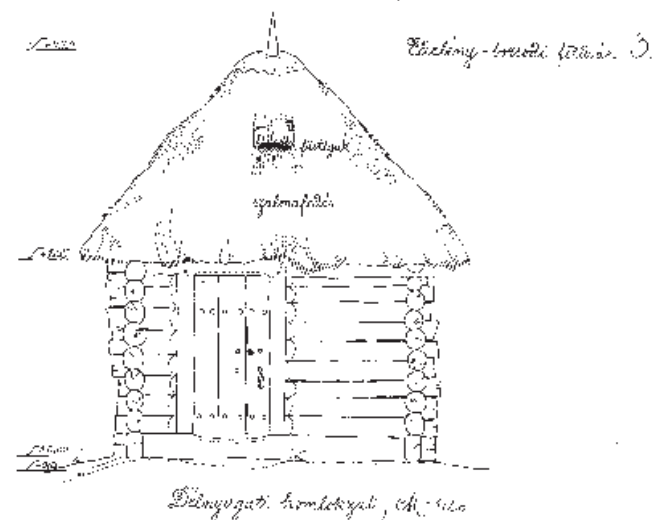
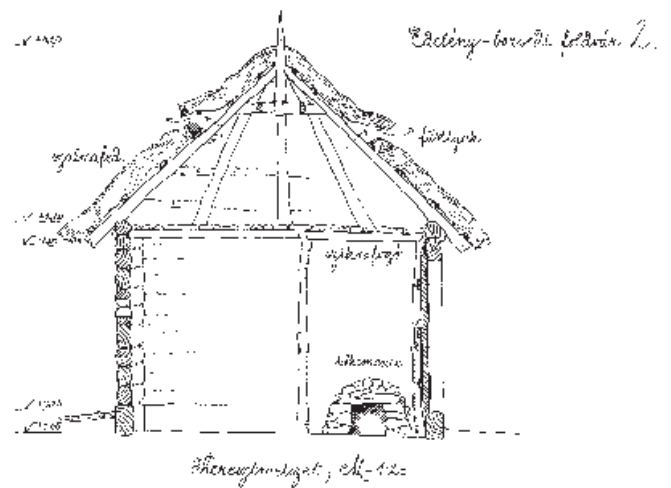
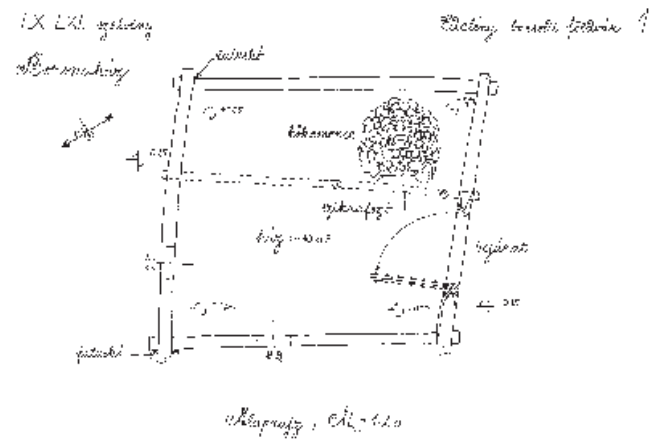


Fig. 10. Reconstruction of a log cabin from the earthen fort at Edelény-Borsod (ground-plan, cross-section and south-western facade)

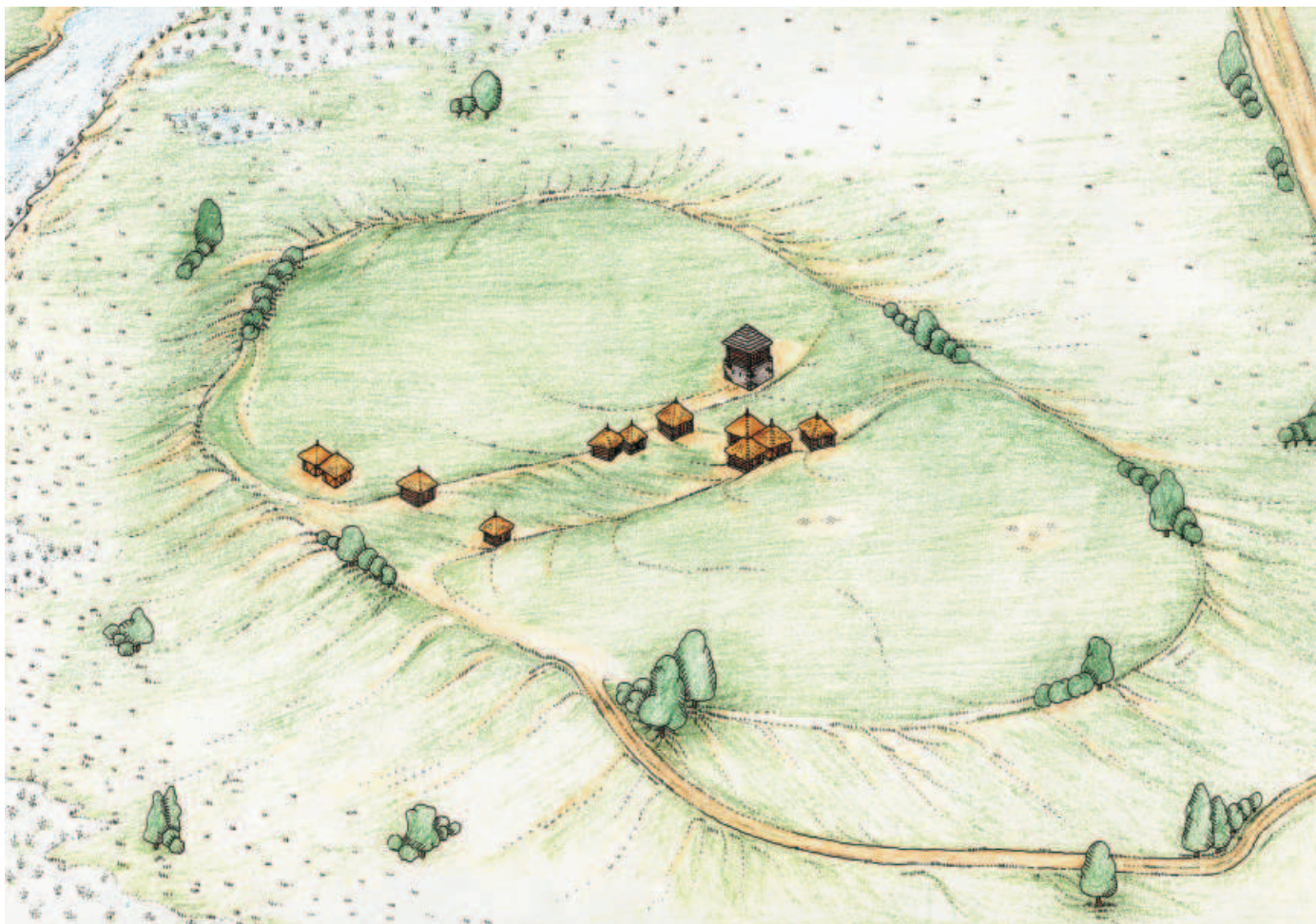


Fig. 11. 10th century settlement at the earthen fort of Edelény-Borsod

were generally gabled, supported by two or, less frequently, three purlins. Remains of a somewhat different roof structure were also found. Roofs were most often covered with reeds and thatching.

The entrance to these houses was generally a sloping ramp, although sometimes a few steps led into the house. Ovens, built of stone or clay, usually faced the entrance, but were occasionally positioned right beside the entrance. These ovens were used both for baking and heating. The ovens were not provided with a chimney and the smoke left through the door and openings in the roof. House floors were seldom plastered. The remains of the one-time furnishings are rarely found on the extremely eroded floors. Oval and round sunken huts have also been found, although they are more rare than rectangular houses.

There is increasing evidence that in addition to these sunken houses, various above-ground buildings were also a standard feature of 10th–11th century settlements (Fig. 9). The remains of log cabins were found during the excavation of the settlement in the Borsod earthen fort (Fig. 10). This village is the largest 10th century rural settlement known to date. A total of eleven such houses were uncovered. These were roughly the same size as the sunken buildings and each

had a small stone oven on the carefully plastered floor. A larger building with a foundation of stones set into clay was also unearthed at this site. This building measured 5 m by 5 m; its 0.8 m thick foundation walls suggest that the upper part was constructed of wood. It seems likely that this building functioned as the house of the community leader or a dignitary during the 10th century (Fig. 11).

Tents were undoubtedly also a part of the settlement landscape of the period. Travelling through Hungary in the early 12th century, Bishop Otto of Freising personally observed the use of such tents. His description is borne out by recent ethnographic research, according to which semi-nomadic groups, on the threshold of sedentism, often pitch their tents in the yard of their house.

Another common settlement feature is the open-air, round or horseshoe shaped clay oven, built near the houses. They usually have a diameter of 1 m and are associated with various round or oval pits that were covered with some sort of roofing. From early spring to late autumn, rural life was conducted around these ovens and in the tents. These ovens were used for baking, smoking and grain roasting (Fig. 12).

Most medieval settlements are honeycombed with pits of



varying sizes. Some of these were used for storing grain and other foodstuffs.

Ditches seem to have been a constant feature of these rural settlements. Some of these ditches no doubt enclosed animal pens, while others perhaps separated the various areas of the settlement and served as fences or were part of a drainage system.

Wells, metal and iron workshops, as well as a few pottery kilns have been found on some settlements.

Most villages of the Conquest period were quite extensive, with the houses scattered over the settlement without any apparent organization. In some places, such as the village uncovered in the Borsod earthen fort, the houses were arranged along regular streets. Smaller hamlets and farmsteads with no more than a few buildings have also been found.

EARTHEN FORTS

Mária Wolf

The investigation of earthen forts in Hungary began around the turn of the 17th–18th centuries, when the first military maps were drawn up. It was military engineers who first took note of the various ramparts and earthen

Fig. 12. Open-air oven. Karos–Tobolyka

Fig. 13. The earthen fort at Szabolcs





Fig. 14. Wooden structure of the rampart and the excavation of the rampart. Edelény-Borsod

forts. The more or less systematic investigation of earthen forts began in the early 19th century and, in accordance with the Romantic view of history of the age, their construction was alternately ascribed to the Huns, the Avars and the Romans. The possibility that these earthen forts might be associated with the ancient Hungarians was not even considered since the ancient Hungarians were believed to have been nomads.

The first excavation of earthen fort was carried out in the 1870s, when the Szabolcs earthen fort, one of the best preserved and most impressive earthen forts, was investigated (Fig. 13). The year of the millennium, 1896, provided an excellent opportunity for stocktaking. Even though many studies were written about the Hungarian Conquest period, as well as about the foundation of the medieval state and the network of royal counties created by King St. Stephen, the seats of these royal counties were not associated with these earthen forts, not even with the ones those mentioned in charters.

The systematic investigation of 9th–10th century earthen forts only began after World War 2, mostly in areas such as Transylvania, that lay beyond the modern borders

of Hungary. However, a realistic evaluation of the archaeological record was virtually ruled out by an adherence to the Romantic view of national prehistory (as reflected in the theories of Daco-Romanian and Moravian-Slovak continuity), as well as by the treatment of Anonymous' 13th century poetic *Gesta* as a reliable historical work.

One major advance in the research into early medieval earthen forts was György Györffy's seminal study on the royal counties created by King St. Stephen. Györffy argued that the seats of the counties lay in the earthen forts, some of which had no doubt also been the seats of high-ranking clan leaders. He believed that some forts had been constructed as early as the 10th century. He also noted that these forts had lost their importance by the mid-13th century, as shown by the fact that they provided no serious protection at the time of the Mongolian invasion (1241–42).

A research project for the investigation of the earthen forts of the Conquest period and the early Árpadian Age was launched in the late 1960s. The sites investigated as part of this project included Szabolcs, Abaújtörő and Borsod, Somogyvár and Visegrád; smaller excavations were con-

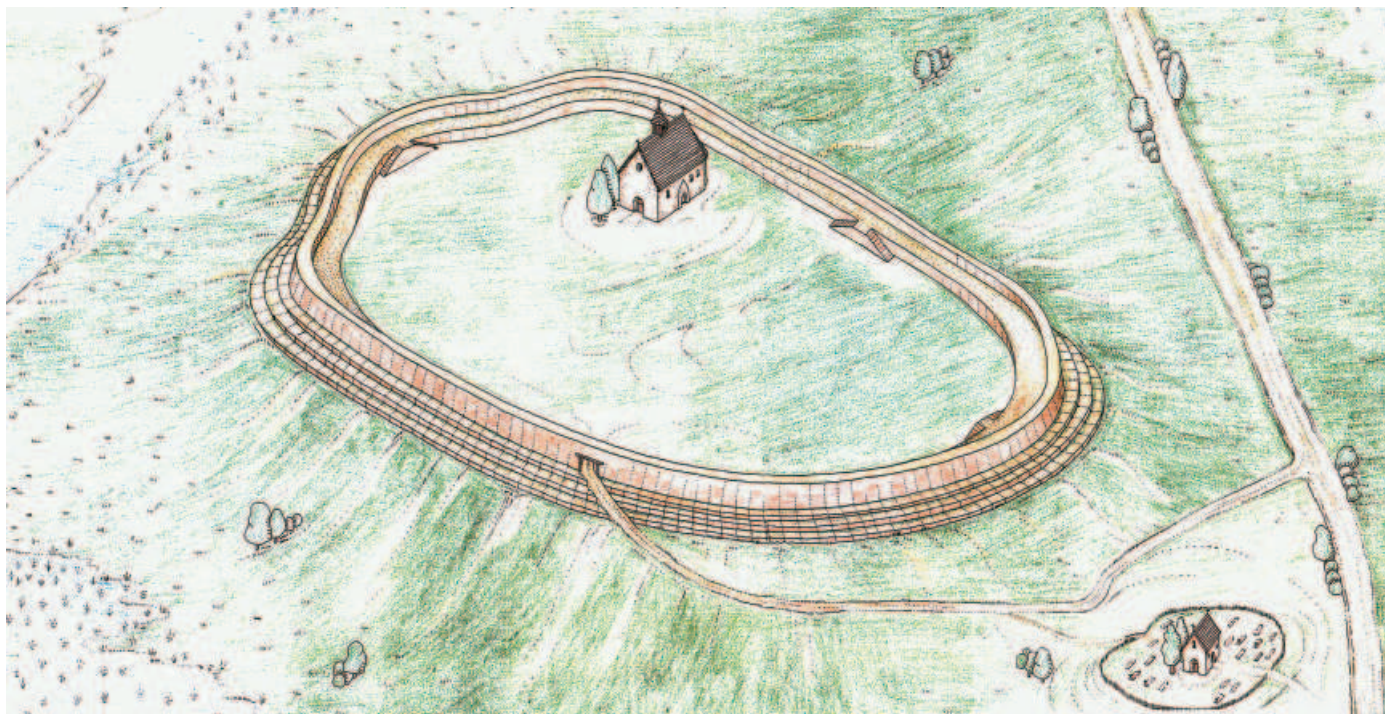


Fig. 15. Reconstruction of the earthen fort at Borsod

ducted in Sopron, Moson and Győr. These excavations greatly enriched our knowledge of the construction technique of the ramparts enclosing these forts. Most had a wooden framework and some ramparts were reinforced with stones. Many of these ramparts consisted partly or wholly of burnt, red coloured earth; it is still unclear whether this was the result of an accidental fire or intentional burning. On some sites, the rampart was surmounted by a wooden palisade (Fig. 14).

The forts built using this technique cannot be regarded as genuine earthen forts, and recent research has also noted that the label 'earthen fort' is rather misleading. In their heyday, these forts were known as *castrum* or *civitas*, regardless of their construction material, or by their Hungarian name, *vár* ('fort', 'castle'). The term *castrum terrenum* ('earthen fort') was in fact used to denote earthen forts that had fallen into decay (Fig. 15).

Very little research has been carried out in the internal area of these earthen forts, this being one of the reasons that none of the buildings mentioned in the written sources have yet been identified. Contemporary charters mention a variety of buildings – such as granaries and prisons – inside these forts. It also seems likely that these earthen forts housed the *ispán's* residence. The remains of early churches that played a vital role in the conversion of the ancient Hungarians to Christianity have been found on some sites. These churches also functioned as the seats of the deans directing ecclesiastic life in the counties.

Finds from the 10th century and settlements from this period were also uncovered during the investigation of these forts. At Borsod, an entire 10th century village was ex-

cavated. However, these are not related to the forts constructed during the 11th century, after the foundation of the Hungarian state. The archaeological and historical record does not support the claims that stone forts or castles had been built in the 10th century. Neither the expansive policy of the Hungarian princes in the 10th century, nor the lifeways, the social and economic institutions of the ancient Hungarians called for the construction of earthen forts in this period. In fact, there is little evidence for similar constructions in contemporary Europe. The construction of timber and earth forts in Europe can in part be seen as a response to the Hungarian and Norman raids.

There is evidence that the construction of forts and castles only began in the 11th century. These forts and castles show a remarkable uniformity in terms of their construction technique. Their distribution too shows a consistent pattern, suggesting that their building may be associated with the political power of the medieval Hungarian state created by King St. Stephen and that they functioned as the seats of the counties created by King St. Stephen.

In addition to the ones functioning as county seats, a sizable number of other earthen forts were also constructed using similar building techniques. Most of these, such as Gyöngyöspata and Sály-Örsúr vára, are not mentioned in the written sources. Their construction date and role can only be determined from the finds recovered during their excavation. It seems likely that these were the seats of a wealthier family and that they also played an important role in the economy.

The forts described in the above were typical for the 11th–12th centuries. A new type, the so-called *motte* fort,

appeared in the 12th century. These forts were relatively small and were built on an artificial mound. They usually had a single building and were protected by a ditch and a palisade. Little is known about the builders of these forts; it seems likely that they were the centres of a family's estate.

The number of stone forts and castles increased from the mid-13th century. It was earlier assumed that these replaced the former earthen forts. However, the investigation of *ispán*'s castles has shown that this was not the case since the archaeological record indicates that the various types co-existed side-by-side. The choice of construction material was determined by the financial means of the builder, as well as by the intended function of the fort or castle. A number of the 11th century forts had indeed been abandoned by the late 13th century, the reason perhaps being that they no longer fulfilled their original socio-economic role.

CRAFTS

Mária Wolf

The material culture of the ancient Hungarians of the 10th–11th centuries was very rich. Most artefacts reflect the high technical skills of the one-time craftsmen. A great degree of specialization can be noted in the craft industries; the surviving relics testify to an excellent craftsmanship and a good artistic taste.

The finds from 10th–11th century settlements are dominated by pottery wares and their fragments. Few pottery workshops or pottery kilns have been found to date. The study of the surviving pottery finds nonetheless allows a glimpse into the manufacturing techniques of Conquest period pottery. Clay was tempered with sand or small pebbles, and the potters fired the vessels to a grey or red colour. The vessels were shaped on a slow wheel. Clay coils were built up into the desired vessel form while slowly turning the potter's wheel. Most of the vessels made using this technique have an asymmetrical body. They were ornamented with incised bundles of straight or wavy lines produced using a toothed, comb-like tool. Various signs can often be observed on the base of the vessels: these were either potters' marks or perhaps signs endowed with a magical meaning.

Pottery kilns were rather small: their stoke-pit was separated from the kiln-room with a grid. A relatively low temperature could be ensured in these kilns and the vessels were not fired perfectly. The 10th–11th century potters worked on the general technical level of their age. They were not acquainted with heat resistant clay that could be fired to a white colour or with the technique of glazing, or with the foot-driven potter's wheel. Their products included pots in various sizes, cauldrons, flasks, bowls, large storage jars, oil lamps and spindle whorls for spinning.

Two new vessel types appeared in the Carpathian Ba-

sin with the arrival of the ancient Hungarians. The clay cauldrons and the vessels with a ribbed neck were brought to the Carpathian Basin from the earlier eastern homeland.

Iron artefacts are found more rarely; most have been recovered from burials. This is hardly surprising since the production of iron articles was a costly process and iron was a fairly valuable commodity throughout the Middle Ages. Broken artefacts were carefully collected and re-used. Intact iron tools and implements are found only on settlements that had been suddenly abandoned by their occupants owing to some calamity. In contrast, the most important tools and weapons were placed into grave since according to the beliefs of the ancient Hungarians, these would be needed in the afterworld. As a result, the weapons of the 10th–11th century were – until fairly recently – much better known than the tools and implements used in daily life. Recent excavations have brought to light not only the fear-inspiring arrowheads of the ancient Hungarians, but a range of iron artefacts, from agricultural tools to simple needles, all of which offer an insight into the work of Conquest period ironsmiths, as well as into process of iron ore mining and processing.

The iron workshops, the smelting settlements usually lay far from the villages, near the ore deposits (*Fig. 16*). These smelting settlements show a concentration in western Hungary, mainly in the Sopron area, although furnaces in which bog iron was processed have been found in other areas as well.

The furnaces in western Hungary were roughly 70 cm high clay or stone open-air structures. Their bowl had a diameter of 30–40 cm and a fairly high temperature could

Fig. 16. Sunken smelting furnace. Trizs–Vörössár





Fig. 17. Sunken smelting furnace. Trizs-Vörössár

be attained in them owing to the front wall that separated the firing area. The slag flowed out from these furnaces. A iron bloom was obtained after some 24 hours of bel-
lowing and since this bloom still had a rather high slag content, it was heated and hammered to make it suitable for the manufacture of various tools, implements and armaments (*Fig. 17*).

In northwestern Hungary most furnaces were found in sunken workshops. The furnace itself was usually set into one side of the workshop pit. These pear shaped furnaces were 70 cm high and their bowl had a diameter of 30–40 cm. This furnace type did not have a front wall and the iron bloom was of an inferior quality.

It seems likely the iron industry was centrally organized in Hungary. A passage recording the ancient Hungarians' 899–900 campaign against Italy mentions that before going to war, they worked all winter on producing their arms and arrows.

Smiths were highly esteemed members of contemporary society as shown by the mythical smiths of Hungarian folk tales.

The goldsmiths' work is known mostly from the magnificent princely burials of the 10th century. The jewellery, dress ornaments, weapons and insignia of rank recovered from these graves reflect a high level of craftsmanship and a rather uniform artistic style. The gold, silver and bronze articles are all ornamented with motifs taken from an ultimately eastern artistic repertoire. The basic motif was the palmette, woven into 'infinite' scrollwork patterns, often together with various mythical creatures, animals and other plants. Most of this sophisticated metalwork was made from silver, only the background of the ornamental pattern was

gilded. The art of the Conquest period is often called silver art for this reason. A few richly furnished graves, however, also contained gold articles. The gold and silver used for the creation of this magnificent metalwork came from the booty from the various military expeditions. The first mention of gold mining comes from the late 11th century. Unfortunately, no goldsmiths' tools have yet been found in Hungary.

Another important group of finds in the 10th–11th century archaeological heritage of the ancient Hungarians is made up of bone artefacts. Bone played an important role in the manufacture of bows, the warriors' fearsome weapon. Bone was also used for making small toggles used in the horse harness, as well as for the sidebar of bits. Quivers and bow cases often had a richly carved bone plaque lid. The bone plaques ornamenting the saddle enabled the reconstruction of these saddles. Although the wooden saddle itself decayed, the bone plaques riveted to the pommel and the cantle preserved their form. Bone was freely available and it seems likely that many bone articles were made on the household level. This is borne out by the discarded bone sidebars for horse bits that had broken during carving, found on 10th century settlements. The bone articles were ornamented in the same style as the metalwork of this period.

It seems likely that decorative motifs taken from the same stylistic repertoire adorned the articles made from perishable material. The finds recovered from excavations present a rather incomplete picture since only metal, bone and clay articles survived the centuries, while artefacts of wood, bark and leather perished, similarly to the felt tents and their magnificent carpets, as well as the much admired colourful costume of the ancient Hungarians.

THE ART AND RELIGION OF THE ANCIENT HUNGARIANS

István Fodor

There is only indirect evidence for the belief of the ancient Hungarians. The laws of the first Hungarian kings mention sacrifices made in secret at wells, springs and other sacred pagan places – unfortunately, the exact nature of these sacrifices is not described. Vilmos Diószegi, the renowned ethnographer collected the surviving relics of the ancestral pre-Christian beliefs that survived the centuries. The ancient Hungarians' beliefs, resembling to some extent the shamanism of the Siberian and Inner Asian peoples, can in part be reconstructed from these.

Shamanism was not a dogmatic religion: it was made up of a myriad of beliefs and superstitions, and in later periods it also incorporated many elements of the world religions. Its core, however, was a remarkably uniform 'world-view', according to which the world is divided into three main levels: an upper one, where the gods and various spirits reside, a middle one that is identical with our world, and a lower one, the abode of malevolent, evil spirits. These three levels are connected by the World Tree. Only individuals with exceptional capabilities can penetrate the upper and the lower worlds, either to win the goodwill of the gods or to drive away evil spirits. The Hungarian language has preserved the name of these exceptional men (*táltos*), while the World Tree or the Tree of Life survives in many Hungarian folk tales.

The roots of shamanism go back to the Neolithic; the original beliefs obviously changed during the ensuing millennia. Gyula László and István Dienes have repeatedly emphasized that the shamanistic beliefs of the ancient Hungarians should not be equated with the shamanism of the Siberian peoples, who remained on a more rudimentary level of clan society. The Hungarian vocabulary preserving the pre-Conquest period beliefs is so rich that, in Gyula László's words, "the entire Bible could have been translated using them." Indeed, social development had already reached the threshold of statehood well before the ancient Hungarians' arrival to the Carpathian Basin. A semi-nomadic state, the so-called dual kingship, had already evolved in Levedia under Khazar influence, with a sacral ruler called the *kende* and a secular vice-ruler called the *gyula*. The beliefs of the ancient Hungarians obviously had much in common with those of the Khazars, the Turks and the Uighurs, who had a roughly similar society. In the latter states the supreme god was Tengri, Lord of the Sky, who governed the world – the khagan of divine origin wielded power in this world by his grace. The sacral king governed not only the earthly kingdom, but was also the highest dignitary of religious life, who performed his task with high-ranking shamans living in the royal court (the 'shaman aristocracy', to use István Dienes' *bon mot*). Lower ranking communities and clans all had their

own 'common' shaman, who healed, divined and presented sacrifices to the gods. The relics of this pagan religion have survived among the Turkic peoples of the Altai region: for example, the sacrifices offered to the Lord of the Sky are never presented by the 'common' shamans, who are not even allowed to attend these ceremonies.

That the ancient Hungarian practiced a form of shamanism similar to the one described above – sometimes called tengism by students of religious history – is also confirmed by a written source. István Zimonyi recently called attention to a passage in the writings of al-Bakri, an Arab historian living in Spain, who recorded that the Hungarians "had no other god than the supreme god. They revere and worship the Lord of the Sky, who is their only god." Although the Moorish historian wrote his book in 1086, he drew many of his descriptions from Djayhani's lost work, written around 920, who described the customs of the Hungarians at the time when they were still living in their eastern homeland (around 870).

In the 9th–10th centuries Hungarian religion was a more developed variant of shamanism, practiced in the eastern nomadic and semi-nomadic empires; its vestiges can be traced from the Asian Huns to the Mongolians. Beside the 'chief shamans' in the sacral ruler's court, there were a number of healing and divining shamans active in their own communities. When the ruling élite converted to one of the major world religions, Christianity, the *táltos* of the commoners continued their activity for a long time, even if in secret; their descendants played a role in folk religion until the 20th century.

Woven from a myriad strands of beliefs, shamanism was a highly tolerant religion in all of its developmental phases. This also holds true for the variant practiced by the ancient

Fig. 18. Sabretache plate from Tiszabездé

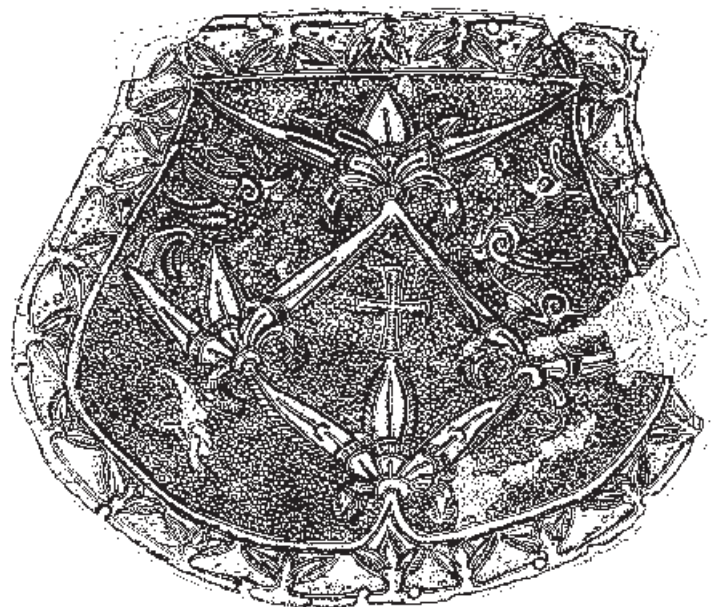
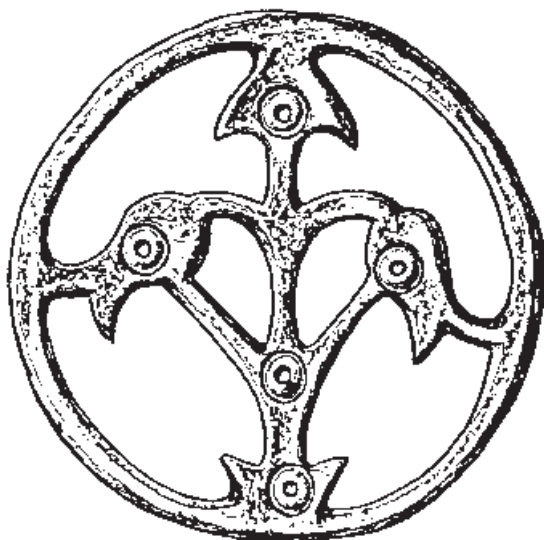




Fig. 19. Braid ornament from Anarcs

Hungarians, who became acquainted with many elements of the major world religions well before their arrival to the Carpathian Basin. Missionaries from Byzantium had visited them during their sojourn in Levedia and Etelköz. It seems likely that the ruling élite showed an interest in these world religions since even in its most developed form, shamanism was unsuitable for serving as a firm ideological basis of a state organization. It is not mere chance that all of the newly-founded states in Eastern Europe took up one of the dogmatic world religions – this move not only provided a firm ideological basis for the state administration, but also ensured that these states be accepted into the political *koine*. Around 950 a group of dignitaries (Tormás, Bulcsú and the Transylvanian Gyula) converted to Christianity in Byzan-

Fig. 20. Disc with the Tree of Life and a bird



tium. The emperor also sent a bishop. In the 960s the Hungarian rulers turned to Rome: in 972 Prince Géza committed himself to western Christianity and began the conversion of his people. The success of the mass conversion was greatly promoted by the earlier, developed pagan religion that was, in a sense, the preliminary to dogmatic religions – in the same way that the creation of a European state organization was greatly eased by its semi-nomadic forerunner.

The archaeological finds and observations cannot, by their very nature, provide a precise reflection of the ancient Hungarians' religious beliefs. The 10th century cemeteries nonetheless preserve many imprints of various superstitions and beliefs, as well as of certain elements of folk religion. The magnificent metalwork was often decorated with the symbols of these beliefs. The gilt copper sabretache plate from Tiszabездéd (Fig. 18) reflects the ancient Hungarians' syncretic beliefs: the tendrils of the shamanistic Tree of Life enclose a Byzantine cross and peacock dragons adopted from Persian art. The Tree of Life, connecting the different



Fig. 21. Braid ornament from Rakamaz

worlds, appears in many forms, for example on the braid ornaments from Anarcs (Fig. 19). On some cast openwork discs the branches of the Tree of Life terminate in bird heads (Fig. 20), a reflection of the belief that the eagles, birds of the sky, nesting on top of the Tree of Life are the creatures who bring the souls of the chosen newborn (kings and shamans blessed with exceptional capabilities) to this world. The braid ornaments from Rakamaz (Fig. 21) are an expression of this belief: the celestial bird, its plumage combined with palmette motifs, is shown bringing the newborn souls symbolized by the fledglings into this world and holding a life-giving branch of the Tree of Life in its beak.

The counterparts of the archaic discs from Tiszasüly and Sárrétudvari are known from the east (Fig. 22). The rider

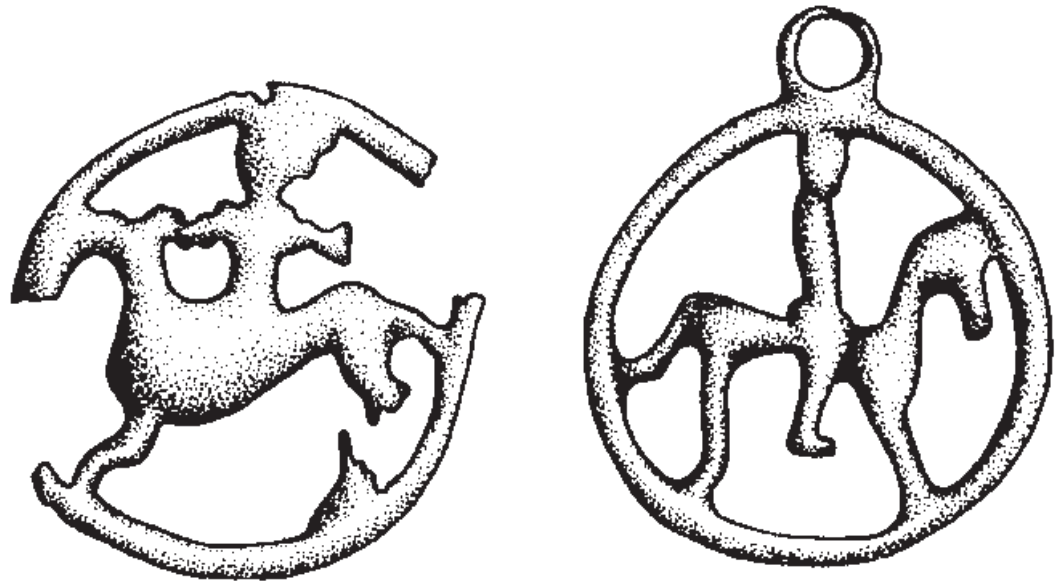


Fig. 22. Braid ornaments from Tiszasüly and Sárrétudvari

appearing on these discs, symbols of the Sun, no doubt represent Tengri, Lord of the Sky. These two discs provide archaeological proof of al-Bakri's above-quoted words and indicate that the cult of Tengri was widespread among the ancient Hungarians. Braid ornaments bearing a depiction of the Sun disc can likewise be linked to the cult of the Sky and the beliefs about the celestial origins of the sacral ruler. The disc from Törökkanizsa (Novi Kneževac, Serbia) depicts the Sun and its rays, while the one from Biharkeresztes has the palmette leaves unfurling and curling into a swastika, an ancient Sun symbol (Fig. 23), a motif that also appears on the central mount of a bow case from Karos. Al-Bakri also mentions that when the Khazar ruler rode out, an object resembling a Sun disc was carried before him.

Fig. 23. Braid ornament from Biharkeresztes



Another group of braid ornaments, such as the ones from Tiszaeszlár–Bashalom, Zemplén (Zemplín, Slovakia) and Nyírácsád show a horse with bird claws instead of hoofs and a leafed branch growing from its back (Fig. 24), perhaps representing the soul of a sacrificial horse on its way to the afterworld. The animal figures combined with plant motifs appearing on the metalwork of the Conquest period apparently symbolized the soul of these wondrous creatures. These objects were believed to protect their wearers from all forms of harm and illness, and it is not mere chance that most were recovered from the graves of the more superstitious womenfolk. (The animal bones worn as amulets no doubt served the same purpose.)

The existence of pagan sacrificial places is borne out not

Fig. 24. Braid ornament from Zemplén



only by the laws of the Árpáadian Age, but also by the archaeological record. A silver cup containing three silver gilt breast collar mounts and seven bridle ornaments was found at Gégény. András Jóna investigated the findspot, but found no traces of either a cemetery or a settlement, suggesting that the findspot was a sacrificial site similar to the ones still used by the Hungarians' Siberian linguistic cognates. It must also be borne in mind that a special, magical meaning was attached to the numbers three and seven.

The cemeteries also preserve many elements of the ancient beliefs. The worship of the life-giving power of the rising Sun is reflected in the orientation of the deceased to the west, with the face turned to east. The high-ranking individuals of the community were buried in their ceremonial garb, often together with their weapons, since the ancient Hungarians believed that the social order of this world was replicated in the afterworld. The graves of the dignitaries usually form a separate group within the cemetery. The graves of the ancestors were protected from evil spirits. At Hajdúdorog, for example, the northern boundary of the cemetery was marked by a ditch, the eastern one by a dog burial and the southern one by a horse skull, a reflection of the belief that the ditch and the spirit of the animals would ward off malevolent spirits.

The ancient Hungarians believed in the dual soul. According to this belief men and animate beings had two souls: the body- or breath-soul (in Hungarian the word *lélek*, 'soul', is related to the verb *lélegzik*, 'to breathe') and the so-called free or shadow soul (called *isz* or *iz*). The former was bound

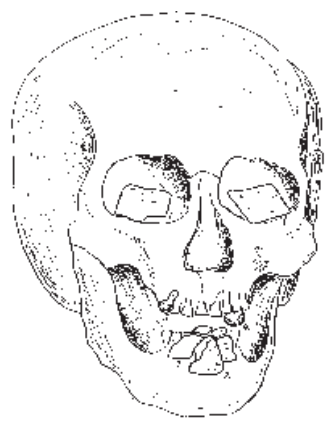


Fig. 25. Skull from grave 10 of the Bashalom cemetery

up with the body and the bodily functions, and was extinguished when the body died, while the latter resided in the head and did not perish after death, but lingered on long after the body had decayed. The shadow soul could even leave the body for a shorter or longer time while it was still alive, explaining why men often wandered in faraway lands in their dreams, meeting persons who had long departed from among the living. The soul of the dead could come back to torment the living, who therefore had to protect themselves. Individuals believed to possess a malicious soul were not interred in the community cemetery. At Tiszafüred the bodies of two old women were buried north of the cemetery (evil spirits were believed to reside in the north); their bodies were bound tightly with a rope. In another grave the deceased woman's face was turned downward towards the earth, no doubt to rob her spirit of its power. The silver eye and mouthpieces sewn onto the funerary shroud were in some cases designed to prevent the shadow soul of the de-

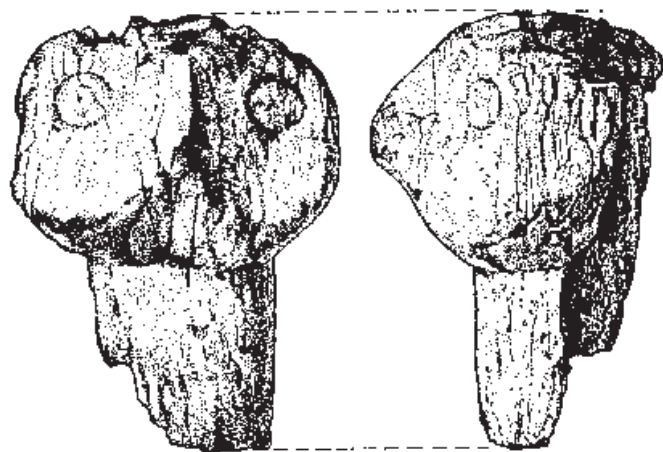


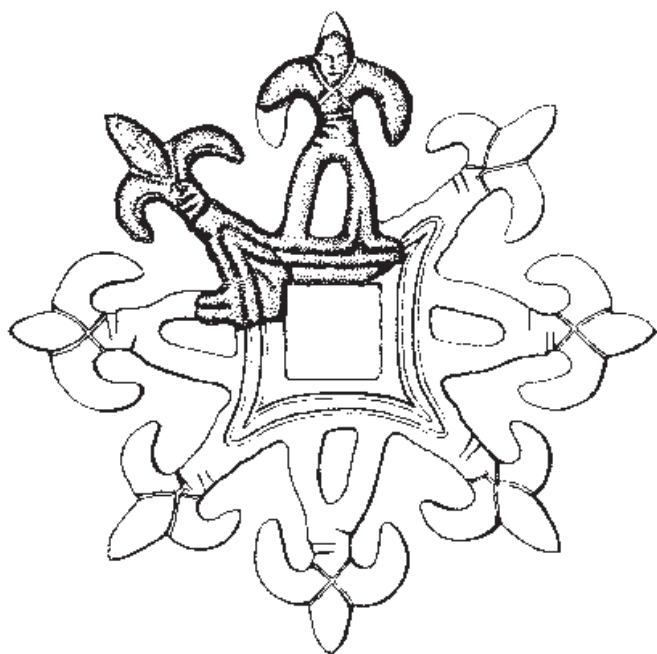
Fig. 26. Carved staff end from Szeghalom

ceased from escaping through the apertures of the head (Fig. 25), while in other cases, as at Rakamaz, the face-cloth resembling a theatre mask with silver eye and mouth pieces was believed to show the way for the spirit on its way to the afterworld.

The most important role of the *táltos* was healing. Their excellent surgical skills are borne out by their successful operations reflected, for example, in skull trepanation. On some skulls only the upper layer of the bone was removed and a magical circle was drawn. The purpose of these operations was to ensure that the shadow soul return to the head – the illness being the consequence of its departure – a precondition to recovery.

Some graves probably contain the mortal remains of the *táltos*. A burial uncovered at Hajdúdorog contained a bone carving in the shape of an owl's head that was for a long time

Fig. 27. Mount from Kiszombor



believed to have been fixed to a whip. István Ecsedy found a similar bone carving together with the bone mounting from the other end of the staff at Szeghalom (Fig. 26). The length of the staff was 1.2 m and it cannot therefore have been a whip. The owl appears as a 'bird of death' or a 'táltos bird' in Hungarian folk beliefs and it thus seems likely that these graves were the burials of *táltos* who did not have a drum, only a shaman's staff. It is also possible that the human figures shown in a praying posture on the sabretache mount from Kiszombor depict the *táltos* (Fig. 27).

Christian symbols, such as plain crosses and reliquaries, also occur among the finds from Conquest period burials (Figs 28–29). However, these are usually recovered from graves reflecting a pagan burial rite and cannot be regarded as an indication of the deceased's Christianity. The spread of Christianity is more convincingly reflected in the fact that from Prince Géza's age the ostentatiously lavish burials of the nomadic aristocracy become more scarce. The cemeteries of Christian communities contain few grave goods – a few trinkets at the most. The earlier manifestations of the ancestral pagan beliefs too disappear.

The art of the Conquest period is preserved in the splendid metalwork of the period (articles made from organic material have decayed without a trace). The most distinctive feature of this ornamental style, distributed on the eastern steppe from the 8th century, was the dominance of plant motifs, this being the reason that it is sometimes also called palmette style. Regional variations in this ornamental style can be attributed to the differences in the beliefs behind this style. Only a few elements of Conquest period art can be traced to the former eastern homelands, implying that the genuine florescence of this metalwork can be dated to after the Conquest. Central Asian art, continuing the traditions of the Sassanian art of Iran, undoubtedly influenced this style; it was transmitted by itinerant goldsmiths, who entered the service of various dignitaries of the ancient Hungarians. Although a few articles, such as the silver cups from Gégény, Kétpó and Zemplén (Fig. 30), echo eastern

Fig. 28. Bronze cross from Hajdúdorog



Fig. 29. Reliquary from Tiszaeszlár–Sinkahegy

forms, the elegant ornaments of the aristocracy's magnificent costume, their horse harness and weaponry in the new homeland were created by the goldsmiths of the Conquest period. The sabretache plates and the braid ornaments were made using the same technique: the pattern was embossed and the background was lavishly gilded. The finer details of the cast harness, belt and dress ornaments were often added with engraving and punching, and their background too was gilded.

This palmette style was not restricted to the ornaments of the aristocracy as shown by the appearance of the same motifs on the bone plaques riveted to saddles and bit sidebars. The imitation hanging tassels on the sabretache from Szolyva (Svaljava, Ukraine) suggest that leather and felt articles were decorated in a similar style (Fig. 31). Although undoubtedly enriched by new elements, the metalwork of the ancient Hungarians essentially followed the steppean tradition until the mid-10th century. The scrollwork patterns and the adoption of the niello technique reflect the impact of Viking art.

Conquest period metalwork bearing pagan symbols declined with the spread of Christianity at the close of the 10th century, when the old élite either disappeared or threw in their lot with the new policy. Although most traditional motifs lingered on for some time in folk art, they eventually disappeared, together with the pagan beliefs. Within a few generations Christian art had become firmly rooted.



Fig. 30. *The Zemplén cup*



Fig. 31. *Sabretache plate from Szolyva*

THE CEMETERIES OF THE CONQUEST PERIOD

László Révész

The ethnic makeup, social structure and the lifeways of the ancient Hungarians of the Conquest period were extremely heterogeneous and this diversity is reflected in the archaeological record and the layout of the burial grounds. A total of twenty-five thousand burials of the 10th–11th century population have been uncovered to date, a fragment of what still lies concealed in the ground. There are few completely excavated cemeteries and even these are unpublished for the greater part. The bulk of the finds comes from the few burials of cemetery sections and their source value is thus rather limited. Consequently, the potentials of archaeology for reconstructing the political and social structures of the 10th century have not been fully explored.

The overwhelming majority of the find assemblages from this period were recovered from graves. The study of the distribution and the associations of various jewellery articles, dress ornaments, weapons and insignia of rank can contribute to the detection of regional units and the identification of the distinctive traits of the population groups who settled there. A comparison between the type, the structure and the chronology of various cemeteries provides a wealth of information on social stratification, on costume, on religious beliefs and, occasionally, on the economy and lifeways of the community that used the cemetery. Drawn together, these scattered bits and pieces of information offer a fairly accurate picture of the individual features that

characterized a particular region in the 10th century, as well as of the strands that linked them to groups living in other regions. Work in this field has only just begun. The increasing body of finds will undoubtedly enrich our knowledge of this period and perhaps confirm certain details of what are today only tentative hypotheses.

Most Conquest period cemeteries lie on elevations and hills rising above the waterlogged, marshland areas. The graves were generally arranged in rows and these rows often formed groups. There is also evidence that some cemeteries were enclosed by a ditch (as at Kál). Most grave pits are rectangular with rounded corners. A niche was occasionally dug into one of the long sides, while some graves contained a ledge. The high-ranking, wealthy deceased were almost always laid to rest into graves that were larger than average since, aside from the large number of personal ornaments and weapons, the horse hide into which the skull and the leg bones of the animal were carefully wrapped, was also placed into the grave. Most burials are oriented west to east, with the deceased laid to rest with the head facing west and the face and feet oriented towards the east. Coffin burials are not uncommon in the Conquest period (as, for example at Zemplén/Zemplín in Slovakia), although in most cases the dead were simply wrapped in a cloth or rushwork matting. The head of the deceased was occasionally propped up or laid against the saddle (as at Orosháza). The deceased were laid to rest in a ceremonial costume. Men were buried with their weapons and their insignia of rank, women with their smaller implements.

Many different rituals were probably performed at each burial, some of which are reflected in the grave goods. The

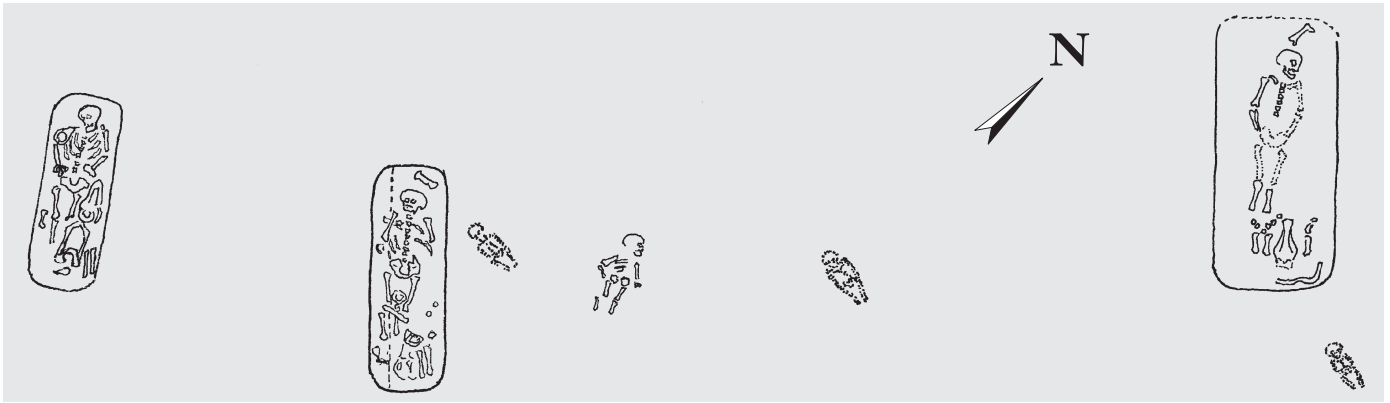


Fig. 32. Burial ground of a family of the tribal-clan aristocracy at Szakony

Fig. 33. Richly furnished female grave from Tiszaeszlár-Bashalom

face was often covered with a cloth to protect the living from the evil eye; at Rakamaz, gold eye and mouth pieces or mounts were sewn onto this face-cloth. Another common practice was the loosening or intentional damaging of the dress of the deceased. In some cases, the weapons were dislodged from their original position. The custom of placing a horse into the grave can only be observed among the more affluent and wealthy families. The deceased's saddle horses, was killed and subsequently skinned in such a manner that the skull and the leg bones were left in the hide. The horse skin was sometimes stuffed with straw (as at Tiszaeszlár-Bashalom), but the usual practice was to fold it or spread it out before its deposition beside the feet of the deceased. One variant of this custom was the symbolic horse burial, when only the harness was placed in the grave.

The deceased were usually provided with food for the long journey to the afterworld. The clay vessels placed beside the head or the feet most likely contained some kind of broth or gruel. In some communities such provisions were only placed in child burials, while in others both men and women were provided with food. In yet others still it is entirely absent. Animal bones, most often sheep and, more rarely, cattle, pig, goat or poultry, represent the remains of chunks of meat placed on a wooden plate or wrapped up carefully in a cloth.

Fear of the dead is also reflected in the funerary customs. Some of the more drastic measures of protection included the unnatural positioning of the dead body in the grave or burial with an inverse orientation, with the head turned to the east and the legs to the west, the laying of the body in a prone position (as at Sándorfalva) or in a contracted position, with the arms and legs drawn up (as at Madaras). The custom of mutilating the dead can be observed in all social groups. This could take the form of decapitation and mutilation of the hand or feet. A less gruesome variant was observed in the princely burial at Zemplén (Zemplín, Slovakia), where millet seeds were thrown into the grave, the idea being that the deceased would not be able to leave



the grave until he had counted them all between midnight and the first cock crow.

The intricate web of 10th–11th century society is also reflected in the structure and the types of burial grounds. Not one single royal burial of the 10th century has yet been found and thus we do not know how the most prominent leaders of the Conquest period were buried. Most archaeologists and historians have argued that, similarly to the Huns, the Avars



Fig. 34. Reconstruction of the costume, weapons and insignia of a high-ranking dignitary, based on the finds from the Karos cemeteries

and other steppean peoples, the ancient Hungarians too buried their kings in secret and in solitary graves. Medieval chronicles, written several hundred years after the events, report that Prince Árpád was buried at Fejéregyháza near Óbuda and that King Stephen later erected a church over his grave, while Prince Taksony's grave should be sought near the Danube, in the region of the village that allegedly bears his name, near his one-time residence. Although there is not one scrap of archaeological evidence to support these reports, the possibility that these medieval chronicles have perhaps in-

deed preserved a genuine tradition suggests that the location of the graves of high-ranking, prominent leaders was known for long decades, or even centuries after their death, the implication being that they could not have been buried in secret. Archaeological research over the past few years has shown that lavishly outfitted male burials are concentrated in the Upper Tisza region. If these burials were indeed the graves of the members of the princely retinue, it is possible that the burials of the earlier 10th century princes too lie somewhere in this area.

According to our present knowledge, one part of the tribal and clan aristocracy was buried in small family cemeteries, containing between four and eight burials, with the husband buried with his insignia of rank, and his wife (or wives) with their finely wrought jewellery and dress ornaments. Their children were also buried beside them. Rich female burials, either solitary (as at Balotaszállás) or surrounded by servants and mounted warriors, most probably preserve the vestiges of polygamy. Some of these women were laid to rest in the midst of their servicing peoples or at some distance from the latter's cemetery (as at Ártánd). Some wealthy families shared a cemetery with their servicing peoples (as at Tiszanána).

The burials of the 10th century wealthier middle class are to be found in the burial grounds that contain sixty to eighty graves. Rarely do the burials number over one hundred (Algyő). These cemeteries are characterized by a profusion of silver and gold ornaments in the female burials and, also, by the surprisingly few insignia of rank in the men's graves, who were buried with their archery equipment.

A picture differing markedly from the other areas of the Carpathian Basin emerges in the Upper Tisza region. The cemeteries in this area have a conspicuously high number of male burials (accounting for up to fifty per cent of the burials) equipped with a wide array of weapons. Almost all the men were buried with their archery equipment; sabres and axes are also quite frequent. Their real wealth, however, is indicated by their insignia of rank: sabretaches ornamented with mounts or metal plaques, belt sets, sabres covered with silver or gold plaques, bow cases fitted with mounts and lavishly ornamented horse harness. These burials undoubtedly represent the graves of the highest-ranking leaders of the 10th century Hungarians (Karos and Rakamaz; Fig. 34). The women in these cemeteries had jewellery articles crafted from precious metals. Most common among the finds are delicately wrought braid ornaments, bezelled rings set with stones and mount ornamented boots. These rich cemeteries were earlier identified with the burials of the wealthier middle layer, who participated in the raiding expeditions and lived in extended families. More recent investigations, however, have offered an alternative explanation, namely that these communities had been artificially organized. The basic units of these communities were the wealthy nuclear families (husband and wife or wives and children) who were buried with their servants and the warriors in their retinue who, being professional soldiers, were mostly unmarried. These cemeteries were no longer used from the mid-10th century: as a result of the political changes, the earlier armed retinues were disbanded and their members were settled in various parts of the country, when the new political centres in Esztergom and Székesfehérvár were created under the rule of Prince Taksony (c. 955–972). The cemeteries of the reorganized armed retinue lie beside these new centres.

It is extremely difficult to draw a clear-cut boundary between the so-called middle social layer with their more



Fig. 35. Lockrings and bracelets in a burial in the commoners' cemetery at Hódmezővásárhely–Nagysziget

humble grave goods and the communities of wealthier commoners. The richness of jewellery, dress ornaments and weapons of a particular community depended not only on their social standing and rank, but also on the way they lived and the nature of their economy. The graves of sedentary, agrarian communities generally contain fewer grave goods than the burials of more mobile stockbreeders. The number of graves in the commoners' cemeteries depended on several factors, such as the duration of its use and the size of the community (village) that used it. Weapons, horse burials or harnesses are only found in the graves of the members of the community's leading family. The chronology and use-life of completely excavated commoners' cemeteries can contribute to determining regional population shifts and population movements and settlements (Halimba). It is generally believed that the basic unit of the commoners was the nuclear family. The majority of these families was unrelated and they were settled in a particular village by their overlords. Most families are estimated to have numbered between five to ten persons. Depending on the number of families living in the village and the use-life of the village, the number of burials can range from 100–130 graves

(Sárbogárd, Hódmezővásárhely–Nagysziget; *Fig. 35*) to 8–900 graves (Magyarhomorog, Halimba).

A population change is sometimes indicated by separate grave groups within a cemetery, indicating that the newcomers used the cemetery begun by their predecessors (Halimba). In other cemeteries the earliest burials form the core of the cemetery, with the later graves lying around them (Majs). Both indicate sedentary communities, similarly to the practice when the different families of a village interred their dead in different areas of the same hill and the grave clusters gradually formed a contiguous cemetery (Pusztaszentlászló).

Some of the cemeteries, whose use began in the early 10th century, were abandoned at the close of the century, a phenomenon that can perhaps be linked to the organization of the feudal state by Prince Géza and King St. Stephen, which also involved large-scale population movements and re-settlements. A number of new cemeteries were opened at this time by new settlers, although they sometimes buried their dead in already existing ones. These cemeteries were used until the end of the 11th century. The spread of Christianity brought with it the disappearance of graves with a horse burial, as well as of the custom of depositing weapons and dress ornaments made from precious metal into the burial. Pagan customs survived for some time in the villages that lay far from the ecclesiastic and secular centres of power. Although some cemeteries were used up to the 12th century (Hajdúdorog–Temetőhegy), most were abandoned following the decrees of King St. Ladislaus (1077–1095) and King Coloman (1095–1116). The deceased were from that time buried in graveyards surrounding the churches.

A wide array of jewellery has been recovered from 10th century graves. Most earrings were of the type with a beadrow pendant: a piece of wire was attached to the ring and four or five hollow silver beads were strung onto it. One variant of this type was the cast earring with a beadrow pendant made in southern Hungarian workshops. Metal necklaces were rare; the few known pieces were fitted with leaf shaped silver gilt plates.

The most distinctive pieces of jewellery were the braid ornaments. Men and women both braided their hair. The women often wove leather or silk ribbons into their braids and attached round or lozenge shaped mounts onto these ribbons, with the braid ornaments fitted to the end of the ribbons. These braid ornaments usually come in pairs and can be of the cast and sheet metal variety. They usually bear a depiction of the Tree of Life or some mythical creature, or are adorned with a palmette pattern.

Cast silver bracelets with flaring terminals were also quite popular. Some had rosettes inset with precious stones or glass riveted to the terminals. Simple wire bracelets and its variant woven from metal strands were also worn, as were animal head terminalled bracelets, a type whose origins can be traced to antiquity. Fingerrings were less common: the main types include simple hoop and wire rings, as well as gold or silver bezelled rings set with a stone.

Dress ornaments of precious metal adorned both male and female costume. The palmette ornamented cap finial from Beregszász (Beregovo, Ukraine) evokes the pointed cap worn by men, who rarely ornamented their garments with metal mounts. Women's headdresses, caps and frontlets were lavishly ornamented. Their shift was trimmed with silver gilt mounts. These came in two basic varieties: lozenge shaped ones and a type with a pendant ornament, with a round upper part and a heart shaped pendant. Some dress ornaments were made of pressed silver or, more rarely, of sheet gold.

Some burials contained as many as thirty to forty shift ornaments. These small mounts were riveted onto a leather or textile ribbon and sold in markets by merchants, who simply cut off the required length for their customers. Larger pendant ornaments were used for adorning caftans: they were usually applied to the hemline of the two flaps.

Women wore felt boots with soft soles, whose toes were often decorated with round headed rivets or small leaf shaped mounts. The latter were sometimes also applied to the leg of the boot.

These dress ornaments were worn only by women, as was most of the jewellery described above. Men rarely wore a ring or a bracelet. Instead, they adorned their insignia of rank with superbly crafted metalwork. Among the steppean peoples a warrior's rank and his position in the social hierarchy was reflected in his weapon belt and in the articles and weapons that were suspended from it. These belts were fitted with cast silver gilt and, more rarely, bronze mounts (with an occasional gold one) that formed a glittering band around the waist.

Men kept their iron strike-a-light and flints, as well as smaller implements in a leather purse or sabretache, suspended from the belt on the right side. The lid of these purses was ornamented with embossed or appliqué ornaments, but a small group could afford to adorn the lid with metal mounts or finely crafted plates decorated with palmettes. Since only a total of twenty-six such sabretache plates are known, it has been suggested that these were the insignia of dignitaries in the service of the princely dynasty. Quivers too were worn on the right side. Made of leather or birch bark, they were sometimes reinforced with iron stiffening rods and ornamented with bone plaques around the mouth. The metal arrowheads of the arrows kept in the quiver came in a wide variety of size and shape, the most common being deltoid shaped, although two-pronged V shaped ones used both in battle and in hunting, as well as rectangular sectioned types for hunting fur animals also occur.

Sabres were worn on the left side. The hilt and the scabbard of the sabres used by high-ranking dignitaries were fitted with superbly wrought silver or gold mounts. Sabres with such fittings are rare; less than a dozen have been found to date. The most magnificent gold mounted sabre, currently housed in the Imperial Treasury in Vienna, was never buried. It was no doubt the insignia of rank of the

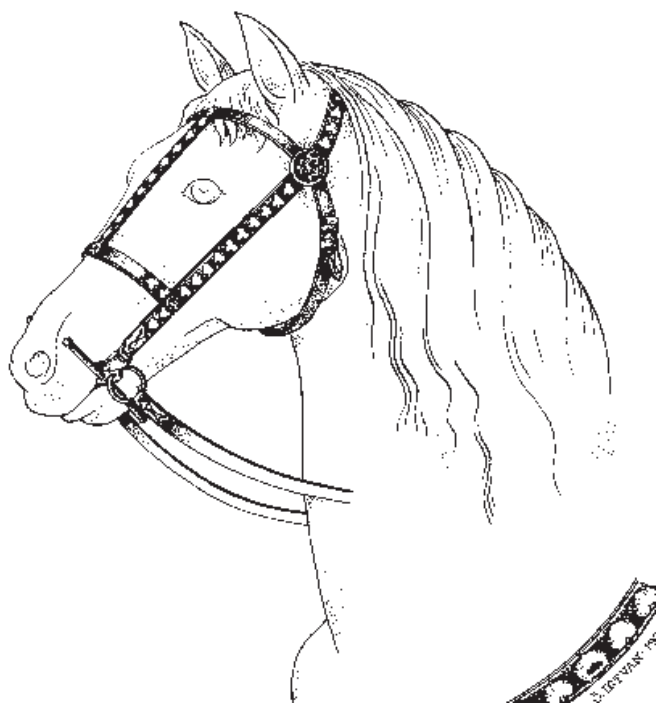


Fig. 36. Reconstruction of a horse harness ornamented with silver gilt mounts, based on the finds from a male burial at Szakony

Árpád dynasty, around which countless legends had been woven, handed down from generation to generation.

Axes and spears were used in close combat. Very few of these weapons were deposited in the grave.

Strung bows were kept in a special leather bow case, called *gorytus*, worn on the left side. High-ranking dignitaries fitted their bow case with as many as eighty or a hundred silver gilt mounts. The silver discs with a Sun motif in their centre on some of these bow cases too suggest that their owners had been dignitaries serving the prince. Similarly to the silver and gold mounted sabres, bow cases fitted with ornaments of precious metal are extremely rare – only a few have been found in the rich burials of the Upper Tisza region. Very few burials contained all of the insignia of rank. The presence of certain insignia and the lack of others no doubt indicated their owner's position in the social hierarchy. The unstrung bow was usually kept in a simple leather case, whose mouth was sometimes fitted with carved bone

plaques. The reflex bow used by the ancient Hungarians was assembled from boughs, horn plaques and animal sinews. Their grip and terminals were often reinforced with bone plaques.

No shields or chain mails have yet been found, suggesting that the warriors of the Conquest period protected their body with leather or felt corsets.

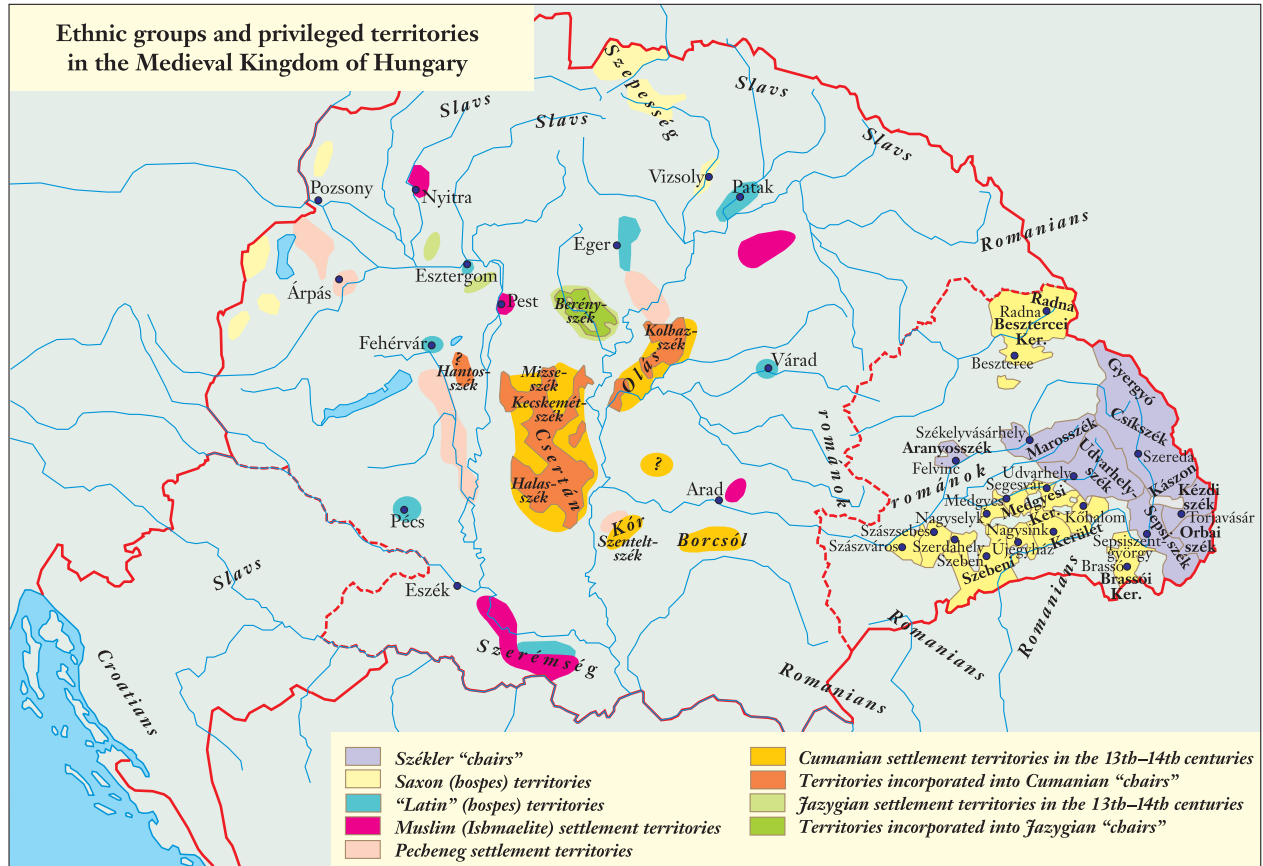
Horses were indispensable in the daily life and warfare of all steppean peoples, and the ancient Hungarians were no exception. It is thus hardly surprising that they took great care in harnessing their horses and that their horse harness was often adorned with the same finery as their dress and weapons (Fig. 36).

The form and structure of Conquest period saddles closely resembled the shepherds' saddles made by the saddlers of Tiszafüred that were still in use until recently. The pommel and the cantle were occasionally ornamented with silver or bone plaques (Szakony, Izsák–Balázspuszta). The stirrups were held by stirrup leathers that were drawn through the middle of the stretchers. Their length was adjusted to the needs of the rider. Conquest period stirrups have curved foot plates, in other words, they were made to accommodate soft soled boots. The most common stirrup was pear-shaped with a curved foot plate for soft soled boots. These stirrups were sometimes inlaid with silver or gold. Warriors and herdsman preferred to use a bit with a jointed mouth-piece with one or two pairs of rings at either end for the bridle and reins. Women and high-ranking men used bits with sidebars that prevented the bit from slipping into the horse's mouth if the reins were suddenly pulled and make the animal uncontrollable. The reins, the breast collar and the crupper were often adorned with ornate harness mounts. Rosette ornamented harness mounts – round or octagonal ornaments of bronze or gilded silver decorated with a three or four petalled flower – were used exclusively by wealthier women.

The finds and observations made during the excavation of 10th century sites are extremely important since there are no written sources describing the society, the economy and the daily life of the ancient Hungarians from this period. Contemporary western and Byzantine chroniclers tend to paint a biased and unjustly sinister picture of the ancient Hungarians, whom they only knew from their raiding expeditions.

XII. THE MIDDLE AGES AND THE POST-MEDIEVAL PERIOD





MEDIEVAL ARCHAEOLOGY IN HUNGARY

József Laszlovsky

The archaeological study of various historical periods did not begin simultaneously and each field of archaeology has its own history of research. The origins of medieval archaeology, one of the latest disciplines to emerge, can be traced to the 19th century. The study of classical antiquity received a major impetus during the Renaissance, although neither the scholarly, nor the amateur study of medieval relics was begun at that time. The Renaissance reached back to the memory of an ancient 'Golden Age' in contradistinction to the Middle Ages and, furthermore, used a rather derogatory term for describing preceding centuries, labelling this period as medieval or the middle ages. Several centuries had to elapse before the birth of a national Romantic movement that kindled an interest in the Middle Ages and the antiquities of the national past. This was preceded to a certain extent by the activity of ecclesiastic historians, who studied various medieval writings in their research of the lives of saints or the history of ecclesiastic institutions. The study of archaeological relics only began much later since historians believed that due to the abundance of written sources they would be able to shed light on these epochs of the past based on the information contained in these sources.

The romantic image of the Middle Ages was a landscape dotted with castle ruins. Consequently, when speaking of the roots of medieval archaeology, we must first and foremost mention the art historical and architectural research into the period's most significant surviving monuments: monasteries, cathedrals, castles and palaces. The restoration and historic preservation of these monuments was gradually integrated into archaeology's other two other fields and in the mid-20th century the gradual blend of their methods led to the emergence of what we today call medieval archaeology.

Christian archaeology followed in the footsteps of classical studies and classical archaeology, the main focus of research being the study of Christian relics from late antiquity. The study of earlier periods in this field of research eventually embraced the archaeological research of all objects related to Christianity. As a result, certain aspects of this field of research too became inseparable from medieval archaeology.

Prehistory is traditionally concerned with those periods of the past that are lacking in written sources, while the study of the documentary evidence was left within the realm of history. It is often difficult to draw the boundary between the two and it must also be borne in mind that the two often mean fundamentally different epochs in various regions of Europe. From the beginning of the 19th century, archaeological excavations have brought to light a number of finds – particularly from burial grounds – that kindled the interest of scholars. The richly furnished Merovingian, Lombard, Avar and Conquest period Hungarian burials came into the

focus of interest. It became clear that archaeology had much to contribute to a better understanding of historical epochs from which there is a rich legacy of written sources.

The emergence of medieval archaeology in Hungary differed from the usual development of this discipline in other parts of Europe in several respects. Its origins are closely linked to the romantic image of the Middle Ages, with particular emphasis on the study of objects and monuments relating to medieval Hungary's former independence and role as a great power. However, this was not the only factor that contributed to the research of historic monuments and architectural history. Due to the devastation of the Turkish occupation period, a significant portion of medieval written documents and buildings of outstanding significance were destroyed. As a result, Hungarian scholars practically had no other choice than to use the techniques and methods of archaeology to study the Middle Ages since this field of research could hardly depend on the traditional historical sources. The few surviving sources revealed that magnificent buildings had once stood in the royal centres, of which little remained. King Matthias' exquisite palaces in Buda and Visegrád, the coronation church in Székesfehérvár and the palace of Esztergom were known only from descriptions; very little survived of the actual buildings. As a result, particular emphasis was given to the efforts of archaeologists to find and uncover these remains. The excavation of medieval ruins served as proof that Hungary had also produced marvellous monuments in the Middle Ages, even if these had been ravaged and destroyed during the stormy centuries of the country's history (*Fig. 1*). One important issue with a bearing on national self-esteem was whether archaeology would be able to discover these remains and whether all options would be explored for the restoration and reconstruction of these monuments in order to conjure up the long lost past for the present.

For many decades, research on monuments and buildings dominated medieval archaeology, a field whose significance

Fig. 1. A bird's eye view of Visegrád



was greater in Hungary than in many other European countries. Due to the relatively small number of late antique remains, and particularly the lack of continuity between Roman times and the Middle Ages, medieval archaeology's other root, Christian archaeology, played a less significant role in Hungary. In contrast, prehistoric archaeology and the study of medieval remains were closely related. Flóris Rómer, who can be considered the father of Hungarian archaeology, investigated both medieval church architecture and prehistoric sites. József Csalog, the renowned researcher of Neolithic sites, began the pioneering excavation of a medieval market town between the two world wars. Furthermore, the archaeological study of Hungary's destroyed medieval villages was initiated by an ethnographer, Kálmán Szabó, who in his research made use of the fieldwork expertise of prehistorian László Papp. This is an excellent illustration of how Hungarian medieval archaeology was, from the 19th century on, inseparable from ethnographic studies. Gyula László's seminal work on the life of the ancient Hungarians in the Conquest period, a work that had a major impact on medieval archaeology, would have been inconceivable without his knowledge of the ethnographic material. Medieval archaeology in the modern sense emerged from these antecedents after World War 2 in Hungary, paralleling a similar European development. However, this discipline has a number of individual features both as regards its methodology and its research focus, one of these being the close connection between the study of written sources and the archaeological evidence. This is reflected most prominently in the work of András Kubinyi. All of these factors also explain why one of the first independent university departments of medieval archaeology in Europe was established in Hungary.

MEDIEVAL ROYAL CENTRES

Gergely Buzás, József Laszlovszky & Károly Magyar

The central region of medieval Hungary, the quadrangle in the middle of the country formed by Székesfehérvár, Esztergom, Visegrád and Buda, was called *Medium Regni*. This was a fitting designation not only in terms of geography and transportation, but also from a political standpoint. The two royal seats of the early Árpadian Age retained their 'cultic' function throughout the Middle Ages: the provosty of the Virgin Mary in Székesfehérvár was the coronation church, and often also the burial place of the Hungarian kings, while Esztergom was the ecclesiastical centre, the residence of the Archbishop of Esztergom, who crowned the kings. Óbuda had functioned as the royal seat for about a hundred years during the 13th century, and from then on it became the queens' main residence. During the 14th century, two new residences came to prominence, Visegrád and Buda that, similarly to Székesfehérvár and Esztergom in the Árpadian Age, generally acted as the royal seats, even though they both had a number of independent functions too.

Visegrád was the repository of the Holy Crown, the special symbol of state power, while Buda was the country's largest town, the kingdom's most important economic centre and the nation's capital. The castles, palaces and churches built under the kings of medieval Hungary represent a special group of magnificent monuments in Hungarian art and architecture.

The *Medium Regni* ceased to exist in 1543, with the death of János Szapolyai and the fall of Buda, Esztergom and Székesfehérvár, followed the next year by Visegrád, all of which came under Turkish rule. The towns and palaces, along with the other neighbouring royal castles, became border fortresses, and the terrible battles fought over the next century and a half brought an unprecedented destruction. The devastation was completed in the later 18th century during the rebuilding projects following the withdrawal of the Turkish forces, when these 'useless' ruins throughout the country were used as rock quarries and disappeared from the face of the earth.

The exploration and uncovering of the monumental remains of the royal residences called for a great concentration of material and intellectual efforts, a feat that was only possible on the occasion of rare and outstanding social and political events that kindled an interest in these relics. This is the reason that their investigation was, more often than not, usually related to a certain period or anniversary, such as the 1860s and 1870s after the Compromise of 1867, during the national Romantic period, at the time of the 1938 anniversary of St. Stephen's death and in the years around 2000, marking the millennium of the foundation of the Hungarian Kingdom.

Scholarly interest in the centres of the medieval Hungarian realm was awakened only in the mid- and later 19th century. Following János Érdy's 1848 rescue excavation, Imre Henszlmann began the systematic investigation of Székesfehérvár in 1862, 1874 and 1882 (Fig. 2). In 1871–72, Imre Henszlmann also began his research at Visegrád Castle, his main efforts directed at uncovering the walls of the buildings. At the beginning of the 20th century, the outstanding architect of the National Monuments Commission, Kálmán Lux, worked at several sites: in 1908, he excavated the castle of Óbuda and between 1916–22, he directed the restoration of Visegrád Castle. On the basis of documents and archaeological finds he also worked intensively on the royal palace in Buda, on which he published a spectacular book in 1922.

The nation's interest turned to the medieval royal centres in 1938, on the occasion of the 900th anniversary of St. Stephen's death. The abundance of funds for the preparation for the anniversary enabled large-scale excavations. Kálmán Lux played a major role, directing the excavation of the Székesfehérvár Basilica from 1936–37 and participating in the investigation of Esztergom Palace, conducted by Tibor Gerevich and Antal Leopold from 1934–1938. In 1935–36, Lajos Nagy resumed the excavations at Óbuda, begun earlier by Kálmán Lux. Work at Visegrád was continued by János Schulek, who began the excavation of the royal palace in

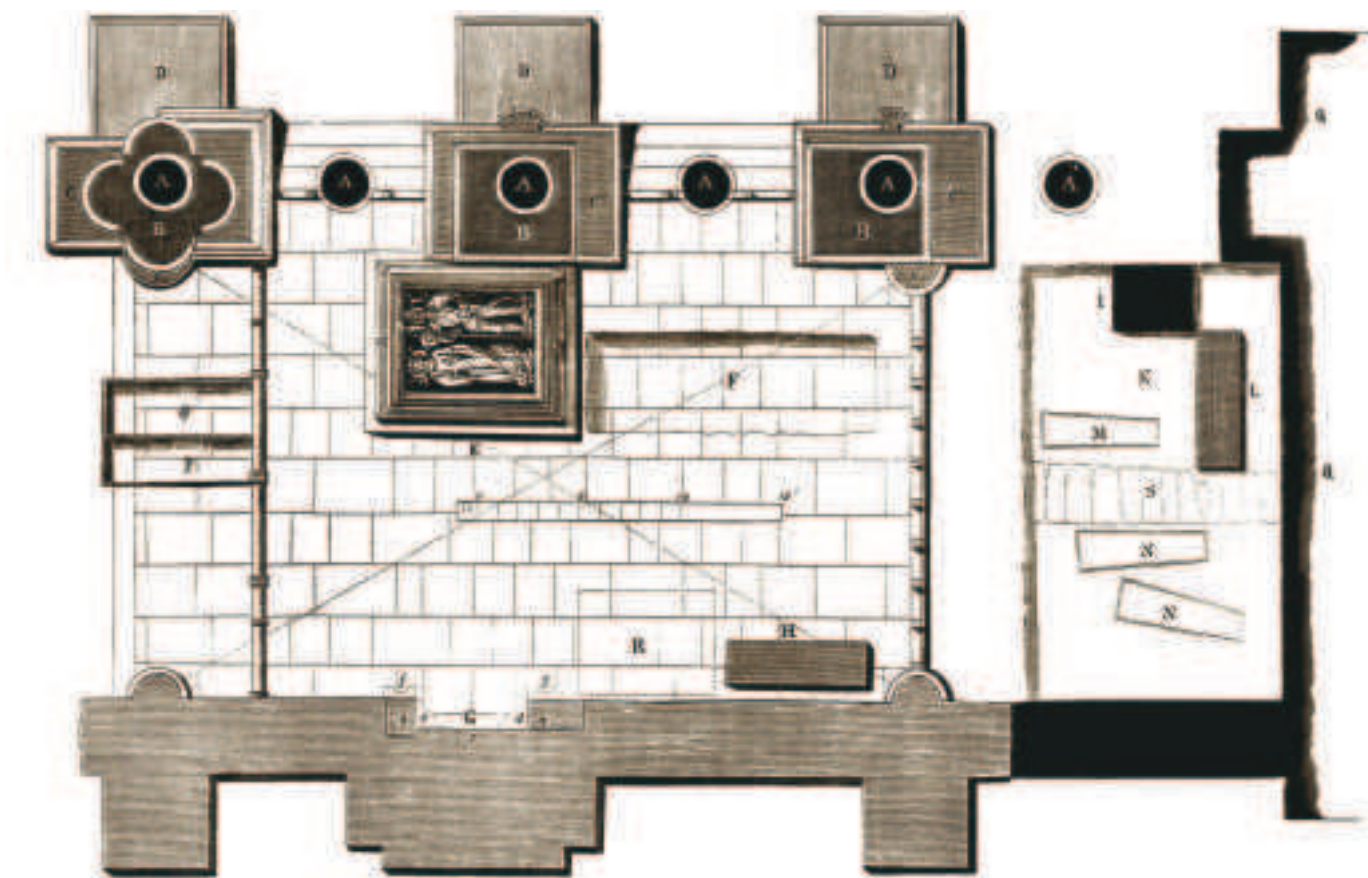


Fig. 2. Excavation drawing of the Székesfehérvár Basilica from the 19th century

1934. The work was directed by particularly well-trained architects and art historians, whose findings provided a wealth of new information on medieval buildings. However, the documentation of the finds, the archaeological features, their context and their stratigraphy was largely neglected.

The third period of excavations at the royal centres began at the end of the 1940s. These large-scale excavations were led by research teams made up of archaeologists, historians and art historians specializing in the Middle Ages and using the most modern methods of the period. The true birth-place of Hungarian medieval archaeology was the enormous Buda Castle excavation (1948–53) with the participation of outstanding experts directed by László Gerevich. At Visegrád, the palace excavations were resumed under the direction of Miklós Héjj and Dezső Dercsényi (1948–52). Fresh research began at the Óbuda Castle as well (1949–51).

Even though the initial enthusiasm waned slightly, the excavations at Buda and Visegrád proceeded continuously through the 1960s and 1970s, even if some of this work may be characterized as rescue excavations. The large research teams of the earlier period were dissolved and the excavations continued by individual archaeologists, as well as the evaluation and publication of the finds, were not as quick or effective. Even so, important new results were produced. László Zolnay continued the excavations in Buda, while the investigations at Visegrád were directed by Miklós Héjj.

The most outstanding finds of this research period include the magnificent sculptures and carved architectural elements, such as the Visegrád fountains and the Gothic statues of Buda, that – largely due to the work of the outstanding sculptor and conservator Ernő Szakál – bear witness to the previously unsuspected richness of the medieval Hungarian royal seats. The investigation of various other sites was resumed in this period. Emese Nagy worked at the Esztergom Palace (1964–69), Alán Kralovánszky at the Székesfehérvár Basilica (1965–72), and Júlia Altmann at Óbuda Castle (from 1974). Excavations on a similar scale were begun at several other medieval royal castles, in connection with historic restoration work.

In the 1980s, the methods of researching the Hungarian royal centres changed. Large research teams were created once again, but the goal was not simply the excavation of more sites, but also the evaluation of the documentation and the accumulated finds from previous decades. The organizers of these research teams were István Horváth in Esztergom, Mátyás Szőke in Visegrád, Károly Magyar in Buda and Melinda Tóth with Piroska Biczó in Székesfehérvár. The processing work began with the cataloguing and evaluation of the stone relics from individual monuments. The survey of medieval architectural remains began in Esztergom, Buda, Visegrád and Székesfehérvár, with the support of the National Board for the Protection of Historic Monuments

through its *Lapidarium Hungaricum* project. This work offered a wealth of new information about medieval palaces, calling for a reassessment of previous research results. This work was combined with the evaluation of the earlier research documentation and find assemblages, as well as with a number of smaller and systematic control excavations.

These new research results turned the attention of the general public and of the historic monuments preservation community towards medieval royal centres. In preparation for the Hungarian millennium in 2000, the Medieval Royal Towns Reconstruction Project was launched, whose goal was to protect and conserve the rapidly decaying sites that had been neglected for decades. The historic preservation work began at roughly the same time in Esztergom, Visegrád and Székesfehérvár, although the state of research differed from site to site. A rich diversity of theoretical and practical approaches to historic preservation had emerged by this time, reflected also in the different practices employed by the architects directing the restoration work.

The study of medieval royal centres has always been a field of research shared by archaeology, art history and historic preservation. Due to the outstanding quality of the architectural and material finds, as well as the available historical data, the study of these monuments often played a pioneering role in developing new research methods for Hungarian medieval archaeology. The following sections, describing the history of the royal centres, are predominantly based on the archaeological research conducted on these sites since the medieval history of these monuments can hardly be written without drawing from the archaeological evidence.

SZÉKESFEHÉRVÁR

The medieval remains of Székesfehérvár completely disappeared from the surface for the most part owing to the destructions of the 17th and 18th centuries. Very little survived of the former royal palaces and the royal basilica also crumbled away. All that remained were a few wall sections, stone fragments and scattered bones from the looted graves. The history of the town and of its buildings, as well as the overall townscape in various epochs can only be reconstructed from the painstaking analysis of these scanty data. This work can only be successful through the combination of the research methods of archaeologists, architects, art historians, historians and anthropologists.

Prince Géza established his seat on an island rising from the marshland on the northern fringes of the *Mezőföld* region. By the first years of the 11th century the prince's palace, enclosed by stone walls, stood on a hill in the middle of the island. The town owes its name to these white stone walls since it was already referred to as *Alba Civitas* in the foundation deed of the Bishopric of Veszprém, drawn up in the year 1009. To the north of the palace, on the market square stood St. Peter's Church, where Prince Géza was buried. King (Saint) Stephen began building the Church of

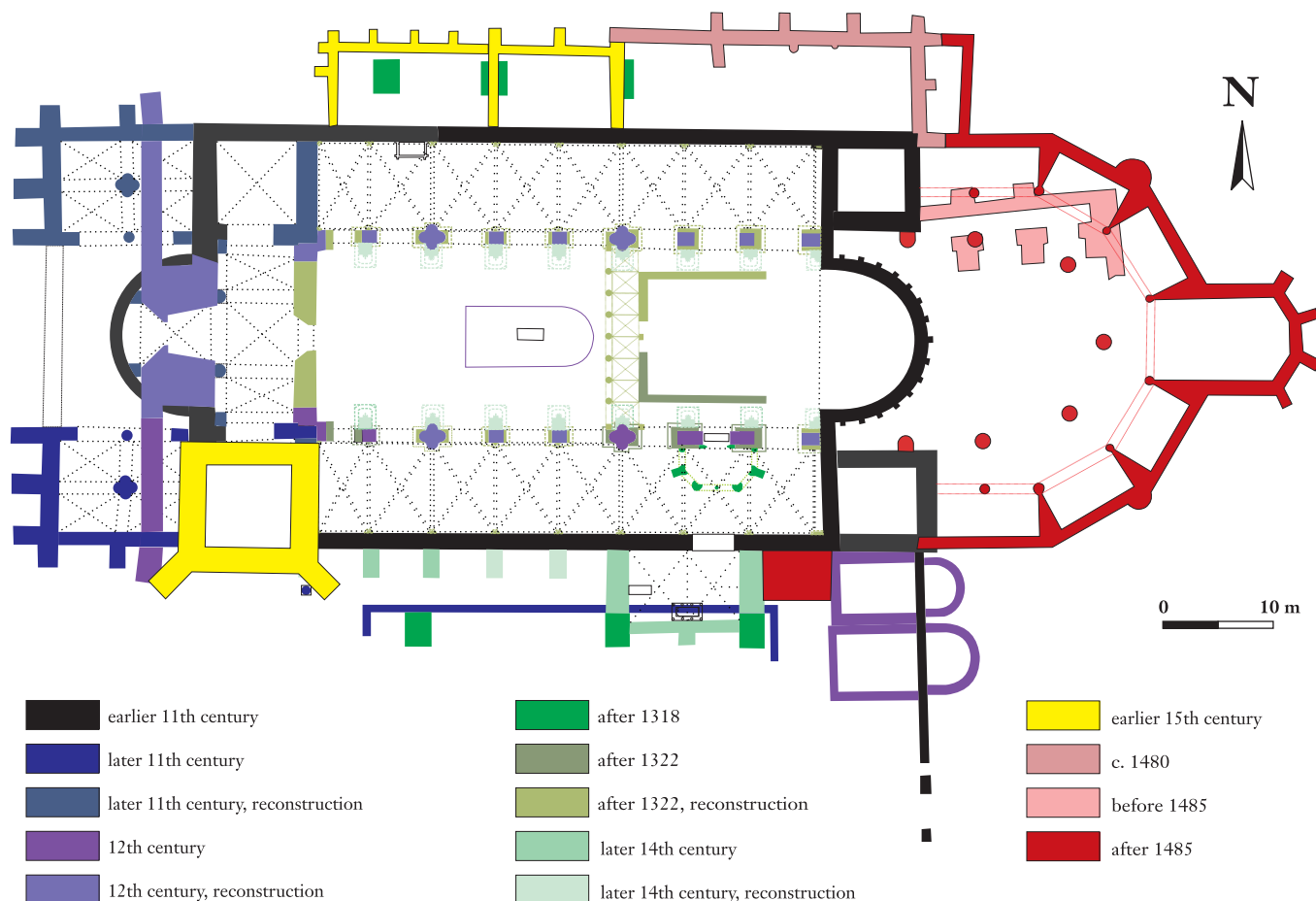
the Virgin Mary, intended as his own burial place, behind the church where his father was entombed in the second decade of the 11th century. The construction of the church was not completed by the death of the king in 1038, but despite this Prince (Saint) Emerich was buried here in 1031. After Saint Stephen's death, this church – originally intended as a private place of worship – was given an important public function: Hungarian rulers throughout the Middle Ages were crowned here, next to the tomb of the founder of the state. The building was an enormous basilica with a nave and two aisles (*Fig. 3*). The dome of its main apse was decorated with a mosaic. Two towers connected to the ends of the aisles flanked the chancel. The tomb of the founding king was placed in the middle of the nave, while Prince Emerich's was located on the south side of the choir. The significance of the church increased further during the reign of St. Ladislaus. In 1083, King St. Stephen and Prince Emerich were canonized, and due to this the building became one of the most important pilgrimage sites of the country. From King Coloman the Learned onwards, during the course of the 12th century, it became the burial church of Hungarian kings. The 12th century rulers were not only buried in the basilica, but they also added various new features to it. A major reconstruction of the church built by St. Stephen was begun possibly by St. Ladislaus with the embellishment of the two saints' tombs. The sarcophagus of Saint Stephen was perhaps completed at this time. In all likelihood St. Ladislaus also began the extension that included the narthex, the western towers and the gallery. King Coloman and his successors demolished the original nave from the west and replaced it with a new nave supported by alternating square and quatrefoil pillar. In the earlier 12th century, a cloister with two sepulchral chapels for the chapter was added to the church's south side, and a huge atrium may have been constructed between the basilica and St. Peter's Church. Considerable construction work was done in the royal palace as well in the mid-12th century: Géza II's wife, the Greek Queen Eufrozina, established a chapel dedicated to St. Emerich there. The remains of this chapel, built on a quatrefoil plan, were discovered in front of the modern cathedral, in the middle of the former palace. The tombs of the saints in the Church of the Virgin Mary were also reconstructed and its western façade was furnished with a huge portal and richly sculpted ornaments in the later 12th century. The basilica's renovation in the Romanesque style was only completed under of Béla III. In the next century no kings, with the exception of Ladislaus III in 1205, were buried in the basilica and no major construction was undertaken. After the Mongolian invasion, Béla IV resettled the town's inhabitants inside the walls of the palace. The atrium in front of the basilica was probably removed at this time and its place taken by the town's market square. The new royal castle in the northeastern corner of the town was perhaps also built during this period. The basilica was damaged by fire several times. In 1318, the entire church, with the exception of the northeastern tower, was gutted by fire.

Therefore King Charles Robert, who was later buried here, had it repaired, constructing a new ceiling, as well as a roofing covered with lead plates, and also reinforced the cracked walls with enormous exterior buttresses. However, these repairs did not change the overall appearance of the Romanesque basilica. The real reconstruction of the church in the Gothic style probably did not begin until after the destructive fire in 1327. It is possible that the original plan was to vault the aisles and the choir only. However, the original plans were changed and a vaulting for the aisles and the entire nave was constructed. Strongly protruding pilasters were built onto the 16 m wide nave in front of the reinforced Romanesque pillars and the walling stretching above them. A narrower and lower Gothic arcade was placed under the spans of the Romanesque arcade. The aisles were also covered with ribbed groin vaults. An arcaded rood-screen separated the choir from the western part of the church. An ornate chapel was added next to St. Emerich's tomb. The construction on the eastern part of the church lasted several decades and was only finished during the reign of King Louis I, who had his own sepulchral chapel built by the southern side of the church. The chapel contained his tomb with a baldachin over it that may have been similar to the tomb of Casimir the Great in Krakow, also built by

Louis. The foundations for a new apse may also have been begun, but this was never built. The enormous Gothic church, completed in the later 14th century, was considered the country's most distinguished burial site. A marble tomb with a baldachin was erected in the northern aisle during the 14th century, but we do not know for whom it was intended. Pipo of Ozora – King Sigismund's Italian general – reconstructed one of the western towers so that he could establish his family's sepulchral chapel within it. Other private chapels were attached to the church's northern side. The most significant of these was the sepulchral chapel of the church provost, Domonkos Kálmáncsehi, built at the end of the 15th century.

The next large building project was begun during the reign of King Matthias. First, before 1483, the nave's 14th century vaulting was replaced with a late Gothic net vaulting. Around 1483, the large-scale construction of a late Gothic hall chancel with an ambulatory and a series of chapels was begun, conforming to architectural style of the period. This stood uncompleted at the time of the king's death in 1490. King Matthias, as well as his successors, Vladislas II, Louis II and János Szapolyai, who perhaps continued the construction of the new chancel, were buried in the basilica.

Fig. 3. The building periods of the Székesfehérvár Basilica



ESZTERGOM

In contrast to Székesfehérvár, the buildings of the medieval royal residence largely survived in Esztergom, the Árpád Dynasty's other seat. The Turkish wars extensively damaged the medieval royal – and later archiepiscopal – castle, but here the ruins were not 'mined' in the post-medieval period. Only the medieval St. Adalbert's Cathedral fell victim to the construction of the new basilica. Numerous surveys, drawings, paintings, descriptions and many carved stones, as well as the entire Bakócz chapel still bear witness to its former glory. Research into Esztergom Castle is made difficult not by the scarcity of sources, but by the size of the area to be excavated and the amount of finds and carved stones that still await cataloguing and evaluation (*Fig. 4*).

One of the main directions in the research at Esztergom was conducted by the art historians studying the site, most prominently Ernő Marosi's stylistic analysis of the 12th and 13th century carved stones from the castle and the cathedral. His study sheds light on one of the most important turning points in medieval Hungarian art, the period when the Romanesque style was succeeded by the Gothic. The shift from one style to another can be truly pinpointed, since we know that stonecutters versed in different traditions worked side by side in the workshop. Some continued the

decades old traditional style in Hungary, while others transmitted the latest style from the great Western Europe artistic centres. The intensive building activity drew masters from the far reaches of Europe, who created an independent artistic centre, adapted to the local demands and possibilities. The finest monument was undoubtedly the cathedral's main portal, the *Porta Speciosa*, constructed under the direction of Béla III and the Archbishop Jób. Although destroyed in the 18th century, a number of depictions have survived of this magnificent monument, together with a few carved stones from it. Made of red and white marble, the portal was originally decorated with coloured marble inlay.

The second significant direction of research into Esztergom Castle was the reconstruction of the former palace buildings on the basis of the surviving walls and the fragments of carved stones. In 1938, Kálmán Lux completed the reconstruction work in the chapel of Esztergom palace, one of the finest and most beautiful achievements in the history of Hungarian historic preservation. The chapel's walls were found under a modern fill. The enormous amount of carved stone, as well as the 14th century frescos, portions of which were found in their original position on the walls and the rest among the debris, both enabled and called for the protection of the surviving remains and the restoration of the chapel. Similar reconstructions on other parts of the palace

Fig. 4. Esztergom Castle





Fig. 5. The chapel of Esztergom Castle

were not possible due to restricted amount of time and funds, but even so the palace became a unique monument to Hungarian secular architecture from around the year 1200 following the excavation and restoration work. On the hill's steep southern bluff – on the site of earlier structures – were the keep erected by Béla III, the White Tower, as well as its northern extension and the chapel standing next to it, originally part of the monarch's private apartments (Figs 5–6). In the 13th century, when the royal residence had already been moved to Óbuda, Béla IV donated the palace to the archbishop of Esztergom. In the 14th and 15th centuries, the prelates made a few architectural alterations on the palace's southern sections and they also commissioned the rich fresco ornamentation of the interior spaces. Archbishop Csanád Telegdy painted the walls of the chapel in the 1330s and Renaissance frescos were completed for the keep's northern chamber at the end of the 15th century.

Fig. 6. Capital in the hall of Esztergom Palace



Further investigations at Esztergom, conducted by István Horváth, brought to light another part of the palace that lay hidden under later structure: the imposing hall with its attached kitchen and the so-called small Romanesque palace (Fig. 7). It became clear that in the

mid-15th century, Dénes Széchy and Archbishop János Vitéz built an enormous hall, twice as wide as the original long and narrow 12th century hall. A gallery supported by buttresses opened from this huge hall covered with wooden vaulting on the side of the hill facing the Danube. At the northern end of the hall stood a small chapel of earlier origin, called the Sibyl Chapel after its fresco decoration. Behind this was built the tower that contained the palace's privy. Connected to the southern end of the banquet hall were the kitchen that has survived for the most part to this day, and a smaller hall paved with red marble. Between this smaller hall and the late Gothic palace chapel, Archbishop György Szathmáry erected the palace's Renaissance residential wing and hanging garden in 1522–24.

Most of the carved stone fragments from the late medieval palace still await cataloguing and evaluation. The preliminary results of this work, such as the identification of the banquet hall's numerous structural elements, show a promising start. This cataloguing work will no doubt yield new information on the southern Árpáadian Age palace uncovered earlier (Figs 8–9).

13TH CENTURY ROYAL CASTLES

In the 1230s, Béla IV built a new royal residence in Óbuda, when this town was still called Buda. There had been a ruler's residence here since the Conquest period, next to which King Péter (1038–46) – following the example of King Saint Stephen's construction of a church in Székesfehérvár – founded the provostship of St. Peter. The provost's office was built within the walls of the late Roman *castrum* and it seems likely that the earliest part of the medieval settlement, the *civitas*, was also located here. Later on, a market square surrounded by the houses of the villa was

Fig. 7. The hall of Esztergom Castle during the investigation



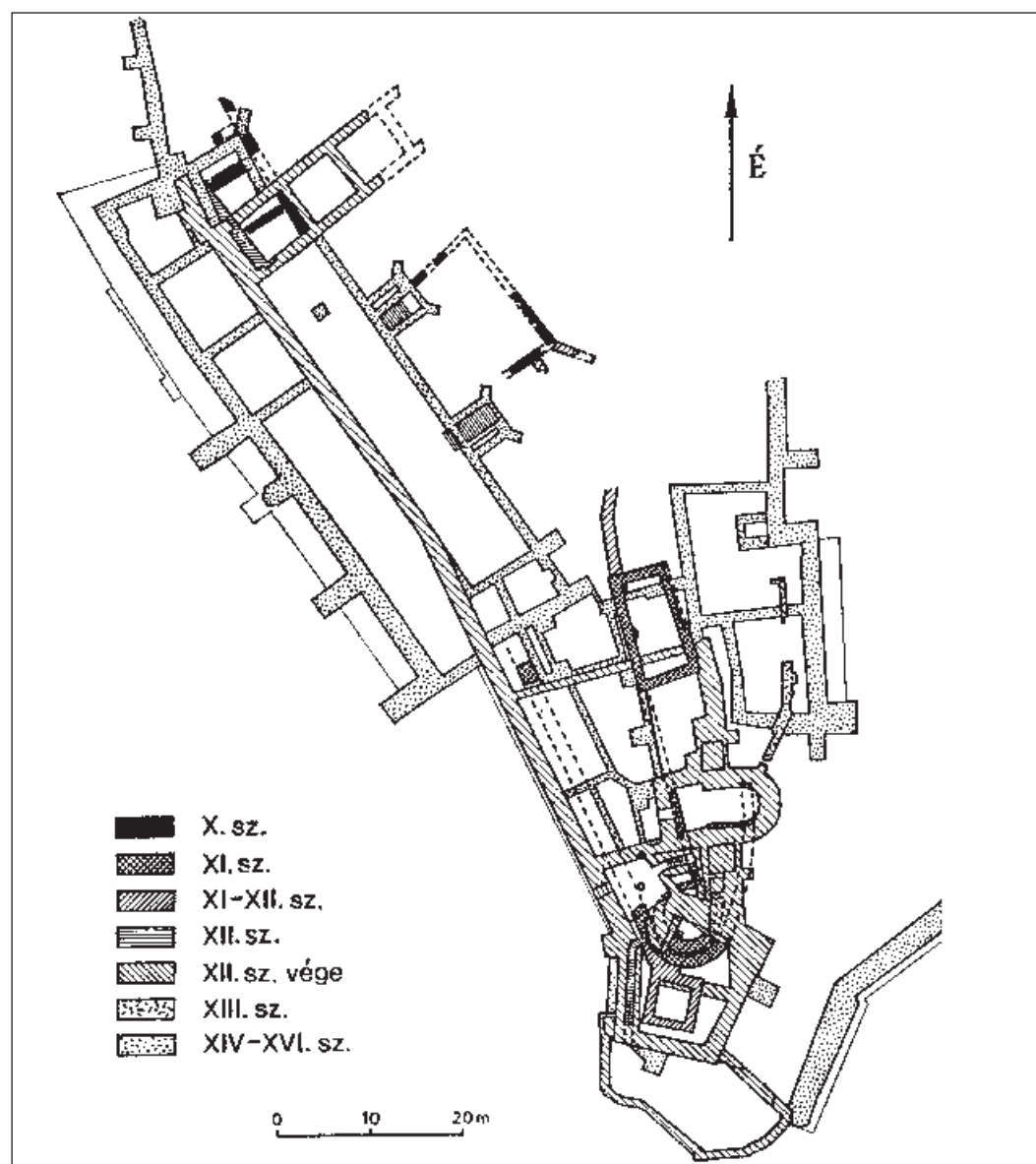


Fig. 8. The building periods of Esztergom Palace

Fig. 9. Esztergom Palace in the 15th century



established at the southern end of the *castrum*. The 13th century royal castle was erected on the opposite, western side of the *civitas*, by the road traversing the town (Fig. 10).

Unfortunately, it has proved impossible to fully excavate and exhibit Óbuda Castle, as two listed monuments occupy the site – a Reformed church built at the end of the 18th century and the 1908 Art Nouveau parsonage house designed by Károly Kós. The medieval building's remains were encountered for the first time during the construction of the latter. Later research can be regarded as typical of urban excavations, with many small trenches opened and excavated at different times, meaning that only small, isolated sections were observable at any one time, from which the groundplan of the one-time castle had to be pieced together like a mosaic. The castle built by Béla IV was a square, symmetrical palace building with a central courtyard enclosed by walls and a moat. Above the entryway decorated with an ornamental portal with splayed jambs rose a tower whose lower section was square, while the upper section was octagonal. The lower part of the tower opened into the palace chapel, dedicated to St. Elizabeth of the House of Árpád, whose polygonal chancel protruded from the closed mass of the building. A similar apse at the castle's southeast corner may have been part of the former throne room. The symmetrically planned Óbuda Palace was decorated with stonework of outstanding quality, conforming to the 13th century European style of castle architecture. In its time it was a building entirely unmatched by any other in Hungary. The luxury of the palace fulfilled royal demands for a long period; it remained the most important residence of Hungarian kings in Buda until the reign of Charles Robert (1301–

Fig. 10. Groundplan of Óbuda Castle

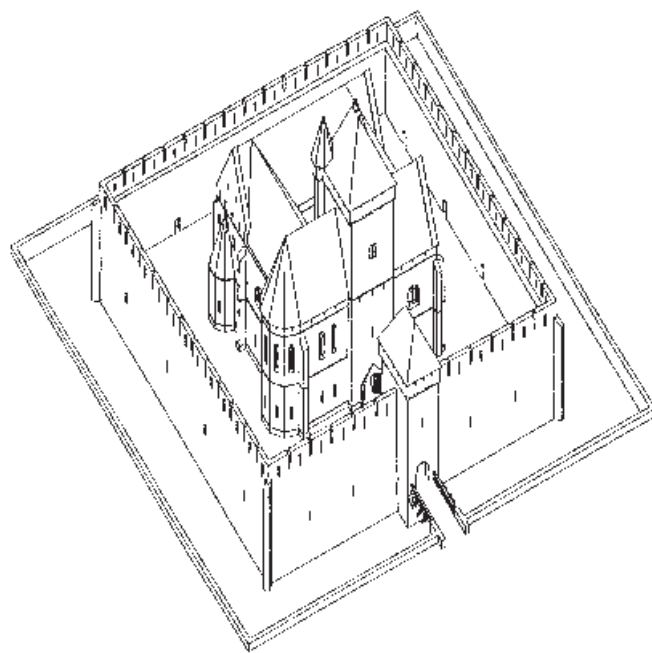
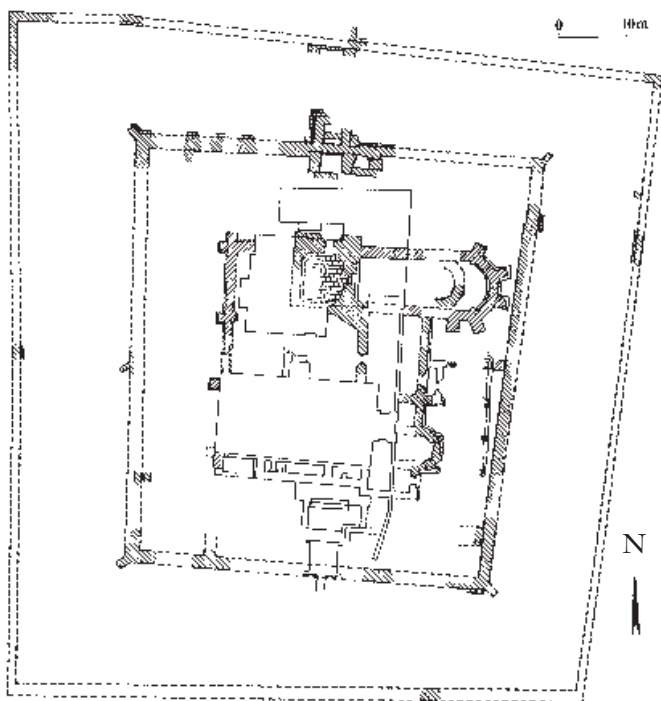


Fig. 11. Reconstruction of Óbuda Castle

1342). After his death, his son, Louis I, donated the palace to his mother, Elizabeth, who renovated the castle serving as her new seat and embellished it with the erection of magnificent new churches (the parish church dedicated to the Virgin Mary and the convent of the Poor Clares) (Fig. 11).

THE ROYAL PALACE OF BUDA

Of the Hungarian medieval archaeological sites, the one whose research has been conducted for the longest time and on the largest scale is the area of the royal palace in Buda. The first archaeological soundings in the modern sense were made in 1946, after the devastation of World War 2, but systematic excavations were only begun in 1948. Although it was evident from the outset that the country's most important medieval site should be investigated within the framework of an independent research project focusing on the castle alone, the excavations were entirely subordinated to the reconstruction of the modern royal palace and to whatever building work was done in the area. Unfortunately, this attitude has essentially remained unchanged to this day, and only recently has archaeological research begun to take precedence, ensuring the coherency of the historic restorations.

The first phase of the investigations, conducted with varying intensity depending on the investment project, lasted until 1962–63. Directed by László Gerevich, work was primarily focused on the medieval palace's southern section, its interior courtyards and their surrounding palace wings, as well as certain parts of the fortifications. It is important to point out that the excavations undertaken at this time produced not only important results, but also created a



Fig. 12. The chapel of Buda Palace

school of modern medieval archaeology in terms of the elaboration of field techniques and the evaluation of the finds (*Fig. 12*). After a series of preliminary reports and minor publications, Gerevich wrote a monograph summarizing his investigations and findings (*Fig. 13*). The second phase of research on the palace, beginning in 1970, was originally a rescue excavation because the construction work had reached the northern part of the palace. The exploration of the western section of the former northern forecourt (now called the Hunyadi Courtyard) proved to be decisive from an archaeological standpoint. During the course of this work it became clear that the site was of particular importance not only for the history of the palace and the medieval town, but also as regards Hungarian medieval art history as well. The work directed by László Zolnay until 1985 brought two major findings. One of these was that be-

Fig. 13. Medieval gate in Buda Castle



tween the 13th and 15th centuries, the area of the courtyard had originally been part of the town. Houses and building plots covered the site and only after their gradual demolition was the area annexed to the palace. The second, far more familiar to the general public, was the unearthing of the treasure trove of Buda's Gothic sculptures.

During more recent investigations, the excavation of the Hunyadi Courtyard in 1986–87 was completed first and the excavation of the Csikós [Horseman's] Courtyard. We expect to gain important information on the relationship between the different fortifications and roads from the Árpadian Age to the Ottoman period.

The investigation of a new site was begun between 1998–2000. The eastern ward (today the Öntőház [Foundry] Courtyard) was first investigated with a sounding excavation. Two large 16th–18th century buildings that had without doubt functioned as forges during the Baroque period, but were known only from earlier site plans, were identified for the first time. A similar sounding excavation was conducted in 1999–2000 in the area of the royal gardens outside the fortifications on the southwestern slope of Castle Hill, where carved architectural stonework in the Renaissance style was found in its original position for the first time.

Mention must also be made of the excavations in front of the palace, conducted since 1994 in Szent György Square. István Feld's excavations of the remains of St. Sigismund's Church brought to light statuary that was closely related to the sculptures found by Zolnay; two other fragments, most probably originating from the same group, were later found by Károly Magyar. Finally, we must call attention to Dorottya B. Nyékhelyi's discovery of a unique find assemblage during her investigation of the former Teleki Palace. Textiles of unmatched quality and quantity, including a tapestry emblazoned with the Angevin and Hungarian crests, as well as leather, wood and other finds were found preserved in the silt at the bottom of a well.

In spite of the decades' long and extensive studies in the fields of art history, architecture, history, and archaeology, there are still numerous unanswered questions concerning the medieval royal palace. There are two main reasons for this. First, due to the destruction of the royal and the Buda municipal archives, we must do without an important corpus of written source material. Second, the damage done to the palace's architectural remains restricts the conclusions that can be drawn from the archaeological record. This damage can in part be attributed to the devastations caused by successive wars and in part to the demolition and landscaping activities accompanying the various construction and rebuilding projects.

As regards the royal palace, the most important issue remains the question of its origins. The lively, long-running debate on this question – which has gone down in the annals of medieval archaeology as the 'Buda debate' – basically concerns the location of the early palace. The main protagonists of this debate were Tibor Gerevich and László Zolnay, who voiced diametrically opposed opinions. Ac-

cording to Gerevich, the earliest living quarters stood in the same place as the later residence, at the southernmost end of the plateau of the Castle Hill, separate from the town. Zolnay believed that the site of the first royal court was located on the opposite, northeastern corner of Castle Hill, within the town's line of defence, and that it can be identified with the building referred to as the *Kammerhof* or *Magna curia regis* in sources dating from after 1301. Even though the written sources support Zolnay's argument, only minor preliminary investigations have been conducted on the site of the *Kammerhof*, located to the plot of 9–11 Táncsics Mihály Street and it is therefore too early to draw a final conclusion.

Of the remains excavated at the southern end of Castle Hill, the earliest architectural assemblage can be more or less safely dated to the middle third of the 14th century. The structure occupied the cliff top's southernmost portion stretching northward and widening slightly to form a trapezoidal shape. Its four wings enclosed a narrow rectangular courtyard, referred to in later sources as the Small Courtyard. A massive square tower with a different orientation protruded from the southwestern section. It seems that this donjon, the only structure to lend a fortified character to the complex, was primarily used as treasury and final place of refuge and, occasionally, as living quarters. Research has identified this building complex as the building referred to as the István Castle in a 16th century Hungarian-language source. This would suggest a connection with Stephen, the younger brother of Louis I the Great, who probably dwelt here between 1347 and 1354.

Most scholars generally agree that the next significant construction occurred after the prince's death, and can be linked to Louis the Great. Strictly speaking, the history of the royal palace can only be traced from this time. At this time, several major events took place in Buda: the 1365 visit of the Holy Roman Emperor Charles IV, the visit of John V Palaiologos, and Casimir III the Great's visit in 1368. The imposing, new southern palace would most likely have been the suitable setting for these events, even though the first, topographically reliable descriptions of this palace date to 1390. The major scene of Louis the Great's extension was the foreground of the István Castle, on the presumed site of the forecourt. More recent studies have convincingly demonstrated that a 1366 charter presented to the Pope that was earlier believed to relate to the chapel in the eastern wing, actually refers to Visegrád, and does therefore not contain any useful information on the construction work in Buda. Still, the chapel itself – at least in its initial form – may have been built by Louis the Great, and the artistic style of its single surviving portion, the sub-chapel, does not contradict this possibility.

One of the most important periods in the palace's development was the reign of Sigismund of Luxembourg, particularly in the 1410s and 1420s. Even though Sigismund was rarely present in Buda – as a matter of fact he was away from the country during much of his reign – he made every effort to transform his palace into a royal centre on par with any European court. Although the written sources record that

the work remained incomplete, the groundplan and structure of the palace complex underwent significant changes. Disregarding the changes at the close of the Middle Ages, the overall conditions established by this time have hardly changed. Most of the remains that can be seen today originate from this period (*Fig. 14*).

It would appear that in the first part of Sigismund's reign, construction work remained for the most part within the framework of or conforming to the Angevin palace. The southern wing of the István Castle collapsed or was demolished, and was replaced by a new, stately, multi-storied building. A similar, possibly somewhat simpler multi-storied building was erected on the slope as well. These two new buildings practically enclosed the southern portion of the István Castle that had stood alone until then. The enlarged Angevin period palace was finally enclosed within a trapezoidal defencework, retaining the original northern boundary of the complex. It seems likely that two towers were built at the eastern and western ends of the dry moat enclosing the complex from the north, also as part of this construction work.

After this first, relatively minor, construction, Sigismund expanded the boundaries of the palace in all four cardinal directions. Of these, the northern extension

Fig. 14. Gothic window in Buda Palace



was suitable for the construction of a huge courtyard, primarily for the purpose of comfort and entertainment, as well as new palace wings. The pride of the courtyard was probably the third wing standing on the northern side and running east–west that can be identified with the building referred to as the Sigismund's palace in the sources. Its enormous size is well reflected in the ceremonial hall, whose groundplan measured 100 paces by 25 paces, or about 70–75 m by 18–20 m. To the north of this, a second east–west moat, much larger than the earlier one, was cut into the rock to separate the courtyard from the town. Sigismund's other additions on the eastern, southern and western slopes were primarily for defensive purposes. The defences of the eastern side extended all the way to the Danube at this time, ensuring not only a permanent water supply, but also the effective control of the riverside road, the harbour and of the river itself.

THE GOTHIC SCULPTURES OF BUDA CASTLE

In February, 1974, numerous fragments of Gothic sculptures were discovered during László Zolnay's archaeological investigations in the western part of the medieval palace's northern forecourt. Most of these lay in one spot. A total of some sixty statuettes could be identified from the several hundred fragments. The excavations revealed that the findspot of these sculptures lay among the remains of a building that was originally part of the burghers' town and that had been filled up with debris, including the sculptures. The building was demolished along with other similar structures in the Middle Ages, when the new forecourt of the palace was created. The archaeological excavation failed to clarify a number of important points, and therefore the debate on the sculptures cannot be considered entirely resolved. Zolnay first suggested that they dated from the Angevin period, and Ernő Marosi, the research team's art history expert, initially accepted this dating. However, following the cataloguing and evaluation of the finds, Marosi argued for a later date and linked them to Sigismund's large-scale construction projects. Today, his dating of the sculptures to the 1410s and 1420s is generally accepted.

The original location of the sculptures is also debated. (It must here be noted that some of them had probably never been installed.) László Zolnay and Ernő Marosi hypothesized that the sculptures had originally adorned the palace, but more recently Gergely Búzás has suggested that they may originate from St. Sigismund's Church. This possibility, however, is contradicted by archaeologist András Véghe's recent discovery, namely that a fragment depicting hands raised in prayer, found by the palace chapel's remains during Gerevich's excavation, can be fitted to the wrist of the statue known as the 'blue gownned female saint' found by Zolnay.

BUDA PALACE AT THE END OF THE MIDDLE AGES

In the two decades following Sigismund's death – that is, during the reigns of Albert, Vladislas II and Ladislaus V – neither the historical sources, nor the archaeological record indicate significant construction on the royal palace. The next major construction can without doubt be assigned to Matthias Hunyadi's reign. Particularly important is the period following his second marriage in 1476 to Beatrix of Aragon, daughter of the King of Naples, when the gradual spread of the new Italian style, the Renaissance, is perceptible. Contemporary sources, primarily Bonfini, describe Matthias' extensive building activity, supported also by the numerous Renaissance architectural sculptures mentioned earlier. However, very few building remains can actually be attributed to Matthias. This contradiction may be explained in part by the fact that Matthias' construction projects were fundamentally directed at the modification, modernization and embellishment of already existing buildings in the new style (the remodelling of ceilings, the replacement of earlier door and window frames, the erection of statues and ornamental fountains). All of these buildings have been destroyed, together with their modernized parts. According to the sources, Matthias' most significant construction projects were concentrated on the palace wings surrounding the Grand Courtyard and on the chapel, as well as the northeastern building of the Sigismund Courtyard. In connection with Matthias' reign, the sources rarely fail to mention the royal gardens and the structures within them. These have not been identified yet since the investigations have just begun.

It is evident that the Renaissance construction did not end with Matthias' death, but continued, particularly during the first half of the reign of Vladislas II, although on a smaller scale. This is verified by the data from several sources, in addition to a number of carved stones with Vladislas' coat of arms. However, the exact site of the construction is debated, similarly to the construction projects from Matthias' time. We have no knowledge of any particular construction from the subsequent period, from Louis II's reign.

Following the defeat at the Battle of Mohács on August 29, 1526, and the death of the king, the role of Buda and the royal palace were abruptly reassessed. Upon receiving news of the defeat, the queen and her retinue fled the country and Buda was briefly occupied by the sultan's forces. In contrast with the town that they torched, the Turks were satisfied with 'merely' plundering the palace. After their withdrawal, János Szapolyai temporarily occupied Buda, but in the summer of 1527 he was forced to hand it over to Ferdinand Habsburg, who had also been crowned king in the meantime. From this point, Buda became the site of important military clashes in the fight between the two rival kings, and this greatly influenced the nature of the construction work in the palace. In 1529, the armies of the sultan reoccupied Buda and

handed it over to Szapolyai who was by now considered the Turks' vassal. Szapolyai made a conscious effort to reinforce the defences in several successive building projects. In the case of the palace this meant, first and foremost, the construction of new defences for the southern part that was most vulnerable in the case of an assault. The triangular bulwark of the Sigismund period protruding from the gentle slope was replaced with a huge, round cannon bastion in the late 1530s. Its thick walls were designed to better withstand the bombardment of enemy cannons placed on Gellért Hill, and, also, to be able to return fire with its own cannons. A covered battery, a casemate corridor, was built in the south-eastern portion between the new bastion and the eastern ward and in front of the latter's southern wall, from which the entire southeastern slope could be kept under a crossfire. These defences, considered modern in their era, were able to stand up against the sieges of Ferdinand's followers, but they were unable to prevent the Turkish army from occupying the castle when they arrived – in their words – as allies to lift the siege. Buda remained under Turkish control for the next 145 years. The royal palace lost its earlier function and for all practical purposes served as a barracks, armoury and prison.

VISEGRÁD

In the Middle Ages, Visegrád played an important political role in the life of the country: from the 11th to the 13th century, it served as the governing county seat of the Pilis royal forest and as occasional royal lodgings, in the 14th century as a royal residence and in the 15th and 16th centuries as one of the most important royal residences. At the same time, the settlement's economic significance was essentially negligible. Its existence, wealth and urban status were al-

ways due to its political role. In terms of archaeological investigations, this luckily meant that the medieval ruins were neither rebuilt, nor was their stone reused for other buildings during the Ottoman and post-medieval periods. The enormous walls of Visegrád Castle always remained visible, and by the later 19th century a nation-wide movement was launched for their excavation and restoration. However, the architectural ruins of the royal palace and town remained concealed under the modern, often several meters thick fill until the 20th century. When the modern archaeological explorations began in the 1930s, the medieval layers were for the most part undisturbed. As a result, Visegrád, more than any other Hungarian royal seat, offers a more complete picture of the medieval royal court and of its architecture and material culture.

After the Mongolian invasion, and with rumours of their possible return, Queen Maria, consort of Béla IV, began building Visegrád Castle around 1247. Construction was continued in the 1250s and 1260s by the king, who erected an enormous keep and constructed a barrage wall closing the valley between the citadel that was now used as a place of refuge, and the keep. The castle, primarily the spacious keep, became the residence of the Pilis county bailiff, as well as occasional lodgings for the king when hunting in the Pilis. He also added a gatehouse tower, a pentagonal donjon, and a tower-like palace building to the corners of the triangular citadel. Running down to the Danube from the citadel was a wall fortified with square watchtowers and with a gatehouse near the river. The elongated hexagonal keep was built behind the gatehouse (*Fig. 15*). Visegrád Castle stands out from among the castles built after the Mongolian invasion not only by its huge size and proportions, but also by its ornamentation and magnificent appearance.

Visegrád only became a genuine royal residence after 1323, when Charles Robert moved his seat from Temesvár



Fig. 15. The lower castle at Visegrád (the Salamon Tower)

(Timișoara, Romania) to within the well defendable walls of Visegrád Castle. The first goals of the construction were to reinforce the castle and to make it more comfortable. A new inner wall system and closed courtyard were built around the keep and stone partitioning walls were put up in the keep's interior. The first and fourth stories were vaulted and the structure of the defensive balcony was altered as well. By 1325 the baptismal chapel of St. John had been built, presumably in the keep. In the citadel, the 13th century residential building was replaced with two new palace wings. The southeastern wing contained a storehouse on the ground floor with a two story main hall above, the southwestern wing accommodated the kitchen on the ground floor and a two chambered apartment suite in the upper story. The castle was reinforced with a new enclosure wall, a farmyard and a dry moat cut into the rock. The town, where the royal residence was built, was established on the site of the former *hospes* settlement during these years. It was here that Felicián Zach tried to assassinate the royal family.

The archaeological excavations brought to light the section of a loosely structured settlement of wooden houses and open-air ovens from around 1300 on the site of the later royal palace. When the royal court was relocated to this area, this was replaced by a street with regularly placed wooden and stone houses on both sides. The rectangular houses lay parallel to the street, and their entryways opened on the broad side. The buildings may be divided into two basic categories. These types were also to be found in other

parts of the medieval town up to the beginning of the 15th century. The smaller, approximately 7 m by 18 m buildings had two rooms, a living room heated by an oven, a tiled stove or a hypocaust, and a kitchen heated by a stove. Those with upper stories were made of stone, while those without were made of wood. The second type of house was much larger, approximately 15 m by 30 m. These were made of either stone or wood and they always had an upper story. Their ground floors did not contain living quarters, but were used as storage or service areas; for example the furnaces heating the hypocaust of the upper floor were placed here. Wooden posts supported the wooden roofing. The arrangement of the rooms in the upper story may only be construed on the evidence from a single building. It seems likely that two rooms opened from either side of a large hall, one of each heated by the hypocaust. The attics of these houses were also used as living quarters, as shown by the discovery of stone frames from gable windows during the excavation. These large houses may have been the mansions of wealthy nobles living beside the royal court, while the smaller ones can be regarded as more modest houses inhabited by burghers. It is uncertain whether the early royal residence can be identified with one of the larger mansions; this possibility remains open.

The most fully excavated of these large mansion houses was abandoned a few decades after its completion, and after Louis I ascended the throne, it was occupied by a large stone carving workshop made up of at least 30 stonecutters. The

Fig. 16. Visegrád Palace and the Franciscan friary



stone-carving sheds were erected against the exterior walls of the building. The stones carved here were intended for a church, whose foundations were laid next to the house across the street. The construction only lasted for a few years and was halted when the royal court moved to Buda in 1347. Judging from the quality of the building and the number of stonecutters active among its walls, it seems quite certain that this was a royal construction project. Perhaps it was the commencement of work on a royal chapel.

The court returned to Visegrád in 1355 and the extension of the palace began at this point. The street running along the foot of the hill was demolished together with the row of houses facing the Danube, to be replaced by a spacious courtyard and a garden in the courtyard's northern half. The buildings on the hillside were retained and were expanded with new wings. In 1356, the royal treasury building was already standing; it has been identified as the building excavated in the palace's southeastern section with a wood and stone structure, modelled on the earlier large mansions, but accommodating a large workshop. By 1366, the palace chapel dedicated to the Virgin Mary was completed. It can perhaps be identified with the palace chapel later mentioned as St. George's chapel, lying to the south of the current palace. King Louis the Great's palace at Visegrád was a complex of many buildings covering a large area that, similarly to other 13th–14th century urban royal residences, lacked defenceworks (*Fig. 16*).

King Louis I also continued construction on the Visegrád citadel. The inner castle's new northwestern palace with a storage area on the ground floor and a three chambered apartment above it was most likely built during his reign. The southwestern palace's apartments were expanded by an additional hall on the new second story.

At the beginning of King Sigismund's reign, a radical rebuilding of the royal residence was begun. After the demolition of the earlier palace from Louis I's time, a slightly smaller, symmetrical, 123 m by 123 m new palace was built on its site. The western half of the walled architectural ensemble was occupied by a large courtyard, an open expanse that was possibly the site of festivals and knightly tournaments. The chapel stood on a terrace cut from the side of the hill in the central axis of the courtyard. The ground floors of the buildings enclosing the courtyard's northern side were occupied by the large kitchen, storage areas and the wine cellar. On the upper story of this wing stood the palace's great hall, where ceremonies and banquets were held. A smaller hall on the upper floor of the western wing overlooking the street served as a stately banquet hall for the king and his high-ranking guests. Closing the lower courtyard from the east was a square palace with a central courtyard that was the residence of the royal couple. However, the lower level of its western wing facing the courtyard was used for the palace's official functions, judicial halls and the chancellery. The ground floors of the palace's other two wings, as well as the upper story of the eastern wing facing the hill, were apartments for the court attendants and mem-



Fig. 17. Ornate fountain from the Sigismund period in Visegrád Palace

bers of the royal household. Here, at the southern end of the eastern wing, was the king's private kitchen. The upper floor of the palace's other three wings held the apartments of the king and queen. The privies on this level were located in an independent tower that had water conduits leading to the palace's sewage water tank. The two apartments opened onto the western wing's large, common dining hall. Each apartment was made up of three chambers, a private dining room, an antechamber and a chamber. The private dining room of king's apartments in the southern wing had an open balcony on the façade facing the open courtyard, where the king could appear before his subjects in regal splendour. The queen's apartments were in the northern wing facing the garden. The interior courtyard of the domestic palace was adorned with a huge tower-shaped decorative fountain and its engaged, multi-story arcades. The fountain was completed along with the water system in the second phase of construction (*Fig. 17*). At this time, the original plans were slightly altered by erecting a second story on the eastern wing for yet another apartment, perhaps for the new queen, Sigismund's second wife, Borbála Cillei. A bathroom

suite with hot and cold running water, a bathing room with a stone tub and also containing a washroom heated by a hypocaust system was connected to this apartment. This apartment also had an enclosed garden, whose walls were adorned with a row of sedilia and a magnificent wall fountain. A small closet was fashioned near the bath's stoves for the winter storage of special plants that were sensitive to frost. A bridge led from the garden's terrace to the oratory of the palace chapel, above the vestry.

On the palace's north side, below the former apartment of the queen, there was another small closed flower garden fenced in with tall walls accompanied by a grassy berm. Beyond this was a large square garden, also enclosed by a stone wall, and planted with grass, fruit trees and grapevines, in whose centre at the foot of the hill stood a red marble fountain. Terraces rose on the hillside above the fountain. Beyond the garden was the palace's farm yard with stables.

The construction of the palace itself lasted from the end of the 1380s to the first decade of the 15th century. Between 1405 and 1408, Sigismund's court moved to Buda and Visegrád Palace lost its rank as the main residence, but it survived as a secondary residence and the buildings were renovated and even expanded.

Sigismund also reconstructed the Visegrád citadel. He erected a new enclosure wall, added an imposing gatehouse to the defences and built the ladies' apartment connected to the donjon in the inner castle. During the reign of Ladislaus V and the first half of Matthias' rule, Visegrád lost its role as a royal residence. The town withered in the absence of the court and the palace buildings started to decay. Their restoration only began after Matthias' marriage to Beatrix in 1476, and lasted until the mid-1480s. Matthias linked the Visegrád estate to the Buda royal court judiciary, and charged the Buda court magistrates with the task of supervising the palace construction. The restoration of the Sigismund era buildings was performed by one of the Buda magistrates' late Gothic workshops that also worked on other construction projects, particularly in northern Transdanubia. This workshop can be credited with the palace's most ornate architectural elements, including the late Gothic oriels decorated with sculptures and crests on the street front façade. Other Hungarian masters also played a role in the palace ornamentation. The red marble wall fountain decorated with lions, made in 1483, from the upper private garden is presumably the work of a marble sculptor from Buda. Matthias also brought an outstanding Roman sculptor, Giovanni Dalmata of Trau, into his service.

This artist ran a workshop made up of Italian sculptors and stone-carvers that received important tasks in decorating the palace: two fountains (the Hercules Fountain and the Fountain of the Muses), the ceremonial courtyard's Renaissance loggia, and the furnishings of the chapel. Another member of the

workshop was a less talented sculptor, Giovanni Ricci of Como, who made the relief lunette known as the Visegrád Madonna (*Fig. 18*). These Renaissance works of art were the first major Renaissance sculptural and architectural works produced north of the Alps. White marble altars and a tabernacle brought from the workshop of Andrea Verocchio in Florence were also installed in the palace chapel.

While the Matthias period alterations included the old palace's complete renovation, the functional arrangement of the Sigismund period architectural complex hardly changed. Matthias completed similar large-scale renovations on the Visegrád citadel as well, and began the renovation of the Franciscan friary, although this work was only finished in the first decade of the 16th century, under Vladislas II.

THE RE-CREATION OF THE RENAISSANCE IN VISEGRÁD

One of most significant discoveries in the history of 20th century Hungarian medieval archaeology was undoubtedly the identification and excavation of the medieval royal palace in Visegrád. The remains of the Hercules Fountain that decorated one of the palace's inner courtyards were among the most spectacular discoveries. Its discovery, scholarly evaluation and later reconstruction all illustrate the opportunities and, at the same time, the problems that must be faced by scholars of medieval archaeology.

Visegrád was always a place with a symbolic significance in the study of medieval Hungarian history, and archaeology was quickly given the chance to show how much it could contribute to illuminating the national past. In the earlier 19th century, one of the popular themes of historical paintings were the medieval ruins at Visegrád: the citadel and the Salamon Tower, or the medieval events connected with the area set in an imaginary medieval environment, such as Felicián Zách's assassination attempt on Charles Robert and his family, or the theft of the crown from the Visegrád Castle. These works of national Romanticism usually took their themes from medieval sources, such as the *Chronicon Pictum* or the memoirs of Helena Kottaner. Similarly, medieval or post-medieval texts served as the starting point for research into King Matthias' widely renowned, magnificent former palace. The archaeological excavations held out the promise of discovering the remains of the palace of one of Hungary's most outstanding sovereigns and, at the same time, of dis-

covering the magnificent works of art that were described in glowing accounts of the palace's splendour. The accounts by Antonio Bonfini provided a good starting point. In these writings, the fountains, undoubtedly among the palace's most important decora-



Fig. 18. The Visegrád Madonna (red marble relief)

tions, are described in detail. It was hoped that the excavations would bring to light the lost works of art, proving that under King Matthias the Renaissance appeared in Hungary not only in poetry, as Janus Pannonius proudly noted in his poems, but also in other artistic branches.

Taken together, these factors illustrate how the search for the remains of Visegrád Palace was closely allied to the progress of medieval archaeology in Hungary since the 19th century. The early phase of this discipline was characterized by the excavation of architectural ruins, primarily the remains of monuments that were known from historical sources. The fundamental goal was the discovery of the physically tangible, presentable remains of buildings and monuments connected with outstanding persons, events or periods. One could hardly have found a better candidate than King Matthias' one-time magnificent palace. This palace was also a symbol of how the former glorious residence of a Hungarian ruler vanished during the stormy centuries of Hungarian history. Unlike the citadel or the Salamon Tower, the palace did not have any visible remains, and thus the scholars were driven by the same romantic ideas as the ones searching for the ruins of Troy and Knossos, guided only by the passages in various ancient texts. Luckily, in the case of Visegrád this search was conducted with a scientific approach, resulting not only in the discovery of the palace, but also in the growing number of sensational finds from year to year after 1934.

The red marble fragments of the Hercules Fountain were found in the ceremonial courtyard of the largest palace wing (*Fig. 19*), investigated during the first excavation campaigns in the second half of the 1930s. The fountain's side facings, or rather their fragments, decorated with King Matthias' various crests, were the first sensational finds, discovered in the middle of the courtyard scattered on or around the fountain's stepped pedestal. From the very first moment there was all that one could expect from this kind of excavation – proof that Matthias' palace had been found, together with evidence for outstanding works of Renaissance art and details that were familiar from contemporary descriptions. The fountain's huge, round upper basin and the fountain's main figure, depicting the young Hercules as a child riding on a monster's back, were found in a nearby room. From the beginning, this raised the possibility of undertaking the architectural reconstruction of the palace, with the fountain assembled from the discovered fragments as a part of this reconstruction. The fact that this reconstruction was only performed several decades later, in 2000, was a consequence of the interplay of many factors.

Following the discovery of the fountain, the excavations were continued to the present day. The first restoration project was conducted in the 1940s, and was succeeded by several other works of this type. Most significant among these was the large-scale project of more recent years. The archaeologists working on the site were favoured with good luck and they uncovered a number of sensational finds during later years too, again leading to suggestions for the res-



Fig. 19. Excavations in the ceremonial courtyard during the 1930s

toration and reconstruction of these finds. Another red marble fountain in the Gothic style was found, the so-called Lion Fountain of King Matthias. Visitors to the palace have admired this fountain in its restored form for decades, and in many ways it served as a model for the reconstruction of the Hercules Fountain. As more and more sections of the palace were uncovered, it became clear that significant building work was done on the palace time well before Matthias', during the of King Sigismund and throughout the Angevin period reign. This raised the problem of which features should be restored and reconstructed, and how this reconstruction work should proceed. Ernő Szakál's artistic reconstruction, based on a meticulous examination of the remains, resulted in a faithful re-creation of the Lion Fountain that now stands in its original place, while its original pieces are presented in the museum exhibit. Researchers are thus free to study the original pieces, while visitors can admire the fountain in its original splendour and they can at the same time compare it with the remains found during the excavations. The same solution appeared feasible in the case of the Hercules Fountain, except for the fact that in this case the reconstruction of its architectural environment was more problematic and stirred quite a debate.

The reconstruction and re-creation of the one-time ceremonial courtyard called for the re-assessment of all of the material found in the course of the decades-long excavations, including the carved stones, such as those of the Hercules Fountain, in order ensure an accurate evocation of the building's appearance, at least to the height of the first story. The Renaissance fountain was thus re-erected in its original environment. The new exhibition in the rooms of the palace also presented the fountain, re-assembled from its original fragments.

The Hercules Fountain is thus not simply a major find of medieval archaeology in the 20th century, but also a good illustration of Hungarian historic preservation and the reconstruction of destroyed monuments.

THE ARCHAEOLOGY OF HUNGARY'S MEDIEVAL TOWNS

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Contemporary accounts judged the urbanization of Hungary in the Árpadian Age quite differently. Western chroniclers passing through the country with the Crusaders reported on the country's backwardness, widespread desolation and complete lack of urban settlements, while in the eyes of eastern merchants, the country seemed developed and familiar, where they found large towns that catered to their every need. The explanation for this may be that most settlements were an agglomeration of several disparate units of varying size. Although these settlements functioned as towns, they differed from the image of a western town. They included both ecclesiastic and secular feudal administrative centres (royal, county or episcopal castles), trading settlements and towns granted the right of holding markets (their names often ending in *-vásárhely*, meaning 'market-place' and referring to the day of the weekly market or containing an indication of the ethnicity of the merchants, for example Armenians or Jews), and so-called villages of the servicing peoples, specializing in the production of certain industrial products (metalworkers, smiths, armourers, carpenters, potters, etc.). Taken together, these dispersed settlements essentially fulfilled the most important urban functions – administration, specialized production, exchange and the organized provision of needs. The focus of different settlements on particular activities varied. In major centres, such as Esztergom, Székesfehérvár, Visegrád and Sopron, the administrative character dominated, while commerce and various craft activities essentially catered to the needs of the administrative officials. In Esztergom, for example, the excavations on the outskirts of the town next to the royal and archiepiscopal quarters, have brought to light a wealth of information in this respect. In the Kovácsi district, the smiths' and minters' quarter in the southeastern part of the town, furnaces for melting tin, bronze and silver have come to light next to Árpadian Age houses and open-air ovens. István Horváth's excavations in the Armenian district of the Árpadian Age brought to light a goldsmith's workshop, together with crucibles, bronze casts and coins of Béla III.

In the smaller rural centres a monastery or minor castle represented the focal element, where the emergence and operation of marketplaces was essentially determined by local production. Examples of this type of development include Szombathely and Somogyvár, as well as Nagyszombat (Trnava, Slovakia), Kézdivásárhely (Țirgu Secuiesc, Romania) and Marosvásárhely (Țirgu Mureș, Romania) outside Hungary's current borders.

The functional approach sheds new light on another issue, namely the question of Roman continuity. György Györffy distinguished three types of continuity: continuity

of community, settlement and ruins. The possible survival of individual, isolated groups of the Romanized population cannot be demonstrated anywhere in Hungary. Pécs and Szombathely can be quoted for the continuity of settlement and for the functional survival of major topographical elements. In the Migration period, the settlement nucleus of Pécs shifted from the Roman civilian town to the site of the former early Christian cemetery; investigations in the area of the present-day cathedral have shown that some of the chapels were still used in the 9th century. The still extant ecclesiastic structures were taken into account in the siting of the buildings for the bishopric, established in 1009. In Szombathely, the ruins of the late Roman governor's palace functioned as the administrative centre in the 9th century and they later became the focal point in the development of the urban centre. Their continuous use is indicated by the lack of a thick layer of debris and fallen masonry separating the Roman and Árpadian Age layers.

The continuity of ruins means that the site of the Roman and the medieval settlement is identical, but the street network, as well as the economic and administrative foci differ. This can be noted in Óbuda, Győr and Sopron. In these cases, the favourable geographic location, the town walls that survived to a significant height and the construction materials that could be taken from the ruined buildings were important factors in the development of the later towns. In Óbuda, the medieval town was built over the southern part of the late Roman fort's ruins, and the walls found on the site were used as foundations. In Győr, an enormous granary, was erected during the reign of Prince Géza on Káptalan Hill, on the site of the former Roman military camp of Arrabona. In Sopron, the timber and earth rampart of the bailiff's castle – still visible in the yards of some houses in Templom Street – was built along the line of the late Roman town wall. The middle row of the late medieval triple town wall was constructed on the Roman ruins.

In the archaeological record urbanization is reflected by the presence of the main elements of urban topography – town walls, a street system, public buildings and residential structures differing from those found in villages. In more fortunate cases, the conscious alterations affecting the entire town, such as levelling and the creation of a new street or plot system, can be observed even in the absence of written sources. One case in point is Győr, where a major urban reorganization involving major earth-moving operations was performed at the end of the 13th century, no doubt in connection with the 1271 granting of urban privileges. The traces of a similar reorganization were observed in Buda, where typically urban houses stood in both the northern and southern areas of Castle Hill well before the Mongolian invasion. Towns that were established and organized according to a pre-conceived plan can also be found: Kőszeg is one of the best examples of this type, with its parallel streets traversing the town in a north to south direction and a castle placed in the corner of the walled settlement. The traces of a similarly organized settlement could be demonstrated on

the basis of the town's groundplan at Körmend, a settlement granted urban privileges in 1244.

In addition to the built environment, archaeological excavations also provide information on the towns' natural environment. The finds recovered from refuse pits, latrines and infilled wells by the houses reveal much about the animals that were kept or eaten and the species of the plants that were cultivated or consumed there. The 'small finds', various artefacts used in day to day life that did not receive much attention in the past, too have many stories to tell, shedding light on the relationship between local wares and imports, the interaction between the town and its zone of influence, and the extent of the town's trading radius. Of particular interest are those imported products whose place of origin and manufacture can be determined from various elements, such as craftsman's marks or inspection stamps. These include metal objects (goldwork, knives, shears, weapons), bales of cloth with their trademarks, and certain pottery wares. The overall picture gained from these small bits and pieces of information reflects a particular settlement's level of urbanization. The significance of the urban charters can thus be set in a new perspective in the sense that one can examine what each settlement was able to achieve from the potentials provided by the granting of urban privileges.

Archaeological investigations have been conducted in most of the royal and episcopal towns of Hungary in the past decades. Óbuda, Vác and Székesfehérvár have been particularly well studied through large excavations. In these towns, the medieval townscape had to be reconstructed from scratch because these towns were not rebuilt according to the earlier plan after the Ottoman period. In Székesfehérvár, a similar agglomeration of villages evolved on the dry land rising out of the marshes as in Esztergom.

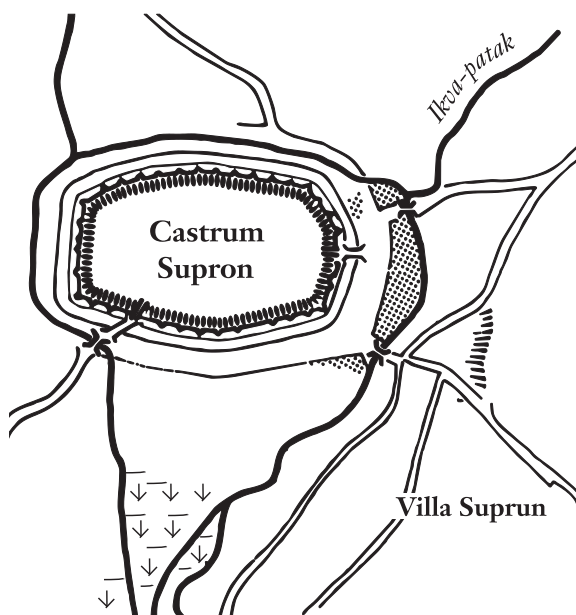
There, at the end of the 1240s, the walls enclosing the urban centre were erected at the same time as the demolition of the early royal castle, as indicated by the foundation deposit, a 13th century pot, found in one of the towers. The new castle was placed near the northern, Buda Gate that was connected to the southwestern palace gate by Nagy Street (*Vicus magnus*). Gyula Siklósi identified nearly a hundred medieval and Ottoman period structures in the town centre and the outskirts during his rescue excavations and field surveys. The structure of the settlement shows an essential continuity through the Middle Ages and the Ottoman period; in contrast, the urban topography was radically altered after the liberation from the Turkish rule in 1688.

ARCHAEOLOGICAL INVESTIGATION OF MEDIEVAL URBAN STRUCTURE

A few decades ago, the role of archaeological research was more or less restricted to those periods and areas where 'traditional', or better said, written sources were lacking. Today, however, in addition to the meticulous study and re-evaluation of archival sources, archaeology is the discipline contributing the greatest amount of new material for settling long-debated questions, even in cases when written records are available.

Paradoxically enough, the first serious impetus to research in this field was the devastation of World War 2 and the subsequent rebuilding. Since then, the most common and most urgent task has been the salvaging of the finds from archaeological sites endangered by various forms of earth-moving operations. The nature of rescue excavations linked to construction projects involves numerous problems. Work on these sites is usually restricted to the area on which the future

Fig. 20. 1. Groundplan of Sopron in the 11th–13th centuries, 2. Sopron on an engraving from the post-medieval period



structures will be erected or to monitoring the area during the earth-moving work. While a monastic site or even a village can often be investigated in its entirety under more fortunate circumstances, the areas excavated within a town only cover a small portion of the former settlement's territory.

In tracing the different phases of development in medieval topography, non-archaeological sources (property registers, deeds of purchase or sale, tax and talliage registers, prints and maps) and theoretical reconstructions play an important role. Of the modern Hungarian towns, Sopron is in the most favourable position in this respect since the medieval archival material has survived relatively intact (*Fig. 20*).

The most conspicuous elements of a town were its town walls and town gates. Market towns were architecturally distinguished from 'genuine' towns by the lack of walls; their name too often referred to their being an unwalled settlement. In his study on the impact of the introduction of firearms, Imre Holl clarified a number of important issues concerning the development of urban defences, based primarily on his own research in Sopron, where the transformation of the battlement crenels into gun loops and, later, the appearance of bastions suitable for the placement of cannons were the major changes. Previously unknown sections of the

town walls were uncovered in several towns, including Győr, Vác, Kőszeg, Székesfehérvár and Pécs, as well as Pest and Buda, where one significant result in this field of research was the clarification of an earlier unknown 13th century construction phase (*Fig. 21*).

The most important element of urban topography and infrastructure is the street system. One new innovation on larger settlements was the introduction of specialized market squares according to different types of commodities: the finer, more valuable goods, such as textiles, goldwork and spices, were sold in the town centre, while dirtier commodities, such as live animals, grain, wood for heating or construction, were given a location outside the town walls. The names of streets and squares often preserve the memory of the markets' locations. The finds recovered from the excavation of market squares too indicate their function. A large quantity of imported ceramics, including Austrian graphitic wares, from as early as the 12th century came to light at Óbuda near the Árpád Bridge. By the late Middle Ages, more attention was paid to the smaller details and the paving of roads and squares. Roads surfaced with stones or gravel have been found in several locations, one of the earliest examples being the 13th century gravel surfacing of Sopron's Fő Square. In western Hungary's towns, such as Sopron and Győr, where the water table is high, roads paved with logs were found, whose surfacing was renewed several times because the previous layer of logs quickly sank in the damp, waterlogged spots. In many towns (for example in Buda, Esztergom and Sopron) remains of the water supply and drainage systems have also been uncovered. At Buda for example, in addition to the Danube water sold at the market and the water drawn from cisterns and wells, the water from wells on Szabadság Hill that have been archaeologically dated to the Middle Ages was conducted to Castle Hill over an impressive distance of 3.8 to 4.2 km. The conduit's clay and wooden pipes have been identified during excavations conducted in several locations.

The most important communal buildings in terms of spatial organization were the ecclesiastical institutions. Many of the one-time medieval parsonages, chapels, monasteries, hospitals and schools still stand today, even though most of the buildings housing them have been altered. Their location can usually be identified and their layout and internal division can in most cases be clarified from the surviving walls and the excavations conducted inside the buildings accommodating them. In recent years there has been an emphasis on the research of the friaries of the mendicant orders – Franciscans, Dominicans, Augustinians and Carmelites – whose presence is regarded as a yardstick for the degree of urbanization. In Hungary, however, these friaries did not occupy a peripheral location as in Western Europe, but lay close to the centre (the Sopron Franciscan Church, the so-called Goat Church named after the crest decorating its tower, and the monastery were both built on Fő Square), usually because the urban nucleus had not fully evolved at the time that they were founded. Town halls and

Fig. 21. Urban rescue excavation at Budapest–Corvin Square



other secular communal buildings from the Middle Ages have hardly survived on the territory of modern Hungary.

Research on burghers' houses, on the other hand, is providing a wealth of new information through building reconstructions. In addition to the house types of Buda and Sopron distinguished by László Gerevich and Ferenc Dávid since the late 1960s, a number of other houses have also been uncovered in Pest, Esztergom, Pécs, Óbuda, Székesfehérvár and Győr. The investigation of the cellars that were built at the same time as the houses in Vác, Pásztó and on Castle Hill in Buda have yielded important information, in part on the medieval origins of the given building and in part on the changes in the division of plots. In Buda, a two or three level system of cellars often lay beneath the houses, based on the natural caverns on Castle Hill. Most Hungarian towns were originally built up in a village-like fashion, with long plots perpendicular to the street. The stone buildings were often preceded by timber-framed or wattle-and-daub houses. From the 14th century, the groundplan of the houses began to conform to the inhabitant's occupation. Besides the shop front and the small workshop facing the street, most houses had a press house and cellars connected to winemaking and a wide, open gateway for wagons. The residential quarters and the kitchen lay on the upper floor. The gateways were often flanked by ornate sedilia, where the burgher could serve up his homemade wine. On the outskirts of the towns, however, the earlier long, single story houses perpendicular to the street remained typical for centuries.

Archaeological and architectural research often provides a wealth of new data on the location of different trades. Interestingly enough, individual craftsmen did not always live on the street named for their trade since a street's name often reflected an earlier state of affairs. Besides Ötvös ["goldsmith"] Street, the Buda goldsmiths are known to have had workshops in at least another half-dozen places, and crucibles have been found on several other sites. We also know that very often four or five different craftsmen occupied the same house within a span of fifty years.

MEDIEVAL URBAN PARISH CHURCHES AND HOSPITALS

For urban communities and for the burghers, a church was not simply a building. Their own parish and the right to choose the parish priest was a symbol of the town's autonomy. The most diverse areas of life were closely connected with the church. In the late Middle Ages, many significant urban parish churches could boast several altars that for the most part were endowed and maintained by various religious associations, brotherhoods and guilds. In the early towns, such as Esztergom and Eger, the individual, legally independent quarters belonged to separate parishes; in contrast, towns that were established later, such as Kassa (Košice, Slovakia) or the Saxon towns of the Szepesség region

typically only had a single parish. Examples of so-called private parishes can also be quoted: in Buda, for example, the Church of the Blessed Virgin (present-day Matthias Church) was originally the parish church of the entire Castle Hill, but later it only served the town's German burghers, while Hungarians belonged to the Maria Magdalen parish. The latter parish, however, did not have its own independent territory – the parishioners' affiliation was determined by their nationality.

Urban parish churches do not represent a separate building type. They were nonetheless one of the most important public institutions, and their overall appearance most certainly served the burghers' representative demands. The buildings were expected to reflect the town's prosperity both as regards their size and their artistic quality. It is therefore not mere chance that many of these urban parish churches are outstanding creations of Gothic architecture. A relatively high number of these churches have survived. Obviously, the scope of archaeological investigation in these buildings using traditional methods is rather limited; instead, these buildings are investigated with a combination of the methods employed in historic preservation, art history and archaeology. This includes the survey of surviving architectural elements and the architectural history of the buildings, accompanied by the occasional sounding excavations, calling for the concerted efforts of architects, archaeologists and art historians. Irrespective of how many parishes operated in a town, there were a number of other ecclesiastic institutions. Most important among these were the monasteries of the mendicant orders, especially of the Franciscans and Dominicans. Numerous chapels stood in most towns, although the most important among them were the hospitals that functioned as both health and social institutions. Some of these hospitals were established and maintained by the monastic orders. Unfortunately, not one single hospital building maintained by monks has survived in Hungary – their former existence is only known from the written sources. Other hospitals were established and maintained by municipal or private foundations, such as the ones in Gyöngyös and Telkibánya. Most hospitals were often little more than a chapel, in whose nave the sick were cared for, while the choir mediated solace for the soul.

URBAN ARCHAEOLOGY AND WRITTEN SOURCES

The written sources, primarily charters, contain no more than a few references to Hungarian settlements. This is in part due to the fact that most medieval archives have been destroyed, and in part to the fact that relatively few documents expressly dealing with settlements were drawn up. Towns are exceptions since the enfranchisement of towns and the administrative system emerging in its wake produced a large quantity of documents. Sopron stands out in this respect due to the wealth of sources compared to the

average Hungarian town. This is clearly illustrated by the history of the town's medieval baths.

Hungary's natural endowments, the common occurrence of hot springs, streams and lakes, guaranteed favourable conditions for the existence of baths in towns. Satisfying the public desire not only for cleanliness, but also for community life and recreation, baths became widespread and typical urban establishments in the 14th and 15th centuries; in contrast, they were built only in the most important market towns. The bathhouses were usually located on the outskirts of the town or near the town gates. The bath masters, who specialized in this trade, either rented the baths from the town or operated the establishment in their own buildings. We often find barbers filling this role.

For members of the upper and middle classes, attendance at the baths meant the most uninhibited (even licentious) form of social relations. Workers employed by the town often received 'bath money' as a supplement to their salary. In addition, the poorest people, those who lived in the hospital, were given the opportunity to bathe as a charitable gift in someone's will. In exchange they were obliged to pray for the salvation of the person who bequeathed the gift. This was the so-called 'soul bath' (*Seelbad*).

One of the most interesting bits of information on the use of the Sopron baths is a legal document originating from the 15th century. "In the year 1456 of the Lord, on St. Tiburcius' day, Wednesday, a man came before the court and presented the accusation that he had gone to a bath and given a purse containing 21 gold coins to the bath servant for safekeeping because he saw that others had also entrusted him with their possessions. ... His purse was not returned to him, for which he also faults the bath master, who should hire employees who keep watch over guests' possessions. ... The bath master responded that he had hired the servant for the safekeeping of clothes, not money, and in fact he had forbidden him to accept money for safekeeping, thus the responsibility may not be placed on him [the bath master]. ... The servant claimed that although he had indeed accepted the purse, he did not know of its contents, and had he known, he would not have accepted it. ... The guest added that after he had paid the fee to the bath staff, he went to a tailor where he spent a good half hour, and only remembered to return for his purse afterwards." After this the court made the plaintiff and the defendant – the servant – swear to their statements. The servant was taken into custody for fourteen days with the provision that if no solution was found during that time, he would be compelled to put one-third of his income in a purse tied around his neck until he had wholly recompensed the plaintiff.

This case, recorded in the earliest of Sopron's judicial books, is also interesting because the 'scene of the crime' has been archaeologically identified with the 'upper bathhouse' at 19 Várkerület. Art historian Judit Lászay and archaeologist János Gömöri investigated the building in 1983–84. The investigations uncovered a wall section from a single-story stone house, dating from the late 14th or early 15th

century, on the western side of the plot. A contemporaneous small stone building on the eastern side was also found. A single-story stone building that can be identified with the bathhouse stood parallel to the Ikva brook. The investigations uncovered the walls, or rather the foundation walls, beside the stream and the two neighbouring houses. A small, splayed medieval window was found high on the northern façade facing the stream. The eastern half of the bathhouse was expanded by the addition of an upper story at the turn of the 15th–16th centuries and a small, protruding wing was added to the courtyard façade. A brick-walled furnace with a diameter of about 1.5 m for heating the bath that apparently remained in use, although in a slightly altered form, until the start of the 17th century was found on the ground floor of the storied section. The fragment of a large pot, perhaps from a cauldron for heating water, was also found in a secondary position. At the turn of the 16th–17th centuries, the western side of the bath was again enlarged and the building was given an upper story.

The written information regarding the baths helps the interpretation of the archaeological observations and inform us about the establishment. We are told that the entrance hall of the bath accommodated a cloakroom (*kamer*), where the attendant (*abcziher*) looked after the clothes. The women changed in a separate room, whose floor was paved with stone. A special bath servant (*kesselknecht*) watched over the cauldron (*kessel*) in which the water was heated. Baths were taken in a large wooden tub (*poting*), and the used water was led back into the Ikva brook through conduits (*rinnen*). The building's privy (*secretheyslein*) was rebuilt in 1524 and at this time the windows were already glazed. The baths also employed a barber (*scherer*) who occasionally worked as a medic.

Although bath masters were not part of the urban elite of Sopron, their surviving wills bear witness to their not inconsiderable estates, vineyards and silverware, as well as to the fact that they moved among respected social circles. For example, the real estate assets of Hans Walich, who also appeared in the case mentioned above, included a few vineyards, as well as the bathhouse in question. These assets were valued at 100 denarius pounds by the town council. The employees, however, came from the lower social classes, this being one of the reasons why in the case described above, the suspect was the woman taking care of the customers' clothes. In fortunate cases, such as this one, the combined use of the archaeological record and the archival evidence offer a much more detailed picture of medieval society and of everyday life in the towns than the study of the artefactual material and written data in isolation from each other.

MEDIEVAL MARKET TOWNS

The study of medieval towns also calls for an investigation of the levels and layers of urban settlements. Parallel to the definition of 'urban settlement', another concept has also

begun to play a prominent role in the study of urbanization, the so-called 'central place' theory, focusing on a settlement's role in a smaller area. András Kubinyi worked out a set of criteria for assessing a settlement's role, ranging from the settlement's role in secular, ecclesiastic and economic administration, the nature of its feudal residence, the number of roads leading to it, the markets and fairs held there, its hospitals and monasteries, to the number of students from a particular settlement attending various universities.

The archaeology of central places occupying the middle tier of the hierarchy practically means the investigation of market towns (the Hungarian word for market town, "*mezőváros*" actually denotes an unfortified town). The bulk of market towns rose to prominence from the larger body of villages in the 14th and 15th centuries, completing the network of towns existing since the late 13th century. It is also clear that of the several hundred settlements chartered as market towns (*oppidum*), only a few dozen were urban in their outward appearance as well. According to their groundplans, these represent the multi-street type, and they could emerge from an agglomeration of villages, the decline of an earlier urban settlement or the creation of new urban centres. An example of the latter is the queen's market town, Ráckeve, established in the mid-15th century, where a number of Gothic stone houses can be found along present-day Kossuth Lajos Street, running parallel to the Danube, although the remains of a late medieval adobe dwelling have also been uncovered during a rescue excavation. While plot boundaries usually remained unchanged following the emergence of the street system, the houses on them were rarely built of durable materials and their outlay also changed. At Vasvár, for example, the mayor's house was made of wood at the beginning of the 15th century, while at Körmend, Erika Hajmási uncovered the superimposed remains of similar wooden houses, resembling log cabins, in the centre of the town. Stone houses appeared in the market towns of Transdanubia at the turn of the 15th–16th centuries, but their number remained low and multi-storied

buildings were quite rare. The study of the enlargement of the parish church, the excavation of craftsmen's workshops, as well as the analysis of the nature and composition of imported commodities can also contribute to identifying the typical lifestyle in market towns.

Ete: a medieval market town in Transdanubia

Knowing that the greater part of Hungarian medieval documents have been destroyed, research into market towns is inconceivable without archaeological methods. However, in most of the one-time market towns, excavations can only be conducted when the chance arises, usually preceding a construction project since the modern settlement usually overlies the remains of the medieval town. Very few market towns can be investigated without restriction: these include Muhi, Ete and Pölöske, where the medieval settlement remained deserted.

The investigation of market towns that were destroyed during the Ottoman period and were not resettled later began before World War 2. Of those excavations, the investigations conducted at Muhi and Ete (the latter lying on the outskirts of present-day Decs) must be mentioned. Unfortunately, at neither site was a detailed documentation prepared (excavation diary, photographs, drawings) or the documentation was destroyed at the end of World War 2. It is therefore not an easy task to evaluate and interpret the buildings and other features uncovered during the excavations.

Ete was one of the largest market towns in the Sárköz region during the Middle Ages. Its church, dedicated to the Holy Spirit, is first mentioned in papal tithe registers from 1332–37. The first mention of its owner comes from 1398. The finds, however, suggest that there was a settlement here already in the 10th–11th century. Its flourishing can be dated to the 15th century. Ete did not decline during the first half of the Ottoman period: according to the Turkish tax registers, the town had 155 houses in 1557 and 192 in 1572. The town's population can thus be put at

Fig. 22. 1. Aerial photo of the medieval market town, at Decs–Ete, 2. Survey of the medieval market town, showing the information gained from the aerial photos and the field surveys

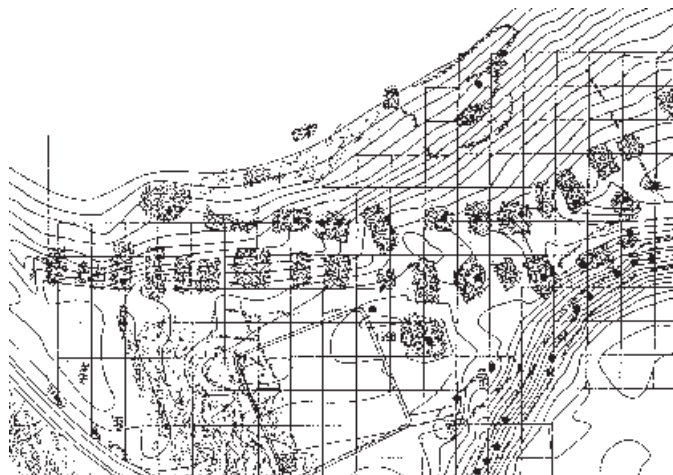




Fig. 23. Excavated sections of the medieval Gothic church at Decs-Ete

800–1000. The town perished sometime in the early 17th century.

The settlement was first excavated by József Csalogovits in 1933 and 1935. He uncovered several houses, a section of the church, a few burials and two pottery kilns.

After its destruction, the territory of Ete was used as a pasture by the villagers of neighbouring settlements for centuries. The southern edge of the settlement was used as ploughland already in the later 19th century, but the greater part remained pastureland until 1962–63 and the burnt remains of the settlement's one-time buildings and streets were still visible on the surface. Unfortunately, an aerial photo for archaeological purposes was not made of the area during this time. In 1962–63, the local agricultural cooperative ploughed up the pasture, destroying the market town's latest houses and the objects associated with them. The continuous ploughing is slowly destroying the remains of houses and other structures that survived. Since the entire site is now ploughland, it has been possible to make a series of aerial photos that provide a wealth of information that could not be obtained from field surveys. The discoloured patches indicating houses, pits, ditches, etc. can be clearly made out from the air.

Due to the fortunate soil conditions and the vegetation, the entire settlement structure of the market town was outlined. The photographs taken from an altitude of several hundred meters revealed the light discoloured patches of the one-time houses and other buildings, the dark line of the main street and the lines of the side streets. The location of archaeological features can also be made out on photographs taken before the ripening of maize since this crop ripens differently on the spot of former houses and streets, and differently in the former yards behind the houses.

A detailed contour map of the settlement was prepared

and the various features visible on the aerial photos were then transferred onto this map with a computer. As a result, we could determine precisely which features we wanted to investigate before the excavation (*Fig. 22*).

Investigations at Ete were resumed in 1996 using the information gained from the aerial photos. We excavated the settlement's 28.8 m long Gothic church (*Fig. 23*), eleven houses and house sections, the storehouse of a pottery workshop, forty-eight refuse pits and numerous ovens. Outstanding among the finds brought to light is a 13th–14th century bronze processional cross. The pottery and metal objects from the 11th to the 17th centuries is also very rich. The evaluation of these finds will offer a glimpse into the inhabitants' everyday life, as well as into the town's various domestic and international trade contacts.

Muhi: a deserted medieval market town in the Great Hungarian Plain

The settlement of Muhi generally evokes a sad event of Hungarian history, the crushing defeat suffered in the battle against the invading Mongolians. It is less well known that Muhi, or more correctly Mohi, was an important commercial centre, fairground and market town in the Middle Ages. The idea to search for the battlefield and the graves of the Hungarians who had fallen in the battle was suggested already in the 19th century, but instead of the traces of the catastrophic battle, the minor excavation undertaken at that time brought to light the remains of the medieval settlement. Following this preliminary excavation, Andor Leszih began the systematic exploration of the site. He examined the settlement's church and the medieval cemetery surrounding it; he also uncovered a few buildings



Fig. 24. The main street of medieval Mubi, with wheel ruts

of the settlement and recovered a rich find material from these remains.

The area is also interesting in terms of urban history. András Kubinyi's studies have shown that this region was devoid of towns, in other words we do not know of any towns with a royal entitlement or enfranchisement, indicating that certain settlements were considered prominent according to the legal practice of the day. In contrast, the region had a number of settlements designated as *oppida*, or market towns, in the sources. The boom in the rearing and export of live-stock from the 15th century most certainly influenced the development of these settlements in the Great Hungarian Plain. But which of these settlements were the ones that fulfilled genuine urban functions, even if they were not promoted to this status in law, and to what extent did these market towns resemble or differ from actual towns? While archaeology can often provide an answer to these questions, the archaeological study of market towns on the Great Hungarian Plain is a complex and difficult task.

The need for this meticulous preliminary work was justified when it became clear during the construction of the M3 motorway that the planned line of the access road connecting the motorway with Miskolc cut through a portion of the former market town. It was obvious that the entire area of the planned track of the motorway could not be excavated to the same extent and, also, that the individual areas to be investigated more intensely would have to be selected carefully in order to gain new data for resolving the historical questions outlined above.

The research team directed by archaeologist Tamás Pusztai, first surveyed the area in order to identify the archaeological sites. The preliminary survey of the area was fol-



Fig. 25. Árpáadian Age cemetery and later timber-framed houses at Mubi



Fig. 26. Oven plastered with sherds, uncovered in one of the medieval houses at Mubi

lowed by an intensive collection of surface finds. A grid system was laid over the site, and university students from Miskolc collected and registered every find within the grid squares. Students from the geophysics department of the Eötvös Loránd University prepared a magnetometer survey of the area under the direction of Sándor Pusztai, and this was compared with the data from earlier aerial photographs and with the information from the new aerial reconnaissance. We also searched for traces of chemical changes in the soil using phosphate analysis. The choice of areas to be excavated and the field techniques to be used were based on the evaluation of these surveys and analytical results. The results of the excavation fulfilled our expectations since we gained an overall picture of the development of the market town's structure and its late medieval features. We found the market town's main street, lined with closely set houses on both sides (*Fig. 24*). The outer districts of the town were more loosely built up and the houses were generally smaller. The third investigated area yielded a number of residential buildings and an extensive ditch system that can be associated with livestock raising, although it must be noted that some of these ditches date to the settlement's decline in the Ottoman period and not to the late medieval period (*Fig. 25*).

The detailed evaluation of the find material will enable a precise determination of the town's development and the phases reflecting the settlement's transformation from a small village into a significant market town and, also, of how this process affected the life of its inhabitants (*Fig. 26*).

CATHEDRALS, MONASTERIES AND CHURCHES: THE ARCHAEOLOGY OF ECCLESIASTIC MONUMENTS

József Laszlovsky & Beatrix Romhányi

When Saint Stephen began the creation of the Hungarian ecclesiastic system around the year 1000, the first step was the

organization of the dioceses. The ten bishoprics established by him – Esztergom, Kalocsa, Veszprém, Győr, Vác, Eger, Bihar, Erdély, Csanád, Pécs – formed the backbone of the Hungarian diocesan system in later centuries as well. Three new dioceses were later established in the Carpathian Basin, Nyitra (Nitra, Slovakia) and Zagreb at the turn of the 11th–12th centuries and another one, Szerém, in the mid-14th century. At the end of the 11th century, the seat of the bishopric of Bihar was moved to Nagyvárad (Oradea, Romania).

There are hardly any early episcopal seats whose medieval churches have survived in their original, or more or less original forms. Most of them were destroyed during the Ottoman period, while the ones that survived were significantly altered in the ensuing centuries. The two churches that preserve their medieval forms lie outside the current borders of Hungary, in Nyitra (Slovakia) and Gyulafehérvár (Alba Iulia, Romania). The Cathedral of Pécs too preserves some of its medieval features, in spite of the fact that it underwent a significant reconstruction, involving historicizing alterations during the later 19th century. The cathedrals of Győr and Veszprém similarly preserve many medieval elements, but the two buildings are in essence Baroque and Classicist. The remains of other cathedrals are only known from archaeological excavations. The remains of some, such as the ones in Eger and Kalocsa, have survived fairly extensively, buried under the modern surface, while only a few carved stones and descriptions have remained of others, such as the one in Esztergom, known from earlier surveys, since the building itself and its foundations were destroyed as a result of modern construction projects.

The next level of the ecclesiastic organization was represented by the archdeaconries. Substantially less is known about their emergence and development than that of the bishoprics. As part of the investigation of bailiffs' centres in more recent decades, a number of early churches have been uncovered, for example in Borsod, Szabolcs and Visegrád, and in a few cases, like Sopron, the church's former location is known from earlier descriptions. Bearing in mind that this level of the ecclesiastical organization went through significant changes at a fairly early date, already during the 12th century, the archdeaconal churches in essence preserved their 11th century forms without change.

MEDIEVAL MONASTERIES

Research into medieval monasticism and monasteries traditionally falls within the field of ecclesiastic history. In Hungary, however, ecclesiastic history was explicitly forced into the background after World War 2. In contrast, there has been quite some progress in the architectural and archaeological study of medieval monasteries in more recent decades. A number of major historic preservation projects involving the investigation and restoration of monastic centres have been launched owing to their great importance to Hungarian culture. Archaeological and topographical work

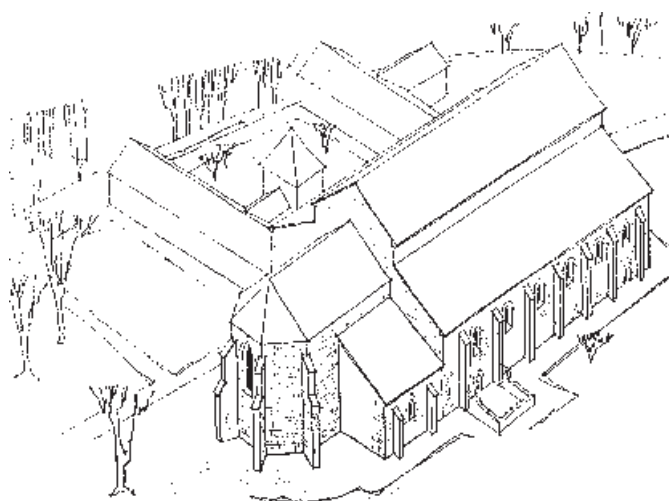
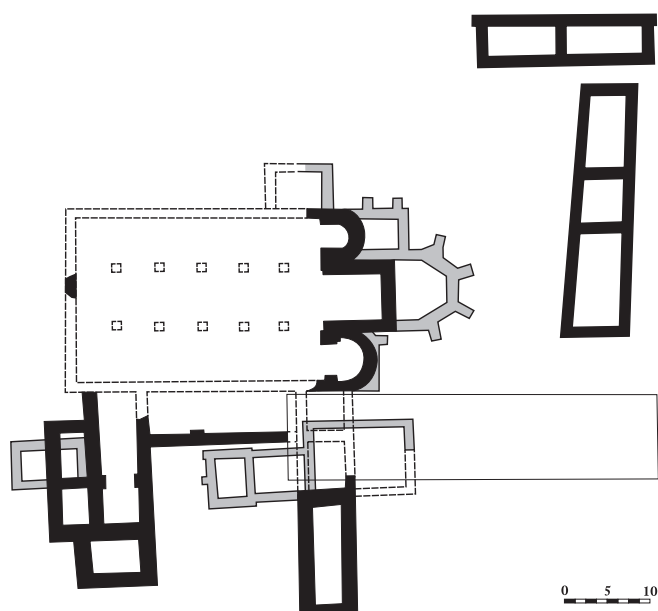


Fig. 27. Excavated sections of the Cistercian abbey at Pásztó

Fig. 28. Reconstruction of the Cistercian abbey at Pásztó

also contributed a wealth of new information, meaning that we can now securely identify the medieval monasteries that were deserted during the Ottoman period and whose ruins have for the most part disappeared without a trace in the post-medieval and modern period. In many cases, medieval archaeology undertook one of ecclesiastical history's activities and today an outline of the history of medieval monasticism in Hungary is inconceivable without knowledge of the archaeological finds.

At the turn of the 10th–11th centuries, representatives of both western and eastern monasticism arrived in Hungary, roughly at the same time. Those from the West followed the rules of Saint Benedict and those from the East the rules of Saint Basil, this being the reason that they are called Benedictines or Basilians. Although at first both branches of monasticism enjoyed the sovereigns' support, the number of Benedictine abbeys surpassed by far those of the Basilians already in the 11th century. At the turn of the 12th century, however, when the consequences of the 1054 schism began to be felt in Hungary as well, the Orthodox monasteries were gradually forced into the background until they practically ceased to exist by the earlier 13th century. Later on, from the end of the 14th century, the establishment of Orthodox monasteries can be exclusively linked to the immigrant populations, mostly Romanians and Serbs, who followed the Eastern Rite.

Parallel to the process mentioned above, the great western reform orders arrived in the earlier 12th century, first the Premonstratensians around 1130 at Váradszegfok and later the Cistercians at Cikádor in 1142. While the latter order enjoyed the support of the ruler, particularly Béla III, the former became popular among the aristocracy and the nobility (Figs. 27–29).

A radical change occurred in the concept of the monastic ideal in Europe during the earlier 13th century. A more active, ministering, missionary monastic life was promoted in-

stead of the earlier contemplative, hermetic traditions. The first representatives of this new ideal were the Dominicans and the Franciscans. Both of these orders established themselves in Hungary before the Mongolian invasion, but their large-scale spread only started in the later 13th century. A third order, that of the Augustinian hermits, arrived after the Mongolian invasion. Finally, the Carmelites came after a delay of about a century. They were unable to create an independent province; in the Middle Ages they had a total of no more than four monasteries in the country.

Last, but not least, a few words about the hermit orders. We must first mention the Carthusians owing to their prominence in Europe, although they played a minor role in Hungary. Their first two monasteries were built at the turn

Fig. 29. Remains of the Cistercian abbey at Szentgotthárd. The medieval ruins were incorporated into a granary; following the archaeological investigations, the medieval remains were exhibited in the town's theatre



of the 13th–14th centuries in the Szepes region, while in the later 14th century they settled in Felsőtárkány (near Eger) and Lövöld (present-day Városlőd). The latter monastery, the only one established by the king, was one of the country's wealthiest and most influential ecclesiastic institutions during the two centuries preceding the Turkish occupation. The priory of Lövöld played a significant role in the country's cultural life, for example in the dissemination of religious literature in Hungarian. The Érdy Codex was one of the many fine works written here.

The other hermit order that rose to prominence in Hungary was the Order of the St. Paul the Hermit, known as the Paulites. The process during which they organized their order lasted for roughly half a century, from the mid-13th century to their recognition by the Pope in 1308. This long process ultimately also meant that the order could not retain its purely hermit nature; depending on the circumstances, monastic or mendicant features appeared in individual communities. In the later Middle Ages, the Paulites could boast the largest network of monasteries next to the Franciscans, but at the same time it is conspicuous that the most of their monasteries were quite small, accommodating communities of no more than six to twelve people.

The earliest archaeologically known buildings of monastic architecture date from the mid- to the later 11th century. These include the crypt in the Tihany and Feldebrő church and early parts of the abbeys at Zselicszentjakab and Somogyvár. These reflect cultural influences from Germany and northern Italy. It must be noted, however, that in the majority of the cases there is information only on the church. In Hungary, cloisters first appeared in the 12th century, and it seems likely that the first among them were in the Cistercian abbeys, whose groundplan was modelled on the founding abbey; at the same time, there were several monasteries whose cloister was never fully constructed even as late as the 13th century (for example at Ják, Vértesszentkereszt, Gyulafrátót and Ócsa). The building types introduced in the 13th century by the newly established orders usually followed the forms that had developed until then, although local settlement features, especially the urban environment, did influence the groundplan to a certain extent. The development of the monastery's entire quadrangle often lasted quite a long time in these cases, sometimes attaining the final form in the modern period (for example in Szécsény or the Franciscan friary in Szeged).

Even though the churches were built on a wide range of groundplans, they nonetheless shared a number of common features. Most churches of the monastic orders have three aisles – with either one or three apses – although a few one or two aisled buildings with a central plan can also be quoted. The majority was built with paired western towers – paired eastern towers were an exception. The mendicant orders modified local building types to their own needs for the most part. Therefore we may only speak of the architecture of the mendicant orders with certain restrictions. The distinguishing features in the appearance of these churches are

simplicity, lack of ornament, church interiors that could accommodate a fairly large congregation and several aisles, as well as a long, projecting chancel that was the monastic choir. In addition to this, a single eastern tower at the meeting of the chancel and the cloister is characteristic of Franciscan churches. The majority of Paulite churches were even more modest. Most of them were relatively small, with the size of the nave indicating that they did not count on the attendance of a large mass of believers for the liturgy. Some of these churches could even be called chapels. At the same time, some exceptions can also be quoted, such as the order's centre at Budaszentlőrinc.

For a long time archaeological research focused almost exclusively on the monasteries' churches and residential buildings. During the excavations and topographical surveys conducted over the past few decades, however, emphasis has also been placed on the monastic centres' outbuildings. As a result, we now have a better idea of how individual monastic orders differed from each other in this respect and to what extent these differences can be traced to the hierarchy and history of the order (*Fig. 30*).

The monasteries were not just made up of a church and monastery buildings, they also contained various outbuildings for the communities' economic activities. Some of these were used for storing and processing agricultural produce, while others were erected for expressly industrial activities. A third type of structure is represented by the water supply and storage systems that not only supplied the monastery's drinking water, but often the water needed for the industrial activities and its provisioning (fishponds).

The study of Cistercian abbeys revealed that in Hungary the western side of the abbey complex, the so-called *conversi's* wing, where the lay brothers were accommodated, was very often not a residential building, but a storehouse. The reason for this is the lack of *conversi* mentioned in the written sources. The single known monastic metal workshop functioned in the Cistercian abbey of Pilis; judging from the amount of slag found in the yard beside it, the workshop could boast a rather intensive production until the end of the Middle Ages. Another significant industrial structure, a glass workshop was active in the Pásztó abbey. The finds associated with the building indicate that the workshop mostly produced window panes.

The utilization of water in the monasteries was quite var-



Fig. 30. Ornamented floor tile from the Cistercian abbey at Pilis



Fig. 31. Ruins of the Paulite monastery at Gönc

ied. The only complete system has been uncovered in the Cistercian abbey of Pilis, where water from nearby springs was led in three directions with the appropriate regulation. One part of the water supplied the abbey's cloisters, another was pooled by a dam and was used by the metal workshop, while the third was used in the gardens. The water from the entire system was led into a single conduit that disposed the sewage water beyond the walls of the abbey.

An interesting water management system is indicated by the small ponds generally found in the immediate vicinity of Paulite monasteries. These were at first interpreted as fishponds, but it seems more likely that they functioned as reservoirs since some of them are so small that fish could hardly have been bred in them. At the Paulite monastery in Toronyalja, a pond impounded in this manner had a well-built conduit leading to a small building nearby that the archaeologist working on the site identified as a mill. As a matter of fact, mills and genuine fishponds, lying in the broader surroundings of the monastery, played an important role in the economy of the Paulites.

The ponds and other water regulation systems came into the focus of archaeological interest not simply because of their economic role. One of the most useful methods for identifying a former monastery is the search for structures of this type, especially in the case of certain monastic orders and their monasteries. The Paulites, for example, often settled in forested areas, but not too far from other settlements. During the Ottoman period, their monasteries were abandoned and began to decay (*Fig. 31*). The ones lying near villages that

were occupied or resettled in the post-medieval period mostly disappeared without a trace because their ruins were used as a source of building materials by the inhabitants of nearby villages. Despite this, the sites of former monasteries in the Pilis, Bakony and Zemplén Mountains can be identified during field surveys using the research methods of landscape archaeology. The establishment of fishponds, mills and dams required significant earth-moving operations, and these survived even after the destruction of the monastery. Since the water regulation systems were not kept in repair, they quickly decayed, but the large dams and man-made channels remain visible on the surface to this very day. Unlike the good quality stone, there was no sense in taking these away since they were usually made of earth. Similarly, traces of large-scale earthworks are preserved in the terraces created on the steep hillsides for cultivation, attesting to the monasteries' clearance work even in reforested areas. The survey of these areas can be of aid in the identification of monasteries, their former properties and fields.

The excavation of wells and cisterns is also part of the research of the monasteries' water supply systems. In more recent years, two such structures have been successfully uncovered in Franciscan friaries. The first is the well of the Franciscan friary at Visegrád that was constructed of beautifully carved stones with curved inner sides to collect ground water. The second was found during the investigation of the Franciscan friary in Buda: a cistern with an interesting filtering system that conducted rainwater to a basin in the centre of the courtyard.

THE FRANCISCAN FRIARY IN VISEGRÁD

The monuments of the mendicant orders can be discussed in two contexts in relation to the archaeological study of

Fig. 32. Hall of the chapter house in the Franciscan friary at Visegrád, with the remains of the Gothic vaulting from the collapsed ceiling





Fig. 33. Remains of the altar in the chapter house, of the Franciscan friary at Visegrád

medieval monastic orders. The Franciscans and the Dominicans, the two most important mendicant orders, primarily settled in towns and thus the excavation of their houses and friaries is part of both urban archaeology and the archaeology of ecclesiastic monuments. European historical research has convincingly shown that the presence of Franciscan and Dominican friaries in a settlement can be used as a yardstick of its degree of urbanization; the presence of several mendicant orders' friaries reflect an even higher level of urbanization. Besides these general statements, though, there are examples of the friary of a mendicant order indicating a far more complex situation. The excavation of this type of monument provides archaeological information on the impact and influence of royal authority, medieval urban life and ecclesiastic institutions on each other. One case in point is the Franciscan friary in Visegrád (Fig. 32).

Large-scale excavations have been conducted in the immediate surroundings of the royal palace since the early 1990s, with the aim of uncovering one of medieval Visegrád's most important ecclesiastic buildings, the remains of the Franciscan friary. The Medieval Archaeology Department of the Eötvös Loránd University co-ordinates this research project because the site provides an outstanding opportunity for students of medieval archaeology to acquire the necessary experience and practice that is needed for evaluating the features and finds of a medieval site. The proximity of the royal palace and Visegrád's other monuments also makes it possible for the students working here to acquaint themselves with other excavations, together with the principles and the practice of historic restorations.

The beginning of research into the friary was very similar to the first excavation of the royal palace. In this case also, we knew that there had been in Visegrád a significant Franciscan friary founded by King Sigismund, on which – according to the evidence of a Matthias period document – further con-

struction work had been planned. We also knew that in the early 16th century, the chapter of the Observant *provincia* had been held at this friary. Attempts had been made to locate the friary on the basis of this information, but without success. Although the traces of two ecclesiastic buildings were discovered within the territory of the present-day settlement, neither of these showed the characteristic traits of a Franciscan friary. It was not mere chance that the remains of the friary had earlier been sought near the medieval settlement, rather than in the vicinity of the palace. Similarly to the other medieval mendicant orders, the Franciscans built their houses in the major urban settlements since they regarded the spiritual care of urban populations as one of their most important tasks. Their simplicity and poverty was in stark contrast to the royal palace's luxurious, ostentatious life. In this sense, the Visegrád friary was an exception. The sections uncovered to date suggest that it acted as a transition between the world of urban burghers and the royal court, representing a type of meeting point between the two.

In the 1980s, minor sounding excavations were undertaken on the plot next to the palace, where the remains of a large building were found. It was apparent that significant building remains lay concealed in the ground and that numerous carved stones would be uncovered. The excavations of the past ten years have surpassed all expectations, revealing that the site holds a magnificent friary building with superbly crafted architectural elements. The walls of the cloister, the chapter house and the refectory were preserved to a height of 1.5 m in some places. The carved stones of the Gothic vaulting were found under the thick layer of debris covering the friary's former flooring. Gothic ribs of vaulting, keystones and corbels came to light; several hundred elaborate architectural carvings were inventoried.

The high number of carved stones enabled a detailed architectural reconstruction. It became clear that the Sigismund period building was built in several phases, and it seems likely that the basic outlay of the friary incorporated

Fig. 34. The well of the Franciscan friary at Visegrád



one or more earlier stone buildings. In the Matthias period more alterations followed that did not, however, affect the entire monastery. There are no written sources about this period, but the style of the carved stones, as well as the presence of similar carvings at the palace, confirms this dating. The most significant alteration, took place in the Jagellonian period. The majority of buildings in the ensemble were given a new vaulting; the one in the chapter house was particularly ornate. The altar too suggests that it had also functioned as a chapel. It may even have been a private royal chapel since the Franciscans were traditionally the king's confessors (*Fig. 33*).

The excavations also revealed how this magnificent building fell into decay. In the Ottoman period the friary was abandoned, similarly to the town, and only the castle remained to suffer several sieges. The buildings slowly began to fall into ruin (*Fig. 34*). The surviving areas of the friary were used a burial ground because it was a consecrated site. Later still, when the ruins had lost all their significance, they were regarded as a source of building material. First to be removed was the brick paving from the cloister, followed by the larger stones as the friary decayed even further. In the meantime, the still extant larger sections also collapsed. In the 18th century, the German settlers removed only the stones they needed for their houses, and they erected small rural buildings on top of the levelled ruins. The shallow foundations of the post-medieval houses hardly disturbed the medieval remains: for example, elements of the collapsed vaulting remained where they had fallen. Accumulating to several meters in some spots, the debris actually served as a protective layer. A number of other archaeological remains were uncovered during the excavation of the walls of the 15th century friary, some two meters below the floor level of the Franciscan buildings. These were the remains of the houses built by the burghers who had settled next to the royal court in the early 14th century. The excavation of the Franciscans' buildings has not only enriched the relics of Visegrád with a medieval ecclesiastic monument, but has also provided information on how the urban inhabitants lived in the vicinity of the palace during the time of Charles Robert.

CASTLES, FORTS AND STOCKADES – MEDIEVAL AND OTTOMAN PERIOD MILITARY ARCHITECTURE

Gergely Buzás, Gyöngyi Kovács & Zsuzsa Miklós

The study of castles has traditionally been an important part of medieval archaeology. The excavations and topographical work of the past decades, has revealed that many types of fortification existed in the Middle Ages beside the familiar 'knight's castles' made of stone. The research also provides fundamental information for medieval power relationships.

MINOR CASTLES

A few decades ago it was generally accepted that there were hardly any castles in Hungary before the Mongolian invasion (1241) and that, strictly speaking, the construction of private castles in Hungary began during the second half of Béla IV's reign. Only in the wake of research in recent decades has it become clear that there existed a small castle type already in the 12th–13th centuries that differed in several respects from the castles appearing from the later 13th century.

The investigation of this type of castle began in the 1960s and 1970s as part of archaeological topographical work, and later became more intensive in the 1970s. The first study covering a wider geographical area was published on the Börzsöny Mountains region and was followed by similar studies on the Gödöllő Hill and the Mátra Mountains region, Nógrád county and historic Borsod county, as well as a portion of Baranya county. Research methods have also been perfected during recent years. Earlier research was mostly based on existing written sources, cartographic documentation and field surveys; the potentials of aerial photography and reconnaissance are now also fully utilized, meaning that we can now identify castles whose traces are not visible in the course of field surveys (*Fig. 35*). We have investigated as many castles as possible through excavation when possible, not simply by opening one or two trial trenches, but with a full exploration. We can thus familiarize ourselves not only with the fortification's structure, but also with its layout, as well as the dwellings and outbuildings it contained, while the finds offer an insight into the daily life of the castle's inhabitants.

The minor castles were most commonly placed on the long ridges of lower hills; they can also be found on hills rising only a few meters above the floodplain. Some exceptions occur, however – for example in the Börzsöny Mountains –

Fig. 35. Earthen fort at Bikács–Belső sziget



where these castles lie at a relatively high elevation on hill-tops that are not easily approachable. There are also castles that were established on the lowlands or on the hilltops that were sited on artificial mounds. These mounds were mostly round or oval, rarely angular, and covered 200 m² to 700 m². In some cases there was also an outer bailey in addition to the residential area. However, the most typical arrangement was a residential area was enclosed by a several meters deep and wide ditch, and an earthen rampart on the outer side of the ditch. In many cases we observed a wooden palisade or, occasionally, a brick or stone enclosing wall built around the edge of the hill. The buildings in the enclosed area were constructed of wood, stone or brick. We often found a multi-storeyed tower, but large, probably single story buildings were also uncovered. The observations made during the excavations indicate that the outbuildings, storage pits and ovens usually lay near the tower and the other residential buildings. In several castles the cistern or well was also uncovered.

These minor castles were inhabited by a landed noble and his family, his servants and their animals. The castle's main function was to protect the noble's family and property, although it could hardly withstand an attack by larger forces.

It would appear that some of these castles were not permanently inhabited, but were used as a place of refuge in times of peril. The bulk of the finds from the other, permanently occupied castles is made up of pottery fragments (pots, bowls, jars and lids) and iron artefacts (knives, horse-shoes, spurs and arrowheads). We also found that small villages, made up of no more than a few houses, usually lay in the vicinity of these castles. In many cases the village survived, often for many centuries, after the destruction of the castle.

According to our present knowledge, these castles were built mainly in the later 12th century and in the 13th century. This castle type was widespread not only in Hungary, but also in Central Europe. Most of these complexes were destroyed in the late 13th or the early 14th century.

ROYAL CASTLES IN THE LATER MIDDLE AGES

The large royal castles represent an architecturally significant and well-circumscribed group of Hungarian castle architecture. Louis I and Sigismund built many large, palatial castles that were not official state residences – their role and function was to provide suitable accommodation for the occasional visits of the king and his court, usually on the king's hunting outings. The castles at Diósgyőr and Zólyom (Zvolen, Slovakia), completed in the 1370s and 1380s, as well as Végles (Viglas, Slovakia) and Tata, erected in the 1390s and early 1400s, represent a surprisingly uniform type. They were constructed around a central courtyard with palace wings built on a symmetrical, square plan. The castles at Diósgyőr and Tata had angle towers; these towers are absent from Végles and partially absent from Zólyom (Figs 36–38).

The architectural type represented by these royal castles had become the preferred residential building type of the Hungarian aristocracy by the time of Sigismund and the stormy period in the mid-15th century. The greatest land-owning nobles of Sigismund's court constructed this type of castle: Pipo of Ozora in Ozora, the Kanizsais in Kanizsa and Kismarton (Eisenstadt, Austria), and later the Újlakis in Várpalota and, probably, in Újlak (Ilok, Croatia).

Systematic excavation have been conducted in these castles with a regular design lying on the territory of Hungary



Fig. 36. Courtyard of Tata Castle



Fig. 37. *Diósgyőr Castle*

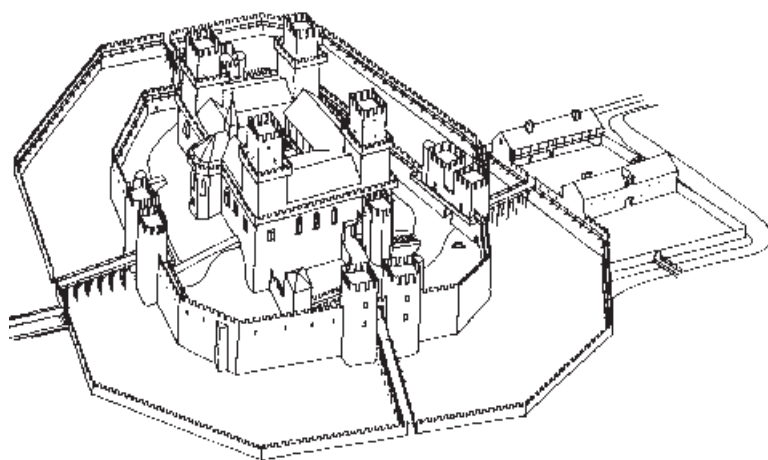
since the 1960s. As a result of these excavations, archaeological and art historical research has shown great interest in this castle type. Art historian Jolán Balogh and archaeologist Imre Holl have analyzed in detail the foreign analogies to these castles and their possible route of transmission to Hungary.

One of the antecedents of these castles with an inner courtyard surrounded by wings were the castles built on a square plan with angle and interval towers, but without an entirely closed courtyard that appeared in the west in the later 12th century. The earliest example of this type is the castle of Druyes-les-Belles-Fontaines in Burgundy, built in the third quarter of the 12th century with round angle towers and square interval towers. At the beginning of the 13th century, numerous castles were constructed following this model, particularly in the area around Paris, although most usually had round towers (Paris, Louvre: 1190–1202; Dourdan: c. 1222; Nesles: 1226; Mez-le-Maréchal: 1190–1214; Brie-Comte-Robert; Diant). The descendants of this type were the castles built in Wales by the English king Edward I in the late 13th century (Caerphilly: 1267–77; Flint: 1277; Harlech: 1285–91). Castles with a regular groundplan and an inner courtyard surrounded by wings represent a distinct group that evolved from this type. The first example of this type is Belvoir Castle (1189) in the Holy Land, erected by the Knights of Saint John, whose groundplan was modelled on Byzantine fortresses. In Italy, representatives of this building type include the castles of Frederick II (Trani: 1233; Catania: after 1239; Augusta: after 1239; Gravina: 1231; Prato: after 1248; Castel del Monte: 1240, built on an octagonal plan).

One of the variants of the local round-towered castle type in France appeared in 1230 at Montaiguillon Castle in the Île-de-France. In southern France, this type of fortification

was only constructed in the early 14th century, the first being Villandraut Castle built by Bertrand de Got, who was later elected pope Clement V. John XXII began the construction of the papal palace in Avignon; its central building received its final form during the time of Benedict XII (1334–1342). The palace was completed in a similarly symmetrical form with a closed interior courtyard and angle towers. This square variant with angle towers appeared elsewhere in southern France as well. This type became one of the most popular castle types in northern Italy in the mid-14th century, primarily due to the influence of the papal castles in southern France. The earliest and most monumental example of this type was the enormous Pavia Castle, built from 1360–65. In the later 14th century, a series of such castles was built, with or without angle towers and donjons (for example,

Fig. 38. *Reconstruction of Diósgyőr Castle*



Pandino: after 1379; Ferrara: 1383; Mantua: 1395–1406). The influence of papal castles likewise resulted in the appearance of this type on the papal estates around Rome after the mid-14th century (Narni: c. 1370; Spoleto: 1358–62; Montefiescone: 1368–69; Bolsena).

The castles built on a symmetrical plan by the Teutonic Knights and the ones in the neighbouring Baltic and Polish territories appearing from the 13th century represent an independent group. A castle type with four angle towers that has also been documented in Central Europe since the later 13th century (Vienna, Bécsújhely/Wiener Neustadt, Ebenfurth, Kadan, Písek, Chrudim, Kőszeg) may have influenced the spread of symmetrically planned Hungarian fortified palaces in the late 14th and early 15th centuries, although the role of the royal castle at Óbuda, built in the 1230s, was probably greater. At the same time, Diósgyőr Castle, the first and most complete castle with four angle towers from the late 14th century, reflects the direct impact of 14th century southern French castle architecture. Even so, other influences must also be considered: Tata Castle, for example, has much in common with the Lombard castles, particularly Mantua and Ferrara, while Ozora Castle resembles the Verrès Castle in the Aosta valley built in 1390. The spread of this castle type in the Angevin and Sigismund period is a sure indication that Hungarian royal and aristocratic court culture kept up with the latest trends in European Gothic court culture around the 1400s.

MILITARY ARCHITECTURE IN HUNGARY DURING THE OTTOMAN PERIOD

There was a great emphasis on military constructions during the Turkish occupation or Ottoman period that were particularly important in times of war. Similarly to the constantly

Fig. 39. The Karakas Pasha Bastion in Buda Castle



changing in-depth defence line created by the Hungarians, the Turkish forces too created a similar defence system.

Large-scale construction projects to reinforce the already existing strongholds were begun in the wake of the attacks of the Turkish army. In addition to the already existing medieval stone fortifications, a number of new forts were built, some of which were palisade forts, constructed from wood and earth. In addition to the larger strongholds, a number of smaller military fortifications, palisade forts and simple watchtowers ensured a continuous chain of defences, designed for protection against raids and unexpected attacks. Their military value lay in this defensive role.

The Turks began the construction of their network of fortresses following the occupation of Buda in 1541. This was in part based on the already existing Hungarian castles in the Turkish occupied areas of the country. These larger strongholds were continuously renovated and kept in good repair, and some were enlarged, particularly in the 16th century. During the 150 years long occupation, the walls of Buda were entirely renewed along the line of the medieval castle wall in the north and west, and a number of towers and round bastions were added that were named after the Turkish builders, irrespective of whether they were newly built or medieval in origin (*Fig. 39*). The investigation of these bastions is still underway: the remains of one were brought to light during recent excavations by Károly Magyar.

The Ottoman period fortifications of Esztergom are also well known. The Buda Gate Bastion with a small tower on one side is a rather unusual type, as is the Hévíz Bastion overlooking the Danube, whose parapet is decorated with Turkish masons' marks. In Eger, the small bastion known as the Turkish Garden guarding the inner castle's main entrance and the massive stone wall in front of the Bornemissza Bastion are of Turkish origin. The one-time castle of Szeged had a water tower, demolished in 1882, a monumental structure that according to Evlia Çelebi was built by the famous Turkish architect, the "aged Sinan master".

Szigetvár Castle, renovated in the mid-16th century, was occupied by the Turkish forces in 1566. The defensive palisades that were heavily damaged in the siege were rebuilt as stone or brick bastions, the western and northern walls were extended and the inner moat was filled up to create a unified defence system incorporating the former inner, middle and outer castles (*Fig. 40*). The archaeological investigations have brought to light the remains of both Hungarian medieval and Ottoman period constructions.

The Turkish defenceworks that are visible today reflect the characteristic architectural features of the period. The defenceworks erected by the Hungarian and the Habsburg military leadership conformed to the most up-to-date military architecture of the mid-16th century (such as Old Italian bastions). The Ottoman period towers and bastions were built on a round or polygonal plan. In Buda, for example, the Kasim Pasha (Fehérvár) Bastion is round, while the Karakas Pasha Bastion, erected on medieval foundations, has a round lower section and a polygonal upper section. The Hévíz Bastion at



Fig. 40. Szigetvár Castle

Esztergom is polygonal, as is the Turkish Garden Bastion in Eger. The angle bastions at Szigetvár Castle recall the Old Italian bastions, but their groundplans are irregular polygons. The form of these defences reflect nothing of the advanced western military architecture of the period (as shown by the lack of New Italian style bastions), while the mixed masonry techniques, combining stone and brick in the construction of the walls, reveal the traditions of Byzantine and medieval castle architecture.

The costs of these construction projects can be reconstructed from a wealth of financial documents and account books. The entries in these documents also indicate what the funds were used for, enabling the exact dating of castle gates, towers, mosques, storehouses and arsenals.

PALISADED FORTS IN HUNGARY DURING THE OTTOMAN PERIOD

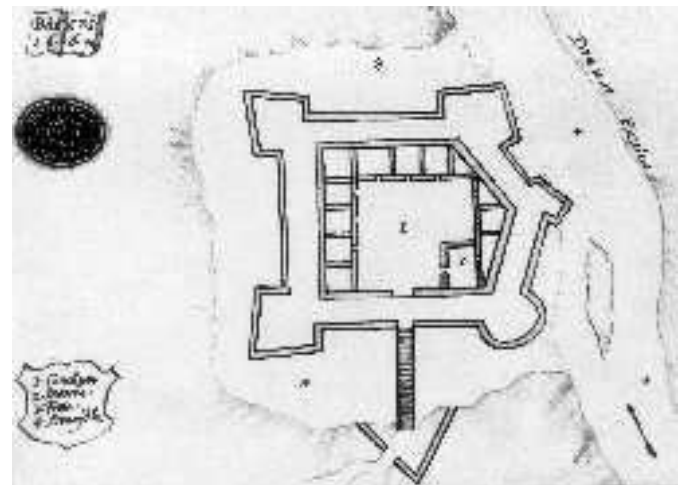
Palisaded fortifications were quite widespread during the Ottoman period, both in the Turkish occupied part of the country and in the areas remaining under Hungarian control. Various types of palisades were constructed in the 16th–17th centuries, ranging from a single row stockade (paling fence) coated with clay on the exterior to stronger types providing greater protection. In the latter cases, posts were placed either loosely or tightly next to each other in two or more narrow trenches filled with lime and clay; the space between the wooden posts – bound together with wattle or by bracing them together with iron nails – was packed with earth and the ‘wall’ thus gained was then plastered on the exterior.

Almost all visible traces of the major palisaded fortresses of the Ottoman period, such as Kanizsa, Szolnok and Gyula’s

outer castle, have disappeared and their former sites have been either partially or completely built over. At Kanizsa, for example, topographical and archaeological investigations were conducted at the very last moment before the area was built up. These investigations could only concentrate on the late medieval fortified palace and its surroundings. The Turks also rebuilt many former Hungarian palisaded fortresses: for example they constructed or relocated gate towers. The changes during the Ottoman period can often only be reconstructed from various depictions and groundplans since the structures themselves have been destroyed (Figs 41–42). The Ottoman period gate tower of Gyula’s outer castle that survived to this day is a rare exception.

Palisaded fortifications were employed particularly for the construction of smaller forts. Quite a few of the Turkish palisaded forts included newly built structures,

Fig. 41. Pál Esterházy’s drawing of the Barcs fort (1664)



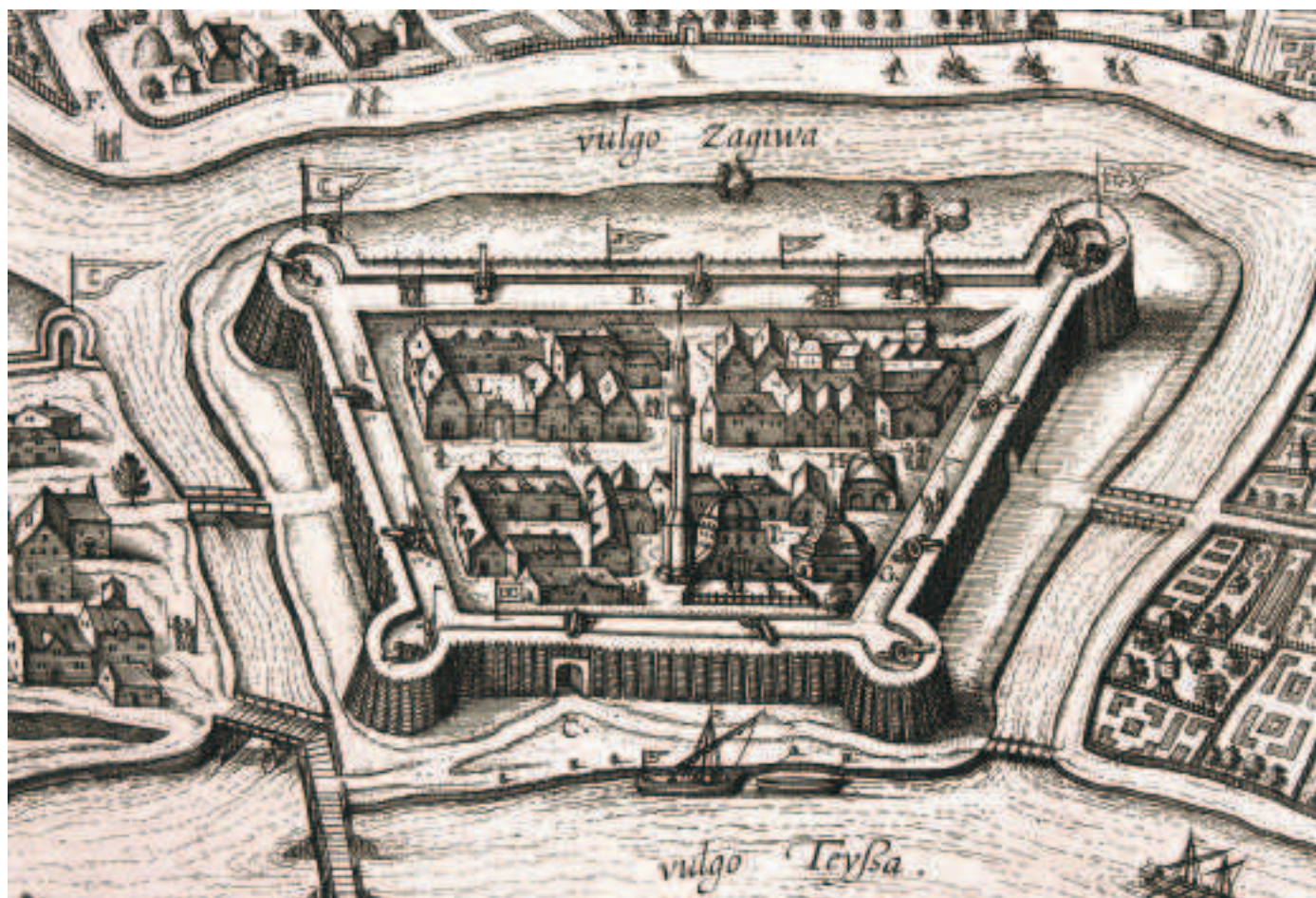


Fig. 42. Hoefnagel's engraving of Szolnok Castle (1617)

such as the ones at (Ipoly)Damásd and Drégelypalánk in the Börzsöny Mountains, Újpalánk (Nova Palanka, Croatia), (Duna)Pentele and Çankurtaran in the Danube valley, as well as the Barcs stockade next to the Drava. The forts in Börzsöny Mountains protected the zone around Buda, those along the Danube secured the military road for the deployment of Turkish troops, while the Barcs fort protected the Turkish flotilla's harbour on the Drava.

Medieval castles, churches, monasteries and towers were often fortified with a palisade of wooden posts and earth. These include the medieval castle palace at Ozora, the medieval churches at Mecseknádasd and Vál, the Franciscan church and friary at Jászberény, as well as the Cistercian monastery at Bátaszék. The core of the palisade fort at Dunaföldvár was the tower built sometime in the early 16th century. The Hungarian and the Austrian imperial troops had similar arrangements in a number of places. A number of smaller forts in Zala county were organized around Benedictine abbeys and monasteries, as for example at Kapor-nak, Murakeresztúr and Zalavár. The Ottoman period palisade at Zalavár was discovered during recent excavations conducted by Géza Fehér, István Méri, Ágnes Cs. Soós, Béla Miklós Szőke and Ágnes Ritoók.

Similarly to the larger forts, these smaller palisade fortlets have also perished for the greater part. The 18th–19th century travelogues, tax records, maps and other documents contain a wealth of information on the location of these structures that have mostly vanished without a trace by the 20th century, as do old maps recording the one-time hydrography and terrain features. Maps of the one-time street system can also be of help. At Jászberény, for example, the church and the fortified friary – the core of the Ottoman period fortification – still stand in the same spot as in the 16th–17th century. The memory of the palisade wall has been preserved in a street name and its line could be fairly accurately reconstructed from the one-time hydrography. At Vál, Gábor Hatházi identified the medieval church and the Ottoman period palisade fort from the scanty Ottoman period architectural remains and the descriptions in the 18th century *canonica visitatio*.

The archaeological investigation of smaller Turkish palisade forts has yielded new information not only regarding their architecture, but also as regards the material culture and lifeways of their occupants. The first important excavation in this respect was conducted by Attila Gaál in the small Turkish fort at Újpalánk. Újpalánk lies on the Danube and

MEDIEVAL VILLAGES AND THEIR FIELDS

Mariann Bálint, József Laszlovszky, Beatrix Romhányi
& Miklós Takács

the small fort controlled the river. Built in 1596, the fort was destroyed in 1686. Its remains were uncovered in the 1970s and 1980s. The fort had a rectangular groundplan measuring 50 m by 60 and it was enclosed by an 80–100 cm thick palisade wall with a round bastion at each corner. No two bastions were alike, indicating that these bastions and the wall were not particularly carefully planned.

Since most of the palisaded forts lie in built-up areas, the possibilities for their investigation are rather limited and only narrow trenches could be opened on most sites (Dunaföldvár, Békés, Törökszentmiklós, Barcs, Gyula). In spite of the relatively small investigated area at Gyula, the 8–9 m wide palisade wall built before the 1566 siege and the 3 m wide palisade constructed during the Ottoman period could be identified with certainty, while at Barcs the 3 m wide palisade from the 16th century could be quite easily distinguished from the remains of the single-row palisade constructed in the 17th century that was renewed several times. In cases when the palisaded fort was built around an earlier medieval structure, its investigation was usually linked to the historic preservation work on the monument (Ozora, Dunaföldvár, Zalavár).

The smaller palisaded forts of the Hungarian chain of forts have been researched to a lesser extent than the ones in the Turkish occupied parts of the country. The excavations conducted at Bajcsavár provided new information on the palisade constructions of the period. Built in 1578 and occupied until 1600, the construction of the Bajcsavár fort was in part financed by the Styrian estates. The greater part of the surviving 1 ha large area of the fort was excavated between 1995–2001 by László Vándor and Gyöngyi Kovács. The fort shows the characteristic features of the small palisade forts built by the imperial military councils in Vienna and Graz. Bajcsavár was built on a regular pentagonal groundplan and – in contrast to the round bastions of the Turkish forts – it had Italian style angle towers, conforming to the most modern fort types of the period. The investigated palisade bastions were, similarly to the ones in the Turkish fort at Újpalánk, only more or less identical. The roughly 4 m wide palisade wall was not completed, and on the testimony of the documentary evidence and the observations made during its excavations, it was continuously renovated and reinforced. It would appear that this fort was typical of the newly constructed palisade forts of the period, all built amidst the turbulent war years of the 16th century. These forts were erected rather hastily, without too much planning; they were in need of constant repair and their location sometimes showed a lack of foresight. The finds from Bajcsa indicate that the garrison stationed in the fort was well provisioned; the supplies reaching the fort included various luxury wares, a fact that can no doubt be ascribed to the fort's unique position in the chain of border fortresses – we know from the documentary evidence of the period that life was rather austere in these forts.

Settlement archaeology is a complex field of research since it is made up of several related disciplines. The investigations in this field involve not only the study of residential and other buildings and the different aspects of domestic culture, but also the reconstruction of the settlement's topography and layout, as well as the study of the historic antecedents of a particular settlement type (i.e. urban settlements, rural settlements, etc.). It also involves the reconstruction of a region's settlement network and a study of the factors that led to its emergence. The primary research methods of settlement archaeology are excavations and field surveys, combined with the examination of written sources, older and more recent maps, aerial photographs, local traditions concerning churches, castles and villages, the ethnographic analysis of post-medieval and modern peasant culture, research into natural and settlement geography, as well as various scientific analyses conducted before, during or after the excavation.

Although the archaeological research of settlements was begun well over a hundred years ago in Hungary, the decades before the end of World War 2 can be regarded as the initial stages in this field of research. István Méri's activity brought a fundamental change since he can be largely credited with elaborating the field techniques for the excavation of medieval settlements, most of which are observed to this day. In the decades after World War 2, settlement archaeology in Hungary was characterized by efforts to make as precise observations as possible during the excavations, most of which were rescue operations. Despite the difficulties mentioned above, numerous settlements were excavated in the decades after World War 2. The investigated sites include Csátalja–Vágotthegy, Csongrád–Felgyő, Doboz–Hajdúirtás, Dunaújváros–Öreghegy, Hács–Béndekpuszta, Kardoskút–Hatablak, Kengyel–Halastó, Nagyvázsony–Csepely, Sarud–Báb, Sümeg–Sarvaly, Szarvas–Rózsás, Szentkirály (Lászlófalva), Tiszaeszlár–Bashalom, Tiszalök–Rázom, Túrkeve–Móric, Veresegyház–Ivacs and Visegrád–Várkertdűlő. Other excavations were conducted on the *suburbia* by castles, as well as in royal, episcopal and market towns: Buda, Edelény–Borsod, Esztergom, Győr, Kőszeg, Óbuda, Ópusztaszer, Pásztó, Pest, Sály, Sopron, Székesfehérvár, Szabolcs, Vác, Visegrád, Zalavár–Vársziget, etc. Because of the more or less limited scope of individual excavations, medieval settlement archaeology has produced more results in determining various types of residential buildings than in the study of settlement structure. This situation did not change substantially even after the large-scale field surveys begun in the 1960s since there was little interest in clarifying the problems of settlement history using the data from the mapped and surveyed settlement sites. Welcome exceptions to this were studies written on the

settlement history of the Bodrogeköz, Esztergom, Kecel, Kisújszállás, Szentes, Keresztúr–Szék in the Székler region of Transylvania and the Bakony, the latter unfortunately still unpublished. This is probably one of the reasons that archaeological finds played only a secondary role in the summaries written by historians studying the Middle Ages between the 1960s and 1980s.

A number of positive changes can be noted in settlement archaeology studies during the past one and a half decades. First among these is that university students can now apply for grants for post-graduate training in Western Europe as a result of the political changes. For example, there are now a number of young archaeologists who have adopted the approach and methods of the English school of settlement archaeology in Hungary. Secondly, an auspicious government decision after the political changes ensured that the rescue excavations linked to motorway and road constructions could be conducted under favourable circumstances since the funds for these excavations were made available before the commencement of work and not parallel to it. Thanks to this favourable turn of events, the excavation of medieval settlements has multiplied and in several cases we were able to explore many hectares of individual settlements.

THE STRUCTURE OF ÁRPÁDIAN AGE RURAL SETTLEMENTS

Of the numerous factors affecting a settlement's structure, the natural environment plays a prominent role, as does the economy of a given community. Many archaeological finds indicate that at the turn of the 9th–10th centuries, the ancient Hungarians of the Carpathian Basin practiced a semi-nomadic economy characteristic of the Eastern European open woodland steppe. Because a large number of 10th and 11th century settlements in the Carpathian Basin yielded artefacts that could be linked to the ancient Hungarians of the Conquest period and also because a link could be demonstrated between these settlements and the later villages in terms of size and structure, the archaeological record provided convincing evidence for the semi-nomadic life-style of these communities. Although the archaeological finds are in themselves unsuitable for determining when the seasonal winter camps evolved into permanently inhabited villages, the available evidence would suggest that this process occurred sometime during the 11th century.

For a long time, the number of Árpáadian Age villages that could be analyzed and whose layouts could be compared hardly increased. Owing to the limited funds available for excavation, only a small area of these settlements was investigated. The large-scale rescue excavations of the 1990s brought a breakthrough in this respect. It became clear that the structure of Árpáadian Age villages shared a number of common features. The new observations confirmed that a system of ditches was one of the major structural elements in most 11th–13th century rural settlements. The long,

more or less straight ditches usually determined the overall layout, while the ditches enclosing a round or rectangular area probably functioned as animal pens or corrals. One good example for the different function of these ditches was observed at the Ménfőcsanak–Szeles-dűlő site, where the long ditches enclosed areas of roughly the same size, the 'homesteads' proper, while the pens lay by the edge of the settlement. At the same time, these rescue excavations also furnished evidence that villages lacking this system of ditches were also quite common. These settlements usually had sunken huts arranged in rows. This type of settlement can best be described as made up of 'house rows', although in the lack of a fine internal chronology enabling a precise dating with an accuracy of within one or two decades, it is unclear whether there were at least two contemporaneous huts. It is quite possible that these rows simply reflect a process whereby each new dwelling was built beside a demolished old one. One good example of this type of structure is the Lébény–Bille-domb site, where long ditches were first dug in the 13th century and where the earlier houses formed rows conforming to the slope of the hill (*Fig. 43*).

One indication of the emergence of a permanent settlement network is the fact that in addition to 'average' villages, another type of rural settlement, smaller isolated farmsteads, also appeared from the 12th century. In contrast

Fig. 43. Ditch system and Árpáadian Age settlement features at Lébény–Bille-domb



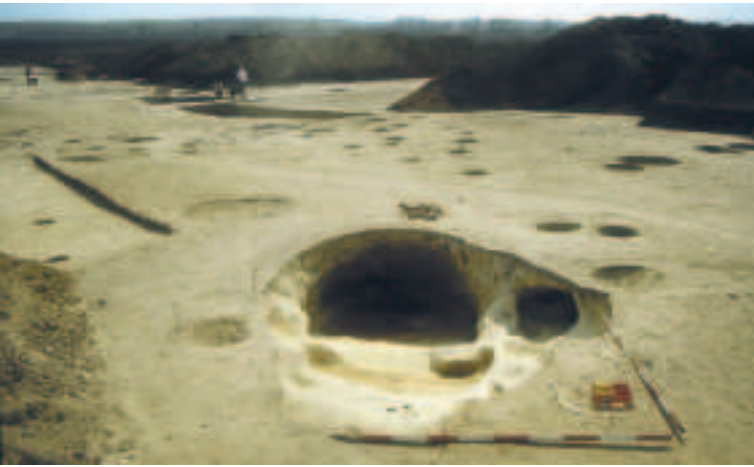


Fig. 44. Settlement features from the Árpáadian Age at Hegyeshalom–Holdas szántók

to the ‘average village’ of the period, these campsite-like settlements were made up of no more than two or three residential buildings and their outbuildings. The evidence from the excavations suggests that the structure of these settlements was dispersed. The open areas between the buildings contained pens, attesting to the importance of animal husbandry. One excellent example of this settlement type was uncovered on the outskirts of Hegyeshalom, where only seventeen Árpáadian Age settlement features (open-air ovens, pits and enclosing ditches) were found over the several hectares large investigated area (Fig. 44).

A ‘BURIED LANDSCAPE’: ÁRPÁDIAN AGE SETTLEMENT HISTORY IN THE DANUBE–TISZA INTERFLUVE

The Danube–Tisza interfluvium has been largely neglected by historical researchers. The studies on the history and the historical geography of the Árpáadian Age, based exclusively on the written sources, describe this region as an uninhabited area. The primary reason for this is that there is little in the way of documentary evidence on the area from the Árpáadian Age. The Danube–Tisza interfluvium is a good example of how the results of different disciplines can be drawn together in order to gain a better understanding of an area’s history. The study of the Árpáadian Age settlement history of this region raised a number of geographical, environmental, archaeological and historical questions.

The Danube–Tisza interfluvium is a young cultural landscape. Human activity modified the environment, leading to the present treeless, dry and arid landscape. Significant deforestation resulted in the formation of sand drifts. The systematic field surveys in the area have revealed a dense settlement network, especially in the 3rd and 4th centuries and, later, in the 11th–13th centuries, suggesting that the one-time environment was more favourable than the current one.

The soil type dominating a geographical region plays a fundamental role in how the area is exploited economically. The dominant factors in soil formation in the investigated area of the sandy table-land in the Danube–Tisza interfluvium were the parent rocks, the general relief and the hydrogeological conditions. The analysis of the buried soil layers contribute to a better understanding of the circumstances under which the sandy table-land’s soils were formed. One of the most important and most difficult problems is the dating of the buried soil layers. Sandy soil rich in humus buried below the surface was observed at two sites in the southern part of the Danube–Tisza interfluvium. The age of these soil layers could be determined with the help of archaeological stratigraphy. The samples taken from these layers were submitted to a various physical and chemical tests. The physical tests were aimed at determining the origins of the sand layers found at different depths. The examination of the surface of the sand grains with an electron microscope and the extent of their erosion allows the determination of how the sand was transported and deposited. Two types of sand could be distinguished in these soil profiles: layers transported by water and wind blown layers.

The chemical analysis of the soil samples revealed the organic material content of the different layers. We found that the organic content of the buried humus layer exceeded that of the present-day cultivated layer. These buried layers were rich in organic material, making them suitable for efficient agricultural cultivation, such as grain production. Owing to its high organic material content, this soil was able to bind a larger amount of water, significantly improving the sandy soil’s water regime.

The analytical results indicated that there were more favourable conditions for soil formation in this area in bygone times than at present. The percentage of organic material in the soil layer may be indirectly associated with the one-time plant cover, suggesting that this landscape was covered with vegetation; the proportion of forested areas was estimated at 30 per cent. The closed plant associations prevented the drifting of sand and made continuous agricultural cultivation possible. The re-appearance of drifting sand in the post-medieval and modern periods buried these soils under the surface.

According to estimates of the area’s carrying capacity, the Dorozsma–Majsa sandy table-land, in the southern part of the Danube–Tisza interfluvium was suitable for sustaining herds of 7,000 to 13,000 cattle. The soil analyses thus provided an explanation for the high number of settlements identified during the field surveys.

VILLAGE PARISH CHURCHES

To modern man, the church is an integral part of the village landscape. The principle of one parish for each village, however, was never fully achieved in the Middle Ages. At first, the situation most likely reflected the stipulation of the

law issued by King Saint Stephen, namely that there should be a church for every ten villages, even though this was not always observed during the turbulent decades following the king's death. In contrast, the laws of Saint Ladislaus contain no reference to the ten villages mentioned above. Still, the meagre documentary evidence and the archaeological record would suggest that about one-tenth of the villages actually had a church in the 11th–12th centuries. A major change in this respect can be noted from the later 13th century. It is not mere chance that the first architectural phase of most medieval village churches falls within this period.

There is a significant difference between the picture projected by the written sources and the one gained from the archaeological record in the case of village churches. The first sources that mention the parish system are the papal tithe registers drawn up between 1332 and 1337. These records cover the greater part of Hungary and even though they were prepared many decades after the extinction of the House of Árpád, the conditions reflected in them more or less correspond to those at the close of the 13th century. The greatest deficiency of these registers is that the areas where the greatest changes occurred in the settlement system in the wake of the Mongolian invasion, namely the central areas of the country east of the Danube, are hardly mentioned or are missing altogether. Only archaeological excavations can compensate the silence of these sources; the investigations conducted over recent decades have already enriched our knowledge in this respect.

Archaeological research during the past few years has shown, for example, that there were far more settlements in the Danube–Tisza interfluvium before the Mongolian invasion than the documentary evidence from after the invasion would indicate and, also, that a significantly greater number of these settlements had churches. These results have fundamentally modified the region's medieval topography and, at the same time, have raised the question of whether this fundamental change was exclusively a consequence of the devastating Mongolian invasion.

Most village churches were quite small, usually accommodating no more than twenty to twenty-five persons, although, a few larger churches have also been found. The towers that are so common today were considered a rarity; the small church bell was placed either in a separate belfry, under the roofing of the church, or in a small wooden steeple. At the same time, even the smallest of these churches usually had some kind of gallery. In certain larger village churches, where one of the local noble families patronized the church's construction, this gallery functioned as the patron's gallery.

At first, these churches were often built from less durable material, such as wood or wattle-and-daub. This is also suggested by King Saint Ladislaus' decree from the late 11th century, stipulating that the churches falling into disrepair due to their age must be rebuilt. Observations made during recent excavations too corroborate this. For example, the remains of a timber-framed building were found in the interior of the small village church at Zirc. In the succeeding

centuries, the overwhelming majority of churches was built of durable materials, stone or brick, depending on what was locally available.

The graveyard around the church also played an important role in the village. The earliest graveyards of this type (called *cimiterium* in Latin) were established during the 11th century or by the turn of the 11th–12th centuries at the latest. Some of these remained in use until the end of the Middle Ages. These cemeteries are characterized by extraordinarily scanty grave finds, usually a few lockrings, rings, funeral pennies (*obulus*) and, occasionally, objects whose deposition can be linked to superstitious beliefs (knives, sickles, eggs, etc.). In fortunate cases, textile remains offer an idea of the costume. The use of coffins was not universal, although the metal fittings and wooden remains recovered from a few burials indicate their relatively early occurrence. The use of funerary shrouds could also be demonstrated in a few cases. A certain level of prosperity, reflecting in part the affluence of contemporary society, can be observed from the 14th century.

THE RECONSTRUCTION OF A MEDIEVAL DWELLING

From the very beginning of Hungarian settlement archaeology, there has been great interest in reconstructing excavated building remains. In fact, the first attempts were made at a time when the excavated remains were not suitable for reconstruction. Similarly to other fields of settlement archaeology, István Méri can be credited with the first pioneering studies in this respect. In the early 1990s, there emerged a consensus that an accurate reconstruction is only truly possible when it is made to the original scale and that this work can only be successful if the research team includes both archaeologists, who interpret the findings of an excavation, and architects, who are familiar with the archaic techniques of peasant architecture.

Fig. 45. The roof structure of a reconstructed Árpadian Age dwelling at Szarvasgede



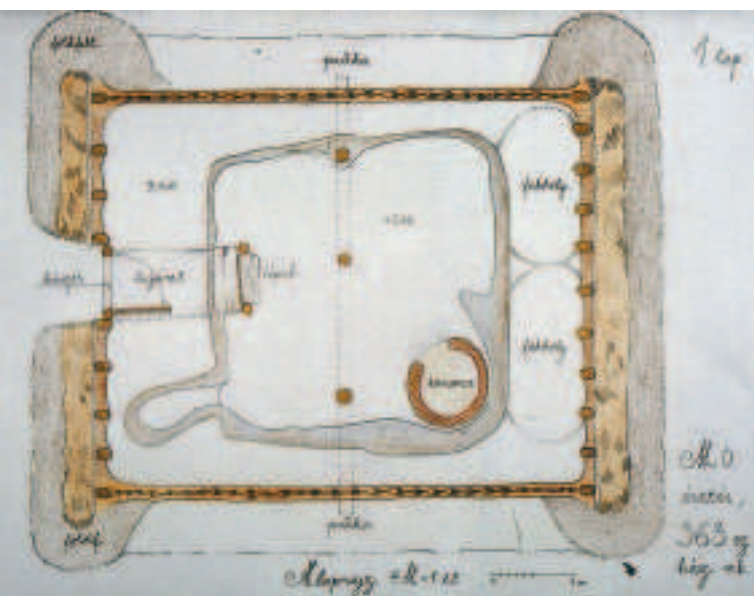


Fig. 46. The walls of a reconstructed Árpadian Age dwelling at Szarvasgede

Fig. 47. Fully reconstructed dwelling of the Árpadian Age at Szarvasgede

Fig. 48. Groundplan of the reconstructed Árpadian Age dwelling at Szarvasgede



Fig. 49. Interior of the reconstructed Árpadian Age dwelling with an oven at Szarvasgede

Following the work of István Méri, the first plans for a reconstruction project were prepared for a sunken house uncovered at the Budapest–Rákospalota site. This dwelling was successfully built at the Szarvasgede Biohistory Colony. While preparing the plans, it was necessary to examine the available evidence on the size and structural solutions of the known sunken houses in order to create an accurate reconstruction. This project provided new information on sunken houses. It became clear, for example, that their interior was about 25 to 30 m² large instead of 9–10 m² as had been earlier presumed and that these buildings were by no means the miserable huts as formerly believed. In earlier reconstructions, the size of the dwelling was identical with the excavated pit; the new interpretation of the archaeological evidence indicated that this pit was the dwelling's sunken central area used for various activities, with the beds and storage areas located on the benches around it. The roof rested on the ground and was braced by purlins supported by Y-shaped upright posts (Figs 45–49).

Multi-roomed above-ground houses made of wood or

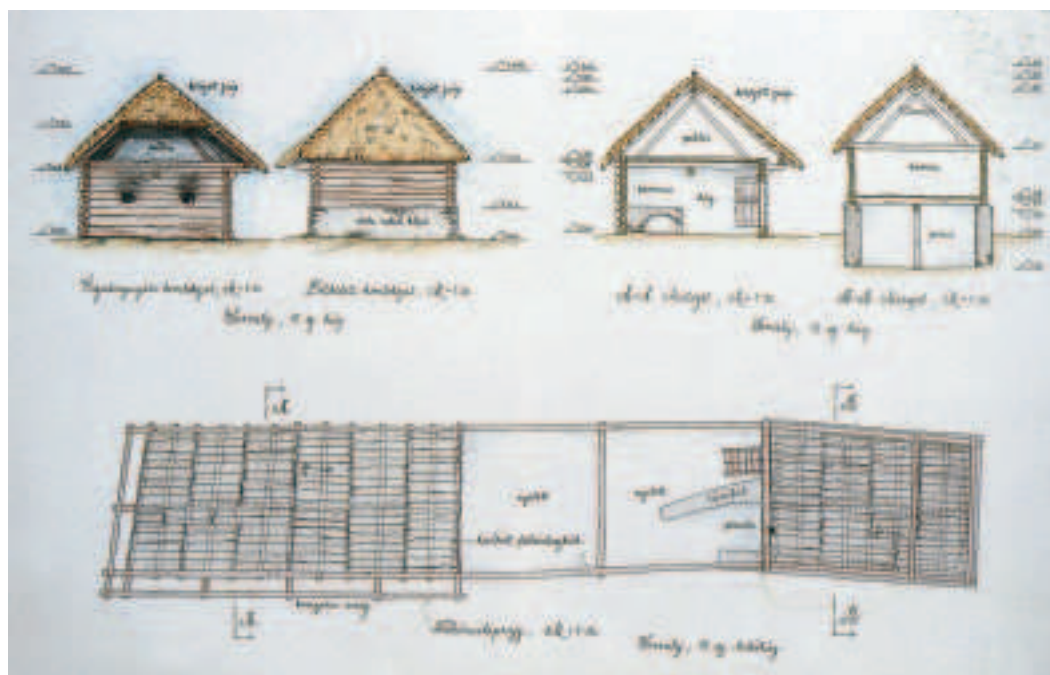


Fig. 50. Reconstruction of a late medieval house at Sarvaly

wattle-and-daub appeared in village settlements throughout Hungary from the 14th century. Imre Holl uncovered the remains of a multi-roomed log house with a cellar at Sarvaly in Transdanubia. The size of the house and of the rooms of this 15th century house suggest that a building with such dimensions could hardly have been a hasty construction with a flimsy structure since it had spans of around 6 m and the roof's ridge was over 6 m high. The first room was about 31 m² large and was heated by a chimneyless stove, followed by a pantry of similar dimensions and a larger, 62 m² large room that probably functioned as a barn. At the end of the house there was a partially sunken cellar with stone walls, above which there may have been a storage area extending up into the attic. We may therefore assume that the construction technique of the Sarvaly houses more or less resembled that of 19th century peasant houses, while their size was somewhat larger (Fig. 50).

ETHNIC GROUPS AND CULTURES IN MEDIEVAL HUNGARY

Gábor Hatházi & Katalin Szende

The relationship between the Hungarians and the other ethnic groups living in the country, who followed different religions, had different cultures and spoke different languages, often had a crucial impact in various periods of Hungarian history. Certain passages from King Saint Stephen's *Admonitions* "on the reception and assistance of foreigners", addressed to his son, Saint Emerich, are still often quoted. It is instructive to begin our overview of the archaeological heritage of these peoples and cultures with these passages since the attitude of King Saint Stephen, founder

of the Hungarian state, is a reflection of the conditions under which these ethnic groups settled in Hungary.

"Guests and settlers bring such profit that they rightly stand in the sixth place of royal dignitaries. ... Seeing that these guests come from various regions and provinces, bringing with them various tongues and customs, various inventions and weapons, all of which enrich the country, enhance the magnificence of the court and discourage foreigners from arrogance. A country with but one tongue and one custom is weak and frail. Therefore I command thee, my son, to act benevolently towards settlers, to hold them in esteem that they live more willingly with thee than elsewhere. If thou wouldst destroy what I have built or scatter what I have gathered together, 'twould doubtless be to thy country's detriment."

EASTERN ETHNIC GROUPS IN MEDIEVAL HUNGARY

Late nomadic groups from the Eastern European steppes formed a separate group among the medieval peoples of Hungary. Disregarding the Mongolian invasion, they represented the last wave of eastern peoples arriving to the Carpathian Basin. Population fragments from one dissolving nomadic coalition after the other asked to be admitted into Hungary from the 10th to the 13th centuries. Similarly to the Széklers and other groups entrusted with the defence of the kingdom's borders, as well as the 'men of the castle' (*cives* or *civiles*), these eastern groups were granted various privileges, such as the right to live according to their own laws and partial exemption from taxes and customs duties. In exchange for these privileges and the land they received, these peoples provided the core of the royal light cavalry for centuries. The three groups exerting the greatest influence



Fig. 51. Pecheneg bit with silver inlay from Sárbogárd–Tinódpusztá

were the Pechenegs, who were in time absorbed without a trace, the Cumans and the Jazygians of the Great Hungarian Plain, both of whom were organized into seven administrative districts in the 15th century and who preserved the memory of their ancestry to this day.

The Kipchak Turkic Pechenegs first appeared among the peoples of the western Turkic Empire in the 6th–8th centuries. Driven by the Oghuz Turks from their former homeland, in 895 the Pechenegs dislodged the ancient Hungarians from the Etelköz region, sparking their migration to the Carpathian Basin. In spite of their military prowess, the eight Pecheneg tribes suffered crushing defeats during battles fought with their Russian, Byzantine and Oghuz neighbours and were forced to flee in 1055. Their arrival to Hungary can be dated from this time, although minor groups, such as Thonuzoba and his people, appeared from the later 10th century. About a hundred and fifty Pecheneg settlements are known; the largest group settled in the Pecheneg *ispánság* (*comitatus*, or county) in the Sárvíz valley (Fig. 51).

The ancestral homeland of the Qun people, from which the Cumanian tribal alliance was formed, lay in the northern borderland of China. From here, the Khitay drove them westward at roughly the same time as the Hungarian state was founded. After crossing the Volga, they brought the plainland extending to the Lower Danube under their dominion between 1055 and 1068 (Fig. 52). The loose alliance of some twenty tribes never meant a threat comparable to the Huns', Avars' or the ancient Hungarians' for Europe. At the same time, the Cumans' two hundred years long occupation of the plainland brought a transformation in their lifeways, leading to the emer-

gence of an organized Cumanian state that was eventually toppled by the Mongolian conquest in 1223 and 1239.

The Jazygians, who had a similar way of life, but spoke an Iranian tongue, entered written history a millennium earlier. It seems likely that they played a leading role in the Sarmatian-Alan tribal alliance that emerged in the 1st century, whose dominion spread from the Aral Sea to the River Don by the 2nd century. Settling in the Caucasus and the area of the Don and Donets, they weathered the successive waves of Turkic peoples (Huns, Bulgars, Avars and Khazars) from the 4th century and accepted the temporary overlordship of these peoples. Although their steppean groups maintained close ties with the Cumans, the fate of these two peoples only became intertwined in the wake of the Mongolian expansion.

The many centuries long co-existence of the Pechenegs, Cumans, Jazygians and Hungarians, although often marred by hostilities, was not simply a story of the eventual assimilation of the immigrants. It was accompanied by the introduction of many foreign cultural elements, including the revival of some that had been long forgotten. This was particularly true of costume, weaponry and certain aspects of animal husbandry. The study and evaluation of the cultural impact of these peoples and the process of their integration offers a better understanding of Hungarian history and of the Hungarian people. Archaeology plays an increasingly leading role in these studies, following the pioneering studies by Ferenc Móra, the renowned novelist and archaeologist, Géza Nagy, István Éri, István Fodor, Ferenc Horváth, István Méri, András Pálóczi Horváth and László Selmecezi.

THE ARCHAEOLOGICAL LEGACY OF THE PECHENEG AND CUMANIAN ARISTOCRACY

The distinctive culture of the late equestrian peoples who were eventually assimilated into Hungarian society has survived in the pagan burials of the aristocracy of the first generations after their settlement in the Carpathian Basin. These graves reflect almost every element of the material and spiritual culture of the steppe. The nobles were buried in their ceremonial costume and their burials were lavishly equipped with food and beverages, weapons and jewellery (the latter often Russian, Byzantine/Balkan or western products), as well as with a horse or the horse harness symbolizing a horse. At the same time, very few burial mounds (*kurgans*), the characteristic burial form of the steppe, have been found.



Fig. 52. Chinese bronze mirror from the burial of a wealthy Cumanian woman. Nagykamárás–Bánkút–Rózsamajor



Fig. 53. Grave of a Cumanian warrior buried with his horse, Szege-Csegele. Grave goods found beside the warrior: 1. helmet, 2–3, 8. suspension rings and buckle from the belt, 4, 6. arrowheads, 5. chain-mail shirt, 7. food offering (sheep meat) under the helmet. Grave goods found beside the horse: 1. bit, 2, 6. stirrups, 3–5. surcingle and stirrup strap buckles

The finds that can be surely linked to the Pechenegs are restricted to a few stray finds from Sárbogárd, Alap, Felsőbörsök and Kölesd, whose interpretation is based on the grave goods of the culturally related Cumans. No find assemblages that can be associated with the Jazygians have yet been found in Hungary. It is still controversial whether the lack of Jazygian finds should be attributed simply to bad luck or whether it can be explained by their earlier contact with Byzantine Christianity in their Caucasian homeland. The study of the Cumanian finds – the number of known graves is barely a dozen – is difficult because they were not found by archaeologists, but came to light accidentally. The find assemblages that reached the museums were either incomplete or mixed up with other finds (Balotapuszta, Csólyospálos, Kígyóspuszta, Szentkirály, Inoka, Erdőtelek, Kunszentmárton, Tiszafüred, Bánkút, etc.), this being the reason that the discovery of the Csegele grave stirred a sensation. Ferenc Horváth carefully documented the burial of the warrior laid to rest with his horse and weapons (Fig. 53).

The evaluation and interpretation of the Cumans' heritage is not an impossible task even before the full publication of this extraordinary assemblage. In addition to their compar-



Fig. 54. Helmet from the warrior's grave at Csólyospálos-Csólyospuszta

ison with related finds from Eastern Europe, we can also draw on the murals depicting the Legend of Saint Ladislaus, various codices – such as the *Chronicon Pictum* and the *Angevin Legendry* – and the so-called *kamennaya baba*, stone statues that once stood by the thousand on the steppes.

The *kamennaya baba* were sacrificial statues depicting aristocratic Cumanian men and women in ceremonial dress, holding a cup in their hands, that were erected on mounds encircled by a stone fence near their graves. Contemporary descriptions by Albericus, Joinville, Philip of Fermo, Rubruc and Plano Carpini too have preserved a wealth of information. Men usually wore a tall, pointed hat made of leather or felt. They shaved their heads in the pagan manner, leaving a braid at the back that often reached down to the waist. They wore a moustache, but no beard. The fabric of the long kaftans fastened on one side ranged from oriental silk to crude linen and leather, and its ornamentation (embroidery, felt appliqué, metal mounts) reflected the wearer's social position. Only the most high-ranking men could afford chain-mail shirts and helmets, the products of workshops in Russia and the Caucasus (Fig. 54). Leather armour was more common; its intricate fastening straps were decorated with metal discs. The most important accessory of the male costume was the weapon belt, from which the

Fig. 55. Gothic belt buckle from the Cumanian warrior's grave at Kiskunmajsa-Kígyóspuszta





Fig. 56. Pair of stirrups from the Cumanian warrior's grave at Csólyospálos–Csólyospusztá

sabre, the mace and the quiver large enough to hold a strung bow, as well as other articles (knives, awls, pouches, tinder-box) were suspended. The belt was the emblem of the free weapon-wielding man among the Cumans; made from leather or cloth without metal fittings, this belt was more modest than those of the Avars or the ancient Hungarians of the Conquest period. The truly ornate specimens, such as the ones from Csólyospálos, Kígyópuszta and Szentkirály, were made in Western European workshops (Fig. 55). The Pecheneg and Cumanian warriors' most important weapons were the mace, certain sabre, bow and stirrup types. These articles were introduced – or better said, re-introduced – to

Fig. 57. Torc from a wealthy Cumanian woman's grave at Balotaszállás–Balotapuszta



the Carpathian Basin by these eastern population groups (Fig. 56).

The female costume was similar to that of the males. Women wore loose trousers and soft-soled boots, but their kaftans were shorter and fastened in the middle. From their belt they suspended mirrors, knives, combs, leather or cloth pouches and kerchiefs. Their headwear was more varied; headdresses adorned with metal mounts, conical hats, bonnets and hoods were equally popular. The horn-shaped female headdress ornamented with metal rings was a Cumanian 'invention'. Women wove their hair into two braids and covered them with a veil. In addition to rings, earrings and bracelets, Cumanian women also wore necklaces. The torcs, fashionable among other peoples as well, were not worn around the neck, but strung onto the necklace among pendant ornaments (Fig. 57).

Following their integration into Hungarian society, these burials disappeared. From the later 14th century, even the Cumanian aristocracy chose churches or church graveyards as their final resting place, where they were buried according to Christian rites.

FROM AUL TO VILLAGE: CUMANIAN AND JAZYGIAN SETTLEMENTS

Many Hungarian historians believe that the Cumans and Jazygians lived in nomadic tent camps (*auls*) for another century after their settlement in Hungary and that their first permanent settlements were only established in the mid-14th century since the written sources still describe Cumans living in tents at this time. Cumanian and Jazygian settlements are hardly ever mentioned in documents before the 15th century, and the ones that are rarely have a separate name and are usually located near a Hungarian settlement. However, this does not necessarily reflect the temporary nature of the sites, but rather the traditions of naming settle-

Fig. 58. Reconstructed model of a 15th century Cumanian house excavated at Szentkirály

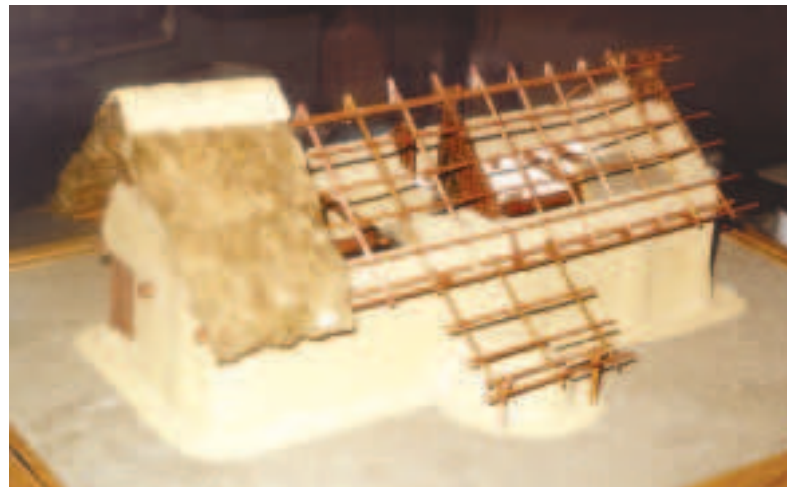




Fig. 59. Remains of house 9 of the Cumanian settlement at Szentkirály, with the plastered bedding trench of the wattle-and-daub walls and the postholes of the timber framework

ments in the Great Hungarian Plain since settlements were usually named after their landowner, as shown by the *-szállása* ['lodgings'], *-ülése* ['seat'], *-népe* ['people'] and *-háza* ['house'] suffixes. This uncertainty can therefore be in part traced to the changes in the toponyms that proved untraceable for the scribes drawing up these documents.

Recent research has provided information on the shift from temporary to permanent settlement, a process that was to a certain extent independent of the other elements reflecting integration (changes in costume and language, conversion to Christianity and the adoption of agrarian lifeways). This shift can be dated to the late 13th century and can in part be traced to an environmental pressure in the sense that the immigrant population found itself in a considerably more restricted area, in which nomadic herding was no longer possible since the land was dotted by ecclesiastic and private estates that made seasonal migration impossible. The boundaries of their settlement territories, incorporating four or five Hungarian villages that were destroyed during the Mongolian invasion and covering an area of 25 to 50 km², were usually established by members of the first generation, as shown by the Cumanian Law of 1279. The small distances and the favourable natural conditions in the Carpathian Basin (more plentiful rainfall and more

abundant vegetation) made nomadism impossible and, also, unnecessary. (Obviously, this does not exclude the survival of a form of semi-nomadic stockbreeding for some time.) The archaeological evidence from Eastern Europe also indicates that the Cumanians and Jazygians did not have to adapt to a wholly unfamiliar subsistence and settlement mode in Hungary. The return to a subsistence based on stockbreeding can be traced to the constant flight from the Mongolian advance. Agriculture was practiced in the centres of the Cumanian Khans and around the winter campsites that were no doubt the forerunners of their permanent settlements in Hungary. The permanent houses and outbuildings standing beside the yurts were in many ways similar to the Hungarian villages of the Árpadian Age. In other words, the shift to a more sedentary lifeway was not such a major leap as earlier believed and probably lasted no more than a few decades.

At Jászdózsa–Négyszállás, for example, large, partially sunken houses measuring 4 m by 6 m were used at the turn of the 13th–14th centuries, representing a transition between the house types of the Árpadian Age and those of the 14th–16th centuries. Round buildings with a diameter of 4.5 m erected on a stone foundation and enclosed by a fence were also found at this site. The latter can be regarded as specifically characteristic of the Jazygians. None of the Cumanian villages excavated to date have yielded similarly early buildings. The evidence from the investigated Jazygian (Négyszállás) and Cumanian (Túrkeve–Móric, Karcag–Orgondaszentmiklós, Szentkirály) sites indicates that the mid-14th century changes in settlement patterns can be traced among both the Hungarians and the Jazygians/Cumanians. The villagescape differed little from the neighbouring Hungarian villages from this time on, and the differences between the outward appearance of their inhabitants also vanished. The houses and their furnishings (stoves, ovens), as well as the artefacts of daily life (tools, pottery, metal fittings) are identical to those found in Hungarian villages (Fig. 58). At the same time, the duality of the cultural background was reflected in the presence of yurts plastered with clay that were erected beside the Cumanian houses in summer (Orgondaszentmiklós). The survival of the archaic culture can be traced among the small finds, such as the anklebones inscribed with runes used in a dice game that was popular among steppean peoples.

A tax record from the time of King Ladislaus V, the Turkish *defter* registers and the archaeological record indicate that the Cumanians' agriculture was on par with the Hungarians', as was their horticulture, apiculture and fishing (Fig. 59). We know that they shod their horses and the finds include a high number of sickles, scythes, pitchforks, pruning knives, spades, wagon and plough fittings. The plant remains too indicate a flourishing agriculture, as shown by the archaeobotanical samples of various cereals, lentils, peas, melons, walnuts, apricots, cherries, morellos, plums, flax, hemp and poppies. That stockbreeding was no longer nomadic in nature is reflected by the bone and egg

remains of the following animals, here listed in their order of frequency: cattle, sheep and goat, pig, horse, chicken and geese.

The open corrals, partially covered stockyards and sties that served for wintering in the conspicuously large Cumanian homesteads at the Szentkirály site indicate how extensive animal husbandry remained an essential element in the economy. Horse skulls hung on the fences or set on a pole protected the animals from evil spirits. The bones of large sheepdogs were also found at Szentkirály; the dog species can in all probability be identified with the “Cumanians’ dog”, the *komondor*. Finally, it must also be mentioned that the ratio of horse bones is conspicuously high among the bones of animals that were eaten.

CUMANIAN AND JAZYGIAN CEMETERIES

The graves of the immigrant Cumanians and Jazygians usually date to the early phase of the church graveyards that remained in use until the 16th–17th centuries. The majority of their permanent settlements were usually established on the site of villages that had been abandoned at the time of the Mongolian invasion. The existing graveyards were an obvious choice for burial, even though their new users, the Cumanians were still pagan in the beginning. (This is indicated by the fact that the construction of churches in the settlements that were not built on the site of an earlier Árpadian Age village was only begun after some progress had been made in the Cumanians’ conversion.) The early graves were unfortunately almost completely destroyed by later burials; in the case of the Cumanians, only scattered finds indicate their one-time presence. This is why the few lavishly furnished early graves uncovered at Négyszállás and Jászágó are so important. The grave goods from these burials (necklaces, belts with metal mounts, stirrups, coins of King Stephen V) date from the same period as the Cumanian equestrian burials, indicating that the Jazygians arrived with the Cumanians. One characteristic feature of Jazygian cemeteries is that nobles were interred alongside the common folk. It is still unclear to what extent this can be attributed to Byzantine Christian influence, a factor that is often quoted in connection with the Jazygian heritage that contrasts with the Cumanian one.

The 14th century horizon of these graveyards, destroyed to a lesser extent, reflects the gradual fading of the ancestral eastern heritage and a slow amalgamation with local traditions, giving rise to a peculiar, mixed culture (the graveyards in the Kecskemét area, Perkáta and Négyszállás). Compared to Hungarian cemeteries from the same period, the Cumanian and Jazygian burials are more richly furnished, a phenomenon that most likely reflects the transitional nature of their culture, rather than differences in wealth. This richness is particularly striking in the case of the burials of high-ranking women and children who, in contrast to the Christian rite, were laid to rest in their ceremonial costume and



Fig. 60. Cumanian jewellery from the Cumanian cemetery at Perkáta–Kőbalmi-dűlő

provided with various articles for the journey to the after-world (Fig. 60). The meticulous study of these grave assemblages has revealed not only the differences compared to Hungarian burials, but also the subtle differences in Jazygian and Cumanian culture.

The personal ornaments – pressed sheet ornaments sewn on dresses, headdresses or caps, ball buttons, bezelled fingerings and belt buckles – decorated with Gothic motifs adopted from contemporary coins, stove tiles and paving bricks reflect the cultural impacts on both groups. Similarly to the funeral oboli, these finds indicate that these communities played a role in the country’s commodity production since these ornaments were no doubt acquired at the nearby fairs. At the same time, the mode of their use reflects the survival of steppean fashion with a touch of Byzantine-Balkan influence. The extremely strict Cumanian Law of 1279 made but a single concession to pagan customs, namely that the Cumanians (and Jazygians) could retain their traditional dress, as well as their hair and beard styles. The position of these Gothic costume accessories in the grave suggests that they had adorned kaftans among both the Cumanians and Jazygians. In the case of the Cumanians, the ornamental mounts adorned the straps on the shoulders and hips fastening the kaftan, while the Jazygian burials usually contained two belt buckles, one for the trousers and one for the kaftan (the pressed metal mounts were used for trimming the collar and neckline of their shirts). Clasp pairs of Byzantine/Balkan origin for fastening women’s kaftans were also made locally from metal mounts both among the Jazygians and the Cumanians (Fig. 61). Women’s headdresses too differ: the Cumanians adorned their headdresses with metal mounts, while the Jazygians sewed these mounts onto their bonnets or shawls. The origins of the Cumanians’ question mark shaped ear-

Fig. 61. Pair of clasps from the Cumanian cemetery at Sárossd





Fig. 62. Beads, cast bronze pendant and bone amulets ornamenting the pouch from grave 140 of the Cumanian cemetery at Perkáta-Kőbalmi-dűlő

rings and globular pendant ornamented earrings, as well as the Jazygians' earrings with grapebunch pendant and plain earrings with twisted terminals can be traced to Byzantium and its periphery (the Caucasus, southern Russia and the Balkans). The penchant for wearing earrings, an ornament that went out of fashion after the Conquest period, was revived by the Cumans and Jazygians.

The articles of everyday life were placed next to the deceased according to the pagan custom. Prominent among the grave goods are the *kinjals*, short swords lacking a cross-bar, used by Jazygian warriors. These usually lay by the right shoulder, suggesting that they had been suspended from a strap flung over the shoulder, as was the custom in the Caucasus even at the end of the 19th century. Cumans and Jazygians alike kept smaller articles, such as knives, razors, awls, thimbles, needle cases, needles, spindle whorls, strike-a-lights and flints, in pouches hanging from their belts. These were sewn from cloth, leather or the scraps of useless mail shirts. In contrast to the plain Jazygian specimens, the Cumanian pouches were often embroidered with pearls, sewn around *ongons*, amulets of rabbit, fox or fish bones that were believed to protect their owner against evil charms (Fig. 62). Dogs' and wolves' fangs, as well as boar tusks were occasionally found hung around their necks. The wearing of these talismans (sometimes together with a cross) as a neck ornament was more popular among the Jazygians, whose women wore these talismans strung amongst beads of glass, coral, Caucasian rock crystal, paste and cowry shell. The characteristic ornament of the 10th–12th century Caucasian Alan culture was the bronze pen-

dant depicting men performing a ritual dance framed by the sun disc; the latest specimens of these pendants can be found among the Jazygian amulets from Hungary.

There are numerous indications that pagan traditions survived under the thin veneer of Christianity, particularly among the Cumans. In many cases, food offerings (indicated by the presence of sheep, cattle and horse bones) were secretly placed under the body or an egg was placed on the chest, both as food and as a symbol of fertility. Another custom was the placing of wormwood, a known worm repellent and plant of mourning, and ergot, a blood coagulant, in a bouquet under the head. The deposition of a ram's head next to the corpse, the burial of a dog with its owner and the presence of horse teeth in the grave, perhaps a symbolic horse burial, too reflect the blend of pagan customs with Christian beliefs. In a few cases, the deceased – perhaps the 'deviant members' of the community (witches, criminals and the insane) – were laid to rest on their stomach. The Jazygians' duality of beliefs (pagan and Christian) was also coloured by the influence of Eastern Orthodox Christianity from their one-time Caucasian (or Balkanic) homeland. In the archaeological record this is primarily indicated by finds of Byzantine pectoral crosses.

These distinctive traits can no longer be observed in the 15th–16th century Cumanian and Jazygian burials, indicating that their assimilation into Hungarian culture was successful. The archaic, pagan features of their rites and costume gradually faded. The hook and eye clasps replaced earlier clasps, indicating the spread of a new costume, and applied ornaments embroidered with chevrons replace earlier ones. The soft-soled nomadic boots too disappeared, to be replaced by footwear with metal heels. One of the last elements of the gradually fading tradition was the Cumans' characteristic bluish-purple mourning colour (or at least this is the colour of the textile remains buried in the earth for several centuries). Coffins painted with floral and geometric designs, as well as textile remains of this colour have been found in the 16th century graveyards of Greater Cumania (Orgondaszentmiklós, Asszonyszállás). Finally, there remains the question of the anthropology of the Cumans and Jazygians. Aside from Lajos Bartucz's work in this field, this subject did not hold any interest for anthropologists for a long time. Kinga Éry's studies signalled a major advance. Her analysis of the skeletal remains from the Perkáta cemetery revealed that the so-called Euro-mongolid type characterized by a short stature and a short skull represents the Cumanian features.

ETHNIC GROUPS IN THE TOWNS OF MEDIEVAL HUNGARY

From the onset of urbanization, the medieval towns of Hungary gave home to a number of ethnic groups. These groups played a major role in the town's distinctive trades and activities, as well as in the emergence of the townscape.

The 11th–12th centuries saw the arrival of eastern groups – Ishmaelites (Muslims), Armenians and Jews – who were primarily engaged in commerce. The western ‘guests’ (*hospites*) came from the ranks of the French, Italians and Walloons: contemporary sources usually called them Latins (*Latini*) owing to their languages. The toponyms suggest that these eastern and western immigrants settled both in the important royal centres (Esztergom, Székesfehérvár, Pest) and in the smaller, less outstanding settlements (such as Pécsvárad or the Hegyalja region) where, in addition to trade, they can be credited with the introduction of new techniques in agriculture and viticulture.

They were followed by groups from various parts of the German-speaking world, whose numbers swelled from the early 13th century. They mainly settled in the towns of the northeastern (Szepes region Saxons), southeastern (Transylvanian Saxons) and western border zone, although individual families and smaller groups also settled in Buda that was fast becoming the capital town, and in other major urban centres. Dalmatian traders bringing Italian goods occasionally acquired property in Buda and in southern Hungary, but they were integrated into the local communities to a lesser extent only. Various Slavic ethnic groups slowly migrated to the interior of the Carpathian Basin from the mountains. They mostly settled in villages, although by the end of the Middle Ages they gave a significant proportion of the urban population in the towns of Upper Hungary.

The presence of various ethnic minority groups is reflected in the topography of many towns, even if they did not have a separate élite and were thus unable to gain an autonomous legal status. Most towns with a German or Hungarian majority usually had streets or quarters called *Magyar*

[Hungarian], *Tót* [Slav], *Olasz* [Italian] and *Örmény* [Armenian]. These groups often had their own parish with a chapel or at least their own pastor within the collective parish. A few examples of town quarters organized on an ethnic basis are Zsidó [Jewish] Street and the Armenian quarter in Esztergom (the latter received separate privileges from King Béla IV in 1243), Német [German] Street in Székesfehérvár, a separate German town in Vác, *Tót* [Slav] and Kun [Cumanian] Streets in Szeged and Tóttata [Slav Tata], with its own local government, near Tata.

JEWS AND URBANIZATION

The Jews occupied a special position among the urban ethnic groups throughout the Middle Ages. Although their majority arrived from the west, primarily from German-speaking areas, they can be likened to the early merchant groups from the east in many respects since they too adhered to their religion, as well as to their distinctive costume, dietary laws and customs. Their commercial activities in the 11th–13th centuries reflect their role as intermediaries between East and West since from the time of the foundation of the Hungarian state, they traded along the trade route between Regensburg and the Kievan Rus. At the same time, they also played a role in minting and the export of copper and precious metals. Even though the trades permitted to them were greatly limited from the mid-13th century and practically became restricted to money-lending, they nonetheless managed to obtain real estate (houses, vineyards, mills) in pledge. There is also evidence for Jews involved in retail and wholesale trade, as well as in various craft activities, the latter reflected in the recurring restrictions stipulated by the

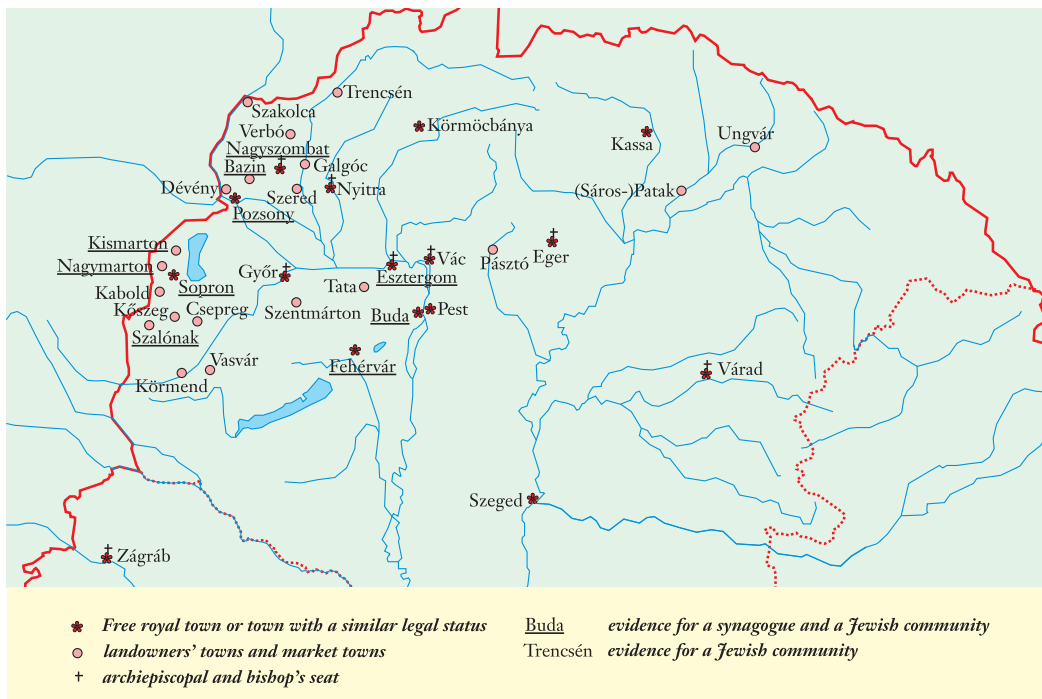


Fig. 63. Jewish communities in medieval Hungary

laws. It would appear that the Jews in Hungary lived under far more agreeable circumstances than their Western European brethren, who suffered repeated persecutions since the Crusades, or than in neighbouring Austria, from whence they fled to Hungary in several waves. Legally they were directly under royal jurisdiction and as so-called ‘servants of the Treasury’, they paid their taxes directly to the king.

There is documentary evidence on Jews from thirty-six towns. To a certain extent we may say that the presence of Jews in a settlement was a yardstick of its economic importance. The Jews gradually left the towns lying along trade routes whose significance decreased, as in the case of Vasvár and Körmend from the 1360s, while elsewhere, as at Kismarton and Pásztó, they appeared as soon as the towns’ significance grew. Religious communities and synagogues are known to have existed in Buda, Pest, Székesfehérvár, Pozsony (Bratislava, Slovakia), Sopron, Nagyszombat (Trnava, Slovakia), Trenčsén (Trenčín, Slovakia), Esztergom, Bazin (Pezinok, Slovakia), Nagymarton (Mattersburg, Austria), Kismarton (Eisenstadt, Austria) and Szalónak (Stadtschlaining, Austria). Taking also into consideration the destruction of documentary sources, András Kubinyi estimates the number of Jewish communities between fifteen and twenty, with a total Jewish population of 3,500 to 4,000 (*Fig. 63*).

The presence of Jews in medieval Hungary is also reflected in architecture and material culture, a part of which can be studied archaeologically. Owing to the marked religious differences, these can be quite easily distinguished

from the relics of the Christian majority, more so than in the case of other ethnic groups, among whom language was the primary distinguishing criterion.

The perhaps richest architectural and cultural assemblage can be found in Sopron. This includes two synagogues that were in part coeval, a ritual bath and a guest-house, as well as numerous gravestones. In addition, dozens of charters, some in Hebrew, and thirty-one fragments of fourteen different codices are kept in the local archives and libraries. The architectural remains, notably the synagogue uncovered at 22–24 Új Street built at the turn of the 13th–14th centuries, predate the earliest written information on the Jews, King Charles Robert’s 1324 charter of privilege encouraging their settlement. This would suggest that Jews had already settled in Sopron by the time the town was granted urban privileges in 1277. The Jewish community remained in Sopron until its expulsion in 1526. Most Jews lived in the houses on Új Street, called Zsidó [Jewish] Street in the Middle Ages.

The earliest remains are represented by the old synagogue uncovered in 1967 in a burgher’s house that had been rebuilt several times (Ferenc Dávid conducted the architectural investigation, János Gömöri the archaeological excavation, while the architectural reconstruction was made by János Sedlmayr). In accordance with the official regulations of the Middle Ages, the building was built slightly back from the street-line. Its central section was the 6 m by 9 m large men’s prayer hall covered by elegant Gothic vaulting. The Torah scrolls were kept in the ark, a niche in the eastern wall framed by Gothic tracery and grapevine motifs (*Fig. 64*). In the centre of the room was a hexagonal platform (*bimah*), where the members of the community read the Torah. These two elements were the most important in identifying the building’s function; its age was determined on the basis of its architectural forms, the vaulting and the tympanum above the portal. The floor of the hall was lower than the level of the street, symbolizing a verse from the Psalms, “Out of the depths I have cried unto thee, O Lord.” Behind the men’s hall lay the women’s smaller and narrower prayer room. The partition wall between the two had narrow, horizontal slit windows allowing a glimpse of the ceremonies performed by the men. The entrance into these two prayer rooms opened from a narrow corridor with Gothic arches. The corridor also led to the ritual bath that was a square, 1.5 m by 1.5 m well-like structure lined with stone blocks, whose water supply was provided by ground water. The immersion prescribed by the Mosaic laws could be performed with the use of a wooden ladder, and even the wooden shelf for the towels has survived. The bath was abandoned in the mid-15th century and was filled up with rubbish from the area. The bulk of the finds is made up of pottery and other articles of everyday use, similar to find assemblages from other medieval sites in the town. The lowest layer of the well yielded 14th century pottery that

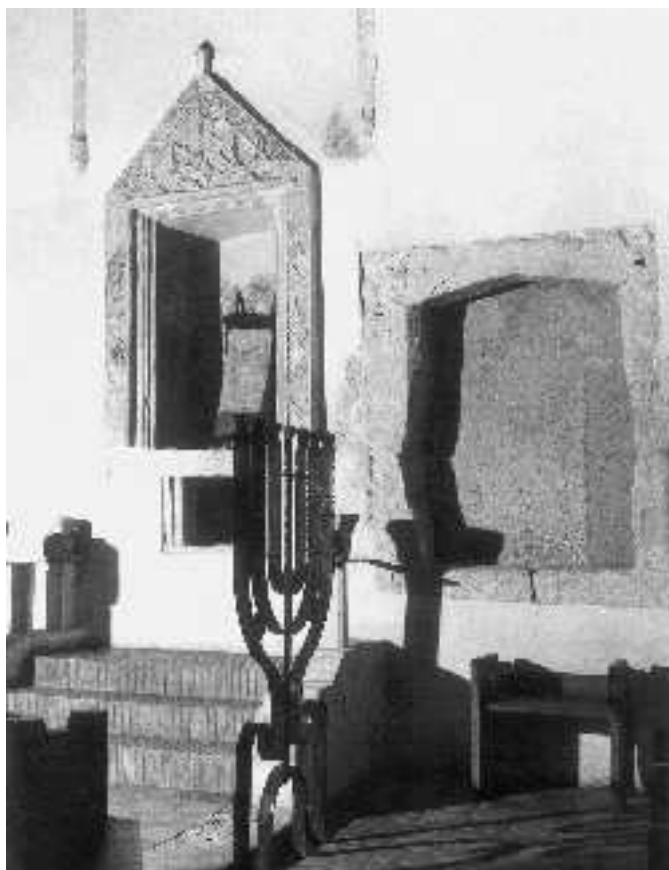


Fig. 64. Prayer hall of the old synagogue with the ark of the Torah in Sopron

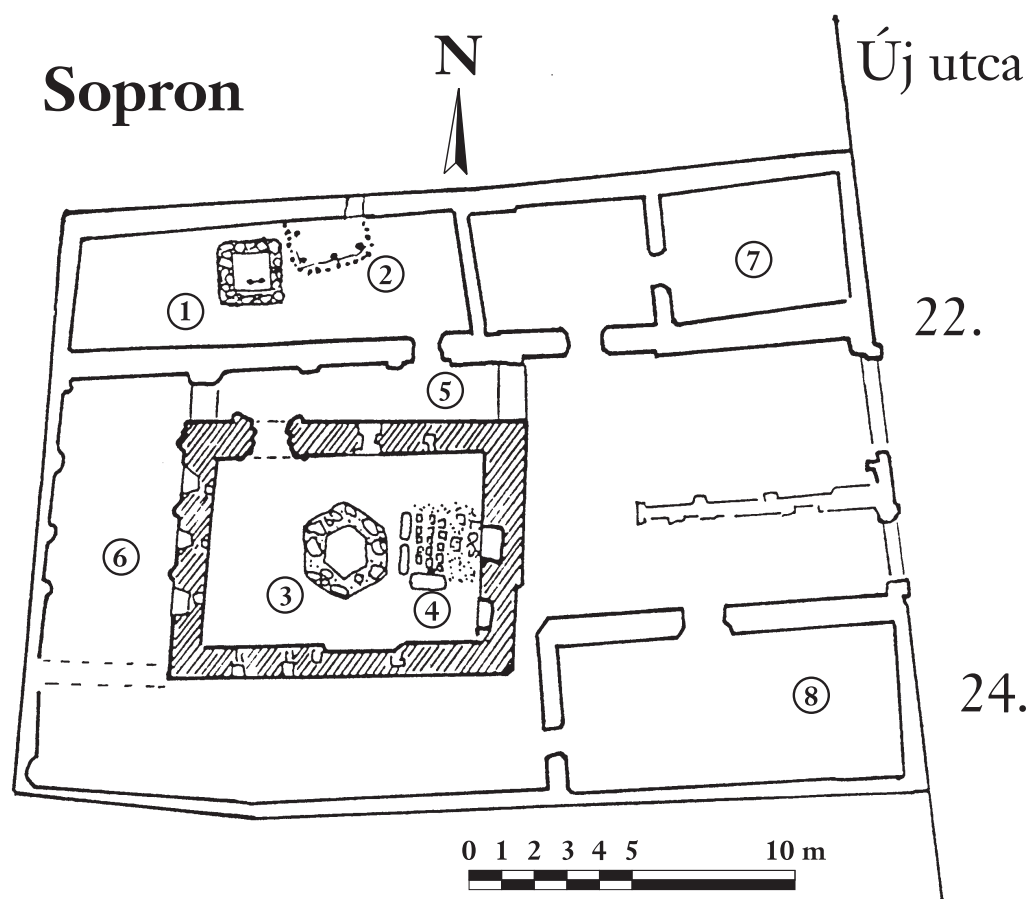


Fig. 65. Groundplan of the old synagogue in Sopron

1. Ritual bath,
2. postholes,
3. foundation of the bimah in the synagogue,
4. steps leading to the Ark of the Torah,
5. medieval corridor of the synagogue,
6. women's prayer room,
7. hospital,
8. the house of Joseph the Jew

had probably fallen into the water during use or their ritual cleansing. A larger pit that had perhaps held a tub for purification came to light behind the ritual bath. The building's street front wing served as a hospital and as lodgings for travellers passing through the town. The architectural design shows a close relationship with the Vienna synagogue that was used until 1420 and was excavated in 1997–1999 (Fig. 65).

The other medieval synagogue lay opposite the above described building. It was identified in 1957 and was investigated when the house at 11 Új Street was renovated. Since the written sources only mention one synagogue at a time, every reference was associated with this building. The later excavations modified this picture. This building, whose prayer room was exactly the same size as that of the synagogue uncovered at 22–24 Új Street, was most probably the private synagogue of one of Sopron's wealthiest Jews, a man by the name of Izrael. Its use can be dated between 1350 and 1450, and thus it was contemporary with the community house of worship. It was later rebuilt as a residential house.

There were several hundred Jewish houses of worship in medieval Central Europe, but only a dozen of these have been investigated architecturally and archaeologically. Four of these lie in Hungary: two in Buda (Táncsics Street) and two in Sopron. Three of these four medieval synagogues have been reconstructed architecturally, and thus the sys-

tematically excavated and reconstructed Hungarian buildings have contributed greatly to our knowledge of the region's Jewish architecture.

MEDIEVAL MATERIAL CULTURE – MEDIEVAL ARCHAEOLOGY

Edit Kocsis, József Laszlovszky, Tibor Sabján,
Miklós Takács & Gábor Tomka

The written sources from the Middle Ages, particularly in the first centuries after the foundation of the Hungarian state, rarely contain descriptions of everyday life and of the material culture. Medieval finds and their analysis thus play an important role in the reconstruction of Hungary in the Middle Ages. Pottery, a find type that is recovered in large quantities from every excavated site, is well suited to illustrating the potentials of analysis. The flourishing of the pottery industry can be attributed to the easy availability and pliability of its raw material. The fragility of fired clay artefacts makes pottery one of the most important find types for dating archaeological periods. The bulk of the ceramic finds is tableware used for cooking, storing or serving food, although clay was also used for architectural elements (wall or paving bricks, roofing tiles, water conduits), heating and

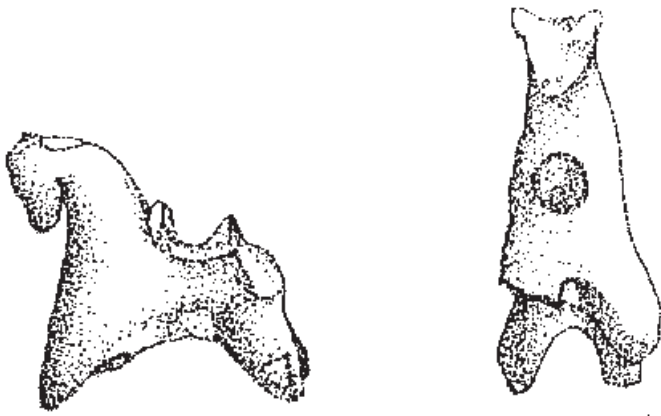


Fig. 66. *Toy horse*

lighting apparatuses (glazed stove tiles, lamps and candlesticks), as well as for implements used in various crafts (net-weights, spindle whorls, loom-weights, honey-cake and casting moulds, crucibles, tuyères for bellows, etc.). Clay vessels were occasionally also used in medicine (mortars, distilling and pharmacy jars) and for hoarding money (money-boxes, kitchen jars used as treasure-boxes). There is also evidence for ceramic cult and liturgical objects (baptismal fonts and pilgrim flasks), musical instruments (rattles, pipes), toys (miniature kitchen dishes, animal figurines, marbles) and jewellery (beads) (Fig. 66).

The craft industry of medieval Hungary only attained the formal and functional diversity outlined above at the end of the 14th century. Compared to the Roman period, the kitchenware of the 10th–13th centuries seems rather underdeveloped owing to the rarity of fine wares and the so-called coil technique with which vessels were made. The blend of different workshop traditions added unique colours to the pottery of 10th–11th century Hungary. The arrival of the ancient Hungarians to the Carpathian Basin meant also the settlement of potters in the new homeland, who produced the distinctive pottery forms of the Eastern European steppe, such as the clay cauldrons imitating the form of metal ones and vessels with ribbed or unribbed cylindrical neck. The pottery of the period after the first one hundred years of the Hungarian state's foundation became more uniform and slightly monotonous. This can perhaps be explained by the fact that pottery manufacture was practiced either on specialized workshop settlements or that the ceramic wares were produced by village craftsmen. This situation changed in the middle third of the 13th century, when the import of western pottery wares, mostly from Lower Austria, rose spectacularly and when pottery manufacture became one of the crafts practiced on urban settlements. The pottery assemblages from the period between the later 13th century and the second third of the 14th century show a blend of two traditions: wares representing the products of rural potters using earlier manufacturing techniques and wares turned on a fast-wheel made by urban potters both occur. The use of wheel-turned cooking vessels and table-

ware only became widespread at the very end of the 14th century.

STOVES WITH A STORY AND ARTISTIC CUPS: LATE MEDIEVAL POTTERY

The fragments of discarded pottery vessels from the period after the earlier or mid-14th century differ visibly from the wares of the preceding period. They were turned more evenly and were for the most part fired better. Pottery made with the coil technique became more rare when both smaller and, later, larger vessels were produced from a lump of clay placed on the potter's wheel. Towards the end of the late Middle Ages, the traces left by removing the finished vessel object from the wheel become less frequent. Finished vessels were removed from the wheel by wire or, more often, by a piece of string whose traces survived on the bottom of cups and larger vessels. The changes in manufacturing

Fig. 67. *Tiled stove decorated with knight figures from Buda*



techniques can in part be explained by the spread of the fast wheel.

Pottery forms became more varied. Handled and spouted ewers and pitchers appeared (and soon became popular) beside jugs. Cups of the most diverse forms, decorated with stamped patterns and appliqué ornaments, became widespread from the 15th century. These inexpensive cups often imitated metal or glass cups. Large ceramic bowls too appeared, also from the 15th century on. These wares reflect the advance made in pottery manufacture and the increasing specialization of this craft. Particularly interesting are the ewers and pitchers fired to a white colour and decorated with red patterns. The changes in the ornamentation often allow a more precise determination of the vessel's age. The flow of imports from Austria increased in this period; the trade in pottery was mostly conducted along the Danubian trade route. The distinctive grey graphitic pots most likely arrived from the west, although some of the grey, slightly lighter-coloured vessels may have been produced locally. The high number of grey pitchers found in Buda came from Austria. The potters' marks stamped or incised with a knife onto the vessel's rim or handle originally indicated the place of manufacture, but they sometimes also reveal the workshop and the date of manufacture. Glazed pottery, such as cups, pans and in some cases pots, only began to be produced in Hungarian workshops from the last third of the 15th century. The earliest lead glazed pottery to be manufactured in Hungarian workshops was the so-called Buda red ware, appearing in Buda and its environs from the later 15th century.

Ornamental vessels from distant countries, including majolica from Spain and the Orient, appeared in the royal centres, the best known finds being from Buda. Stoneware cups fired at high temperatures made their way to Hungary from several pottery manufacturing centres in Germany; these wares were practically only affordable for more affluent monasteries, wealthy burghers and wealthy nobles, but not the other social groups. Many bizarre looking, rough surfaced Lostice cups from Moravia were imported; these cups even made their way into the households of the well-to-do inhabitants of smaller market towns. Italian tin glazed ceramics and majolica were highly popular at the royal court from the time of King Matthias. The semi-finished and spoiled majolica objects suggest that there were majolica workshops in Buda during the reign of King Matthias and in Pécs during the Jagellonian period. Turkish import wares also appear at the end of this period.

The remains of tiled stoves form the other major group of ceramic finds. The origins of this stove type can be traced to Switzerland; it reached Hungary in its fully developed form, probably along the Danube valley. The first tiled stoves appeared during the reign of King Charles Robert and by the mid-century a number of handsome tiled stoves adorned the royal palaces of King Louis the Great. The designs incorporate many symbols of the courtly and chivalric culture of the period, most often the emblems of aristocratic representation in the 14th century, namely crests, as well as

palaces, knights and the king. Exotic and unusual designs also occur: these include fanciful animals and monsters. Curiously enough, apart from St. George riding a horse, other saints and ecclesiastic symbols only became more widespread at the end of the period. Gothic tracery translated into ceramics stove tiles can be found during the entire period. The most magnificent pieces of Gothic tiled stove production in Hungary are represented by the stoves decorated with figures of knights (*Fig. 67*). The workshop active from the mid- or later 15th century coated the tiles with a fine white clay wash under the glaze to give an added sparkle to the green and brown colours. These carefully modelled figures were no doubt adopted from contemporary illustrations.

THE STOVE FROM THE ERA OF KING LOUIS THE GREAT IN VISEGRÁD

The fragments found during the excavations at Visegrád allowed the reconstruction of an early tiled stove. The craftsmen probably came from abroad since in contrast to later tiled stoves, there is no evidence to suggest that it had been ordered by the royal court. We also know that this workshop also produced stoves for Buda Palace. Both the relief decorated tiles and the statuettes in the recessed tiles show a superb craftsmanship with elaborately modelled details. This careful modelling gradually died away in stove manufacture. The individual crafting of the tiles, the additional stippled decoration and the accentuation of minute details

Fig. 68. Tile fragment with a depiction of a pelican feeding its young with its own blood from the Angevin period tiled stove at Visegrád



with different glazes were too time consuming and did not really show up on the large tiled stoves.

This Visegrád stove had the tripartite construction characteristic of early Gothic tiled stoves. The heating chamber was set inside a rectangular space built of tiles with a square face and a deep back. The upper, cylindrical or polygonal tower-like part of the stove was assembled from flat, rectangular tiles. The upper part of these stoves sometimes narrowed upwards with each row of tiles. The stoves were topped by a dome lined with clay that was decorated in a variety of ways.

The stove tiles were produced in series using moulds, with the back part made as necessary. A specific number of tiles with an identical size were needed for the different parts of the stove. Although these identical sized tiles were often decorated with different patterns, there were quite a few pieces with an identical ornamentation. This allows the reconstruction of the original pattern and size of the different tile types from the surviving fragments of each type. Once the different tile forms and sizes have been determined, it is possible to attempt a reconstruction of the former stove.

Unfortunately, the base of the stove from the royal palace of Visegrád mentioned above did not survive and we could only rely on the analysis of the tiles with Tibor Sabján, who made the reconstruction. The width of the square tiles used for the stove's lower part could be determined from two fragments of a tile type depicting a pelican feeding its young with its own blood (*Fig. 68*). One unusual piece was the fragment of a tile with an openwork, quatrefoil tracery with a barrel shaped back characteristic of recessed, rectangular tiles, even though the pattern on the front suggests a square shape. In our reconstruction, we placed these tiles in the row between the upper and lower part of the stove. The function of the stove's shoulder was to ensure the even distribution of the weight of the upper part and, also, to make the stove's overall appearance more harmonious and attractive. The upper section was constructed of rectangular recessed tiles. Two additional rows of recessed tiles were decorated with freely modelled statuettes. Decorative stove tiles were placed behind the ridge tiles on the dome of the stove.

GOTHIC STOVES AND THEIR INFLUENCE ON FOLK STOVES

After ascending the throne, King Sigismund continued the construction of Visegrád Palace begun by King Louis the Great, although the original plans were fundamentally changed, resulting in the erection of an entirely new palace ensemble. During the demolition of the buildings built under Louis the Great, the earlier tiled stoves were also destroyed and were replaced with new, more modern ones. The stoves from Sigismund's long, 50-year reign can be assigned to two different phases. The first stoves were installed after the completion of the palace, around the turn of the 14th–15th centuries. The stoves from the second period

were produced in the first third of the 15th century, but definitely after the creation of the Order of the Dragon in 1408 because its emblem was depicted on some tiles. These latter stoves stood in the palace for a long time, until the 1470s, and were only replaced with new ones during the Matthias period reconstruction. One of the find assemblages from this period is made up of the discarded remains of one of these late Sigismund period stoves. The tile fragments lay in a debris layer in front of the western façade of the north-western palace's northern wing; they were excavated by Mátyás Szőke in 1972. The stove probably stood in this palace wing, and its remains were simply tossed out of the window onto the street after the stove's demolition. These discarded stove tiles included every structural element necessary for the construction of a Sigismund period stove, enabling the reconstruction of the stove.

The stove's square lower part, incorporating the fire chamber, was constructed of square tiles with a relief on their face and a deep back. Each row was shifted by half the width of a tile and, as a result, there were a number of half-tiles along the sides by the wall. Corner tiles were used at the corners of the stove. The stove's shoulder, the transition between the lower part and the upper, tower-like part was made up of a row of square tiles decorated with openwork tracery. Some of these tiles had a triangular sectioned projection from the edge that covered the border of the neighbouring tile, confirming that these tiles were set into the stove's shoulder since they could hardly have been mounted in the lower part. At the same time, they could be arranged

Fig. 69. Reconstruction of a late 15th century tiled stove, based on the finds from Külsővat



in an octagonal pattern in one row of the shoulder, with one part resting on the side panel of the lower part, the other spanning the stove's corner. These projections were apparently designed to conceal the larger gaps that were carefully plastered. The large rectangular tiles with openwork tracery on their faces were set in the polygonal upper part that narrowed slightly upwards. A row of triangular ridge tiles sealed the top of the stove. The fragments of the round stove tiles built into the clay dome topping the stove were also found, as were the tiny fragments of the summit tile, although unfortunately the latter could not be reconstructed. Based on the above, we built a partial reconstruction of the stove that offers an idea of the structure and the colours of the stove, as well as of the overall harmonious appearance of the magnificent stoves decorating and heating the chambers of the Sigismund period palace.

The use of stoves quickly spread beyond the milieu of the royal court, and around the turn of the 14th–15th centuries they also began to be used in monasteries, castles and burghers' houses. The reason for their widespread popularity was their relative inexpensiveness, the fact that they could be easily manufactured and the comfort they provided. Tiled stoves appeared in the residences of the provincial aristocracy and in parsonages from the later 15th century and, slightly later, also in peasant houses. These tiled stoves were obviously cheaper and simpler constructions; the flat and wheel-turned cup shaped stove tiles could be easily produced by less well trained, local stove makers with humbler tools and mould sets for stove tiles. The construction and

form of these stoves preserved many features of the magnificent specimens they were modelled on (*Fig. 69*).

The structure of these stoves shares numerous similarities with the ornate Gothic stoves, one of these being the tripartite stove structure. The rectangular tiles making up the square lower part were usually laid in manner to make the stove sturdier. Tiles with relief decoration were sometimes built into accentuated areas, such as the bottom row. The form and preparation of the corner elements conformed to the usual assembly of corner tiles. The spine of these corner was often highlighted with an interlace pattern that was either part of the corner tile or of the clay plastering. The square tiles set into the stove shoulder or the uppermost row of the lower part were sometimes ornamented with openwork tracery. Recessed tiles were occasionally placed into the upper part. The upper part was usually built from bowl shaped tiles. Triangular ridge tiles with openwork tracery topped by a knob, sometimes in the form of a human head, were also quite common. Triangular stove tiles were often used for the upper part of peasant stoves. Cornices that first appeared in the 14th century were also quite popular on peasant stoves. One lovely example is the magnificent cornice of a Matthias period tiled stove from the Visegrád citadel. The custom of placing onion shaped tiles in the dome also survived for a long time (*Fig. 70*).

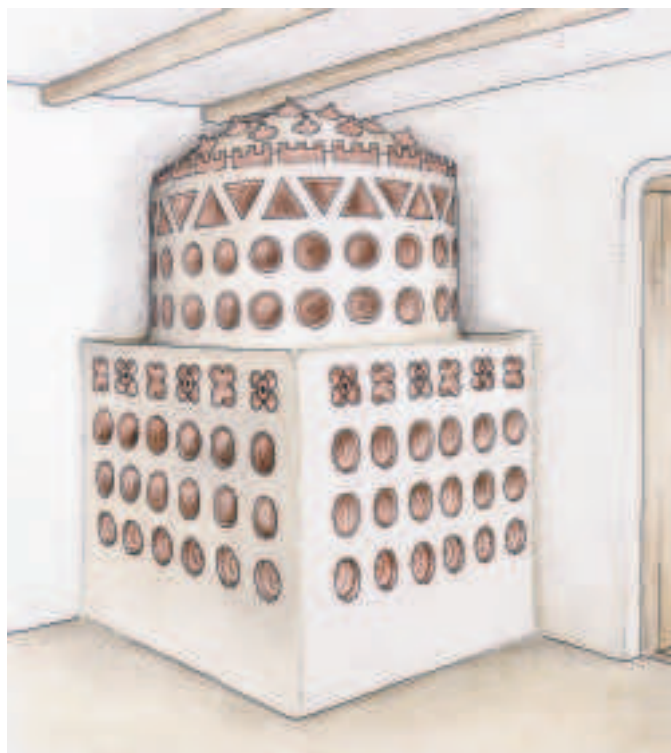
The structure of the stoves with cup shaped tiles, popular in the Great Hungarian Plain, had much in common with the stoves described above. The round stove tiles were built into the stoves with plastered walls in many different patterns. The round tiles were arranged in rows, while the corners were usually decorated with rows of shallow, bowl shaped tiles. The round tiles decorated with openwork tracery or a quatrefoil design were usually near the shoulder, in the uppermost row of the lower part. Triangular ridge tiles with openwork tracery topped by a knob were also quite popular, as were cornices and onion shaped tiles built into the dome.

These peasant stoves retained the simplified, modest versions of the elements adopted from the magnificent Gothic tiled stoves until the 18th century in the Great Hungarian Plain and until the early 20th century in western Transdanubia. In contrast, the tiled stoves in aristocratic residences usually followed the popular style of the age from the Renaissance.

THE MATTHIAS PERIOD TILED STOVE FROM VISEGRÁD PALACE

An assemblage of Matthias period stove tile fragments was found in 1986 during the excavation of the northwestern wing of Visegrád Palace, in the street side wing. In 1991, when the entire area was uncovered, the debris of a Matthias period stove was also brought to light. The stove originally stood in the southeastern corner of an 8.5 m by 8 m large hall, the northern room in the upper story in the western wing. The stove fell to the ground, where it was found after

Fig. 70. Reconstruction of a 15th century stove, based on finds from Szentkirály



the collapse of the vaulting during the slow, final dilapidation of the palace.

After sorting out the different tile types it became clear that these had been part of a beautifully crafted stove, created from a wide range of tiles. This stove differed from earlier ones in several respects as regards certain features, one of these being the magnificent workmanship of the architectural details. This is apparent immediately on the base that was faced with a row of square, ornamented, glazed tiles, above which lay a row of tiles with torus and cove mouldings, forming the cornice of the pedestal. Above these lay the large, rectangular lower part, whose reconstructed width was five tiles, while its length was seven and a half tiles. The tiles of the lower part could be divided into two main types. The first was a square tile bearing a lion figure, as well as a previously unknown half tile type. These were followed by recessed tiles decorated with the figure of an angel with spread wings holding a shield with crests. The corner tiles were assembled from these tiles and a recessed half tile with a floral pattern. The corner ridge was ornamented with an empty statuette pedestal and a baldachino, except for the upper two corner tiles of

the lower part that were assembled from two full sized tiles whose upper corners were cut off. These tiles were decorated with the figure of an angel holding an undecorated shield, with the angel's wings rising above the top of the tile. A small statuette of the archangel Gabriel was set on the corner ridge under these angels.

Rectangular, recessed tiles with designs in relief were used for the construction of the upper part. Some of these tiles were horizontal in section, while others were curved, suggesting that the upper part of the stove was oval. The upper part was made up of four different tile types. The upper part was topped by a cornice decorated with festoons, under which was a row of tiles with torus moulding. The cornice and moulded tiles included pieces with both straight and curved sections. The top of the stove was made of plastered clay, inset with a row of ridge tiles decorated with the figure of an angel holding a shield, topped with sculpted finials. The stove top was decorated with rectangular and triangular tiles.

The colour scheme of the stove was also carefully planned. The ground colour of the stove was green, but a brownish-yellow glaze was used for the tiles of the pedestal, the moulded tiles of the upper part and on the wings of the angel on the ridge tiles, while the surfaces of the corner crests on the lower part and the shields of the ridge tiles were left unglazed and the finials of the top were covered with a white engobe (*Fig. 71*).

This stove also allows an insight into manufacturing techniques. A closer look at the angel tiles, for example, reveals that they were fitted together from different pieces and, also, that the recurring motifs were used in a variety of ways. Shorter tiles were made from the recessed tile with the angel depiction by cutting off the bottom of the angel's dress before adding the roof part and the base. The original angel mould held a shield with the Dalmatian crest. The tiles with other crests on the shield were prepared by cutting out the Dalmatian crest and replacing it with a different crest made in a separate mould before firing. The angel figure also appears on the ridge tiles: the positive pressed from the original negative was fitted into the prototype of these ridge tiles after the crest had been carved smooth. This explains why the angels on the ridge tiles are identical with the ones on the recessed tiles, but smaller. The angel motif of the ridge tiles was used in the heraldry of the corner tiles.

The interpretation of the coats-of-arms on the stove tiles was not unproblematic. Some of them have a Hungarian relevance and can be linked to Matthias Hunyadi, while others represent Habsburg territories or towns. Some of these may be interpreted as arms of pretension, even though King Matthias could not realistically hope to bring these territories or towns under his control since they lay too far away. It is therefore still unclear why these coats of arms appeared on the stove and why others that could be more closely linked to Matthias' estates and conquests were missing.

Fig. 71. Reconstruction of the Matthias period tiled stove at Visegrád



“THE MORE OFTEN A PITCHER GOES
TO THE WELL...”

The proverb quoted in the title to this section appears in a book on archaeology because the features uncovered on medieval excavations often include wells, yielding rich assemblages of finds. The ceramic finds and other articles of daily life found in wells are interesting not only because they reflect a period's material culture, but also because they allow a glimpse into other levels of history's deep well, such as everyday customs.

The wells of the burghers' house in Buda and the rich assemblage of artefacts recovered from them, including some truly unique finds, were of outstanding significance already at the time of the archaeological investigations after World War 2. The finds included a number of medieval wooden artefacts that rarely survive in the ground. None had been brought to light by the archaeologist's spade earlier; the moist, silty layers in the wells preserved a variety of wooden, leather and other objects made of organic material used in the Middle Ages. The wide range of artefacts brought to light from the wells of Buda enabled archaeologist Imre Holl to establish a more precise chronology by comparing the available information on the different artefact types, including relatively simple artefacts that, however, played an important role in everyday life. The excavation of the wells of Buda was followed by a number of similar investigations on other sites.

During her excavation of the well of a medieval monastery, Zsuzsa Miklós gathered important data concerning the above ground structure of wells. She was able to reconstruct the wooden well house that both provided protection and ensured that the water could be safely drawn from the well.

A large, beautifully crafted well built from stone blocks with curved inner sides was excavated at the Franciscan friary in Visegrád. Standing in the middle of the ambulatory, the well did not contain the abundance of pottery or wooden articles that could be usually expected, and neither was the sample of organic remains deposited in its silt (pollen, seeds, plant remains) particularly rich. The most important finds from this particular well were the carved stones from its fill. Sometime in the post-medieval period, when the monastery already stood in ruins after the devastations of the Ottoman period, the well was intentionally filled up. The most obvious material for this operation were the stones from the area of the friary. To the delight of the archaeologists working on the site, most of these stones were finely carved fragments from the Franciscan friary's Gothic buildings and only a smaller portion was made up of simple, unworked masonry. The material recovered from the well contained vault ribs, keystones, column fragments and a variety of carvings. These finds were also used in the architectural reconstruction of the building (*Fig. 72*).

One of the most important assemblages to be recovered from a well in recent years came to light in Buda Castle. The most outstanding find from the latest campaigns is a several

meters long tapestry decorated with the crests of one of the Angevin rulers. No-one suspected that the shapeless, muddy object recovered from the well would turn out to be an exceptional find, the like of which had never been brought to light from a Hungarian excavation, and neither was there a comparable find in the collection of Hungarian museums. This magnificent find, however, was only one of the many organic articles recovered from this well.

Returning to the proverb quoted in the title, important new data on the use of wells during the Middle Ages was gained from the excavations at Muhi. The houses of this medieval market town did not each have its own well; the inhabitants of each town quarter used a common well, located on the main street. The construction of these wells was no doubt a major investment and it was by no means an easy task, free of any risks. That the construction of wells had its dangers is known from the accounts of modern well diggers, and every archaeologist who has ever been involved in the excavation of a medieval well will readily confirm this. The wells found in Muhi revealed much about the construction techniques of medieval wells. A large round pit was first dug in the soil whose upper layers were loamy, while the lower layers were gravelly. This pit was 4–5 m deep, depending on the ground water level, and had a diameter of 4–5 m. The pit was lined with wood. The wooden lining was

Fig. 72. Well of the Franciscan friary at Visegrád



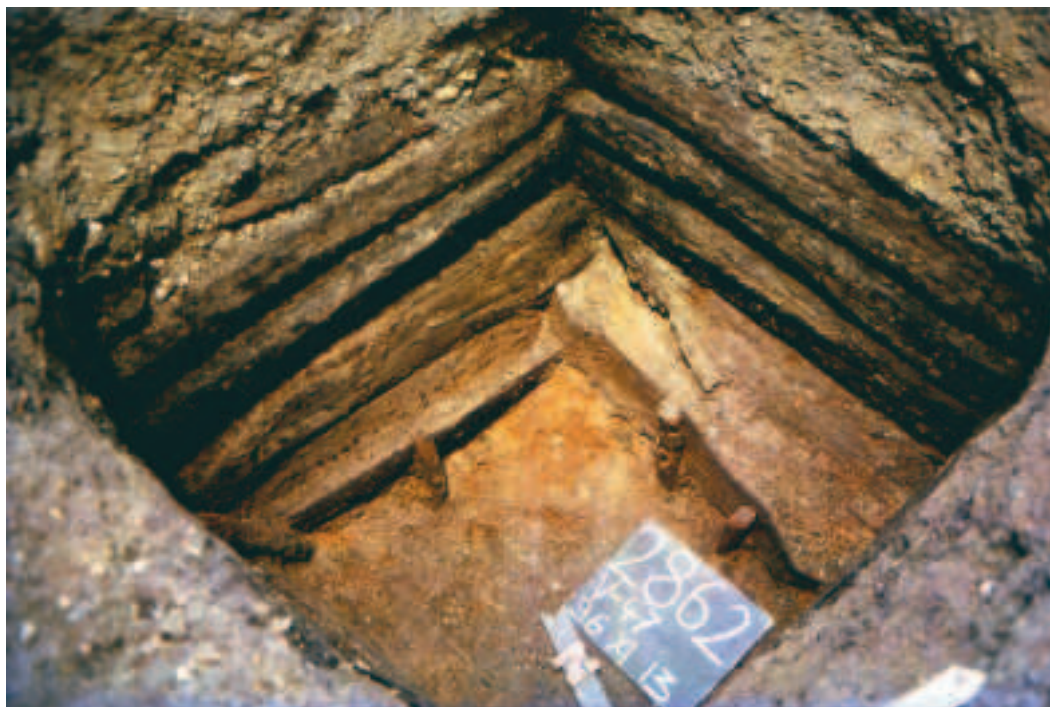


Fig. 73. Wooden lining of the well at Mubi

square, measuring one meter on each side. One part of this wooden structure, preserved by the moist soil, was uncovered during the excavation (*Fig. 73*). Various water-filtering systems were set into the bottom of the well; in one case, a discarded barrel served as the filter. The analysis of the barrel's wood revealed that it had been made in Poland and that it had perhaps originally contained herring. It probably reached Mubi as a container of an imported commodity. After its contents had been consumed, the barrel was re-used as wood construction material. The dendrochronological

analysis of the wood remains also enabled the determination of the age of these wells and the determination of their age relative to each other. It became clear that the excavated wells were not used at the same time; in other words, a new well was constructed whenever an earlier one was damaged and could no longer be used or became polluted. The finds recovered from the wells also confirm the chronological differences. A dozen intact or hardly damaged vessels, as well as a few metal objects were found. These were liquid containers or vessels for scooping up water that had fallen into



Fig. 74. Finds from a well at Mubi

the well, where they survived in a relatively good state of preservation. The pottery finds can be divided into two main groups, one made up of larger pitchers and jugs, the other comprising smaller cups. Small holes could be observed on the sides of a few jugs that no doubt facilitated the vessel's immersion into the water (*Fig. 74*). These vessels were no doubt used for drawing water for drinking, while the smaller cups probably fell into the well exactly because they were so small. Large pails hung from a sweep were used for drawing a greater amount of water. The posthole of this sweep was found beside one of the wells. Returning to the proverb quoted in the title of this section, it would appear that at Muhi it was the jugs that more often went and fell into the well.

OTTOMAN PERIOD ARCHAEOLOGY – POST-MEDIEVAL ARCHAEOLOGY

József Laszlovsky

It was for a long time generally believed that owing to the abundance of written and visual sources from the periods following the Middle Ages, archaeology had little to contribute to a better understanding of these ages. It seemed contradictory in itself that archaeologists could uncover unknown or unfamiliar artefacts from a period of barely two or three hundred years ago since in most people's imagination this represented the age of some not too distant ancestor, not too far removed from the age of one's grandparents. However, it became evident from the 1960s and 1970s that the evidence uncovered by archaeologist offered many new insights into this period. In England, for example, there was increasing interest in the rapidly decaying and almost completely vanished early relics of the Industrial Revolution. The historic preservation and archaeological investigation of these monuments do not differ greatly from the research of earlier periods and they often provide answers to a number of historical questions. It also became obvious that the presentation of the last few centuries of a building's history is at least as important for its interpretation as the investigation of its architectural periods from earlier centuries. As a result, the discipline of post-medieval archaeology has gained widespread acceptance (this discipline is sometimes called the archaeology of historical periods, of the early modern age or of the modern period).

In Hungary, this process ran its course differently in many respects. The architectural and archaeological study of the remains from the Ottoman period that followed the Middle Ages looks back upon a long tradition. The Turkish religious and secular edifices that were alien to western culture had piqued the interest of architects ever since the Turkish forces had been driven out of Hungary. The investigation of the Turkish material culture of the period using archaeological methods began much later. The study of Hungarian culture during the one and a half centuries of the

Turkish occupation only began decades later, the only exception being the research of villages. The destruction of the Hungarian village network during the Ottoman period made the excavation of settlements from this period possible before World War 2. The research on historic monuments was another important element in this process. For example, the architectural and archaeological examination of 16th–17th century manor houses and palaces yielded a number of significant results. These research projects and directions only began to blend in the past decade and, as a result, we can now witness the emergence of a complex discipline for the study of post-medieval Hungary that also includes Ottoman period archaeology. One reflection of this is the fact that post-medieval archaeology is now a separate course at the Budapest university and that a growing number of students have chosen a subject from this period for their PhD dissertation. Nor is it mere chance that many of these dissertations discuss the pottery of the post-medieval period. There has always been an overlap between archaeology and ethnography in the study of the pottery wares from this period and it has become clear that – similarly to the study of other periods – post-medieval archaeology is inconceivable without an accurate knowledge of the pottery and its chronology. It is therefore obvious that any study of 16th–17th century or even 18th century history can hardly do without the archaeological evidence and the research results of this discipline.

THE ARCHAEOLOGY OF THE OTTOMAN PERIOD

Gyöngyi Kovács & Gábor Tomka

In the wake of the Ottoman Empire's expansion, the central third of Hungary became part of an unfamiliar world for nearly 150 years. The troops of the Turkish army were replenished from among the Balkanic peoples and in a cultural sense it was the Balkanic – Bosnian and Serbian – variant of the Turkish rule that appeared in Hungary. The Turks and the various Balkanic groups arriving with them occupied the country's castles, forts and towns; only rarely did they settle in villages, and the ones they occupied mostly lay in southern Transdanubia. Turkish culture, architecture and craft industries were therefore essentially linked to towns and forts in Hungary (*Fig. 75*).

The nature of Turkish architecture in Hungary was primarily determined by the military importance of the province and the Turks' intention of establishing themselves permanently in Hungary. A chain of strong fortresses was built along the borders of the occupied area, while the religious buildings of Islam made their appearance in the towns. A certain dichotomy can be noted in military, as well as in religious and secular architecture. The Turks altered and rebuilt the existing Hungarian castles and other medieval buildings to their own needs and, at the same time, they

also constructed a number of new structures, including fortifications and religious and civilian buildings. Muslim towns flourished on Christian urban foundations; a separate town-quarter (*mahalle*) was organized around individual mosques (*cami*), each of which had a school (*medrese*), a hospice (*imaret*), a sepulchral chapel (*türbe*), fountains and various other structures.

Very often, our only source about the alteration and re-use of various buildings comes from the architectural remains brought to light during an archaeological excavation or historic preservation projects. One case in point is the *mihrab*, the prayer niche indicating the direction of Mecca, in the southeastern Gothic chancel wall of the parish church of Pest that documented the use of the church during the Ottoman period (Fig. 76).

The new religious construction projects during the Turkish rule were for the most part begun in the later 16th century. The majority of new mosques were simple buildings built on a square plan, roofed with a hemispherical dome on a drum. Most had an open vestibule of three arched segments, each covered with a dome. Since the religious precepts of Islam require that the faithful turn toward Mecca when praying, the mosques in Hungary were oriented in a southeasterly direction. The prayer niche, the *mihrab* was therefore on the southeastern wall, with the pulpit (*mimbar*) next to it. The minaret was erected at the cor-

ner of the building to the right of the entrance on the north-western side. The well-known Gazi Kasim Pasha and Yakovali Hasan Mosque in Pécs, the Ali Pasha Mosque in Szigetvár and the Malkoç Bey Mosque in Siklós represent this mosque type (Figs 77–78). Rectangular mosques with a flat ceiling are less frequent. There are only two representatives of this type in Hungary, the two mosques named after the Sultan Süleyman in Szigetvár and in Gyula. The mosque in Szigetvár, a popular tourist attraction, is a unique building with its L-shaped vestibule and two *mihrabs*; the foundation walls of the Gyula mosque were uncovered in the 1980s.

According to the written sources, there were great numbers of tombs and mausoleums (*türbe*) in Hungary. Of these, only two have survived to this day, one in Buda, erected in honour of Gül Baba, leader of the Bektaş Dervish order in Hungary, and Idris Baba's *türbe* in Pécs. Both are small octagonal buildings covered by domes without drums.

Forming a part of the Turkish urban landscape, baths were important settings not only of religious, but also of social life. Both types of Turkish baths, the steam bath (*hammam*) and the thermal bath (*ýlýce*) were well known in the Turkish occupied areas. The thermal baths were established by thermal springs. Four of these are still used today in Buda, although they obviously underwent alterations during the centuries. Three of these baths, the Császár Baths (*Veli Bey ýlýcasý*), the Rudas Baths (*Yeşil direkli ýlýcasý*)

Fig. 75. The Turkish occupied area of medieval Hungary

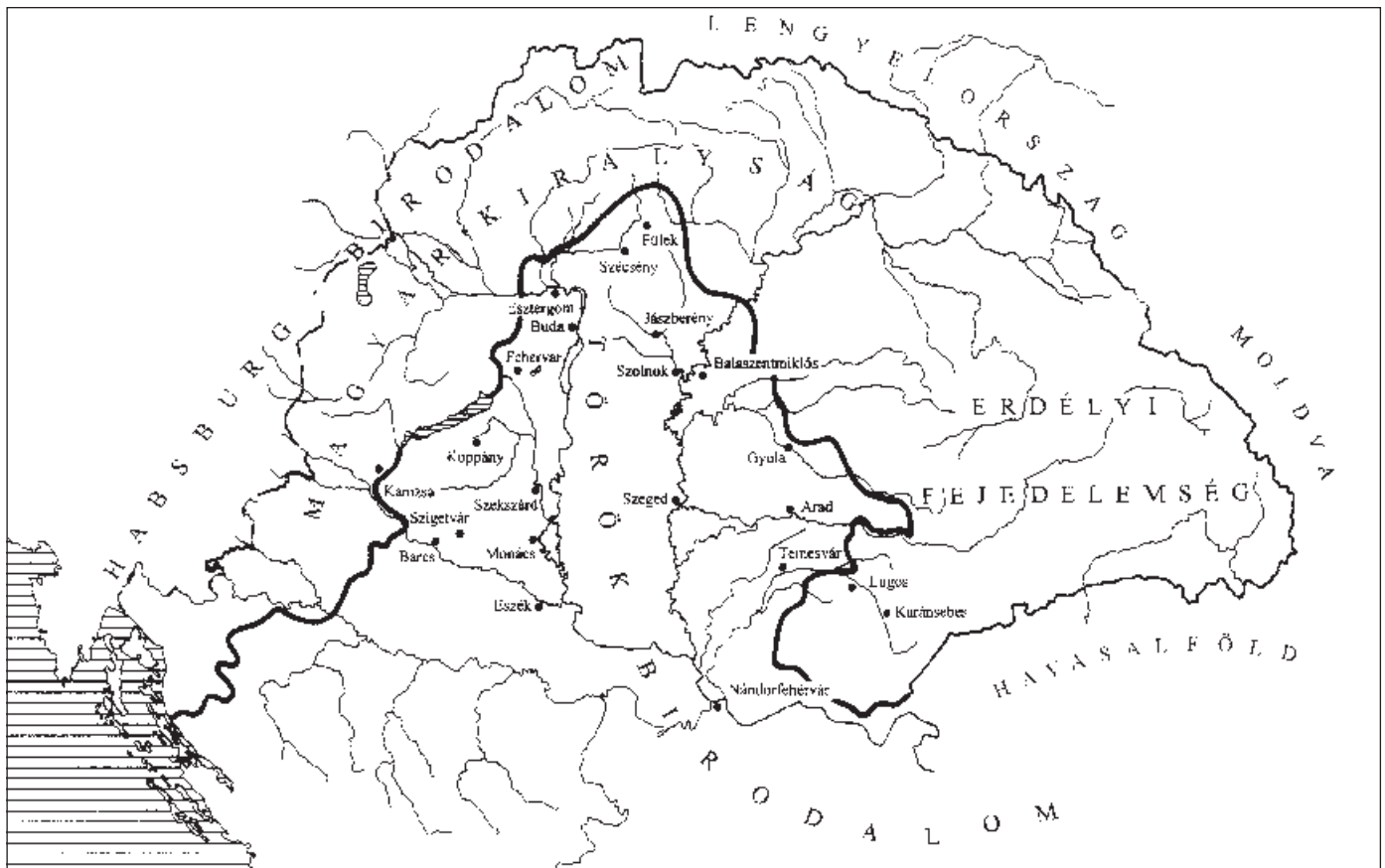




Fig. 76. Mihrab in the parish church of Pest

and the Rác Baths (*Debbaghane* or *Küçük ылýcasý*) had medieval predecessors, while the fourth, the Király Baths (*Horoz kapý ылýcasý*) was built by Sokollu Mustafa Pasha (Fig. 79). These buildings represent a rather simple version of the Turkish bath. They have a rectangular groundplan, and several smaller rooms originally adjoined the surviving domed, octagonal bathing hall. Smaller sections and the foundation walls of several other baths have been uncovered in the course of excavations elsewhere. These include the *hammam* type Valide Sultana Baths in Eger and the Güzelce Rüstem



Fig. 78. Interior of the Yakovalı Hasan Mosque in Pécs



Fig. 77. The Malkoç Bey Mosque in Siklós



Fig. 79. *The Király Baths in Buda*

Pasha Baths in Székesfehérvár, as well as the Memi Pasha Baths in Pécs.

Well-constructed Turkish buildings with a specific function are generally described in some detail in contemporary descriptions and reports, even if they were built over earlier ones. These are indispensable sources for historical, archaeological and art historical research. The best known among these writings is Evlia Çelebi's travelogue, and Henrik Ottendorff's description of his 1663 journey, containing a wealth of information accompanied by drawings of Turkish forts and towns. The two journals were in part written at the same time, allowing a comparison of their data. The study of Turkish buildings in Hungary actually began after the recapture of Buda in 1686. At the end of the 17th and the beginning of the 18th century, Austrian military engineers took stock of the country's Turkish buildings for the Imperial War Council in Vienna. The map of Buda, accompanied by notes in Turkish, prepared by the Italian military engineer Luigi Ferdinando Marsigli in 1686 stands out and can be regarded as the first topographical work on Buda and its castle for the Ottoman period. The greater part of Turkish structures in Hungary fell into ruin during the 18th–19th centuries. The extent of this destruction is indicated by the fact that only a small portion from one of the twenty-four mosques in Buda has survived. The remains of Toygun Pasha's mosque, built in the mid-16th century, are contained within the former Capuchin church on Fő Street in

the Viziváros [Watertown] district. Scholarly interest the surviving, primarily religious buildings arose in the 19th century, parallel to the birth of Hungarian archaeology. Historic preservation work in the 19th century paved the way for the study of Turkish edifices, unfolding in the early 20th century.

A new phase in the archaeological study and historic preservation of Turkish buildings of Hungary began after 1945. Győző Gerő, who directed the excavation of numerous buildings and building remains, played a prominent role in this. His studies revealed that the Ottoman Turkish architecture of Hungary was closely allied to the Turkish architecture of Bosnia-Herzegovina. The pashas appointed to important post in the Turkish occupied areas of Hungary were of Bosnian origin and they apparently transplanted the characteristic buildings of their old homeland to their new one.

Other excavations also provided new information on Turkish architecture in Hungary. These investigations were in part parallel to Győző Gerő's research, and in part followed in their wake. These included the excavation of the Güzelce Rüstem Pasha Baths in Székesfehérvár, conducted by Gyula Siklósi, the remains of the Turkish bath in Babócsa uncovered by Kálmán Magyar, the mosque in the area of Szolnok Castle investigated by Gyula Kaposvári and the foundations of the Süleyman Mosque in Gyula excavated by Ibolya Gerelyes, as well as the investigation by

István Horváth of the Uzičeli Hacı Ibrahim Mosque, created by rebuilding of the 13th century gate tower of Esztergom's town walls.

In Buda, Pécs and Vác, for example, the Turkish town was practically built over the medieval one. In other words, various buildings of wattle-and-daub roofed with wooden planks (houses, shops, workshops, storehouses) were simply added to the fortress walls and already existing masonry buildings. In Buda, László Zolnay uncovered the remains of small houses lining the road north of the Koldus [Beggar's] Gate, one of which contained a Turkish coppersmith's workshop. A more detailed picture of how the Turks installed themselves can be gained from the buildings inside minor forts. It would appear that these often echoed the major towns. The investigations conducted on these sites have revealed the importance of establishing a house of prayer and, also, the unpretentiousness of everyday life. In Mecseknádasd and in Vál (the former investigated by Győző Gerő, the latter by Gábor Hatházi), the Turks reconstructed the medieval church by erecting new walls and digging cellars, creating both a mosque and barracks for the troops. Ilona Valter's excavations at Bátaszék showed that the chancel was used as a prayer room (a minaret was built on the southeastern corner of the chancel), while the other parts of the church served as a residential building, as shown by the successive layers of plastering, burnt plank remains, stoves and fireplaces. These remains recall the descriptions of contemporary Turkish houses in Pécs and Vác: "rooms made from wattle set against the wall, with a fireplace and cellar". The investigations conducted by Ibolya Gerelyes and István Feld in Ozora revealed that the imposing medieval palace functioned as the officers' residence, while the soldiers settled around the palace and lived under rather spartan conditions, at least according to the archaeological record. Wattle-and-daub buildings, tiled stoves with brick foundations, sunken one-roomed huts, open-air fireplaces,

simple ovens, storage pits and refuse pits were uncovered by Attila Gaál in Újpalánk and by Gyöngyi Kovács in Barcs. To the European eye these could hardly compete with the monumentality of the province's religious buildings.

TURKISH MATERIAL CULTURE

Scholarly interest in the relics of the craft industries of the Ottoman period appeared relatively late in Hungary. At first, this was no more than the collection and description of objects acquired from private collectors and the finds brought to light during a few excavations. The works by Henrik Horváth, Sándor Garády and Magda Oberschall Bárányne on the relics of Turkish craft industries must be mentioned from the pre-1945 period. In the decades after World War 2, one of the most outstanding scholars in this field was Géza Fehér, Jr., who wrote a series of studies on the pottery and copper vessels from Pécs, Esztergom and Eger, on the Ottoman period relics of the goldsmiths' art in the Hungarian National Museum, as well as on the strands linking these finds to the Balkans. The chronological framework of Ottoman period hand-thrown pottery wares and the determination of their wider ethnic background were discussed by Győző Gerő and Mária G. Sándor.

The pottery appearing in the wake of the Turkish expansion included pedestalled bowls and a range of spouted pitchers, either glazed or fired to a black colour with a metallic sheen. The footed bowls and cups were the conquerors' most common tableware and they usually dominate the pottery finds from excavations (*Fig. 80*). The bowls decorated with incised sgraffito patterns were imported from the Balkans. High quality glazed Turkish pottery was also produced locally as shown, among others, by the Turkish pottery kiln from the late 16th century unearthed at Esztergom-Szenttamás-hegy in 1956. Semi-finished prod-

Fig. 80. Glazed Turkish pottery from Szolnok Castle



ucts, deformed vessels and wasters, as well as tripods for firing were found around this kiln. The workshop also manufactured rare footed bowls with Arabic inscriptions. In contrast to the household pottery mentioned above, Turkish faience and Chinese porcelain were luxury items during the Ottoman period. The Turkish faience wares found in Hungary were mostly produced in Iznik (*Fig. 81*), with a smaller portion from Kütahya. The finds represent nearly every stylistic period of Turkish faience wares. A significant proportion of the Chinese porcelain found in Hungary was made during the Ming Dynasty (1368–1644). The widespread use of these Oriental products in Hungary can only be noted from the 17th century, even though the documentary evidence indicated that they first arrived here in the 16th century. For example, the estate inventory of Ali Çelebi, who died in 1587, listed a “heavy Chinese porcelain bowl” and nine finjans of Chinese porcelain, the latter being typical accessories for coffee drinking, a custom introduced by the Turks.

The Ottoman period also saw the appearance of modest, archaic pottery wares in Hungary. Aside from Turkish glazed wares, hand-thrown baking lids and pottery turned on a slow wheel were also found; these products can be associated with the Balkanic peoples arriving with the Turks (*Fig. 82*). This pottery is primarily found in the Turkish forts of southern Transdanubia, usually in the smaller ones. We know that southern Slav groups settled in the towns and villages of this region. Attila Gaál excavated one of their cemeteries at Békátó-puszta near Dombóvár in the 1970s.

While a significant proportion of the Turkish and Balkanic type pottery wares found in Hungary were presumably made locally, the distinctive Turkish copper



Fig. 81. Faience vessels from Iznik

and gold metalwork from this period were only partly produced in Hungary. There is evidence from several sources that Turkish copper- and goldsmiths worked in the Turkish occupied areas of Hungary; for example, we know that the coppersmiths had their own street in Buda, called Kazancılar Yolu [Coppersmith’s Street], somewhere in the area of present-day Szentháromság Street. The archaeological record too confirms the activity of coppersmiths in the area of the Kolduskapu [Beggar’s Gate]. At the same time, copper vessels were also imported to Hungary. According to the entries in 16th century Turkish customs registers, duties were imposed on a number of copper vessels in the Szolnok harbour (*Fig. 83*). In addition to various other merchandise, magnificent artworks also reached Hungary, such as the



Fig. 82. Balkanic pottery wares



Fig. 83. Copper vessels from Szolnok Castle

copper pitcher from Dunapentele, found in the area of the 1543 Turkish camp. According to the stamped smith's mark, the pitcher had been manufactured in Istanbul in 1532.

Although Turkish pottery and metalwork did not have a particularly great impact on contemporary Hungarian craftsmen and their products in the 16th–17th centuries, a few copper dishes, such as the flat baking pan (*tepsi*) and the stew-pot (*bogrács*) were nonetheless adopted in Hungary, together with their Turkish name since these words appear in the Hungarian language from the 18th century.

THE FLORESCENCE AND DECLINE OF VILLAGES

Following the collapse of the Ottoman rule in Hungary, extensive uninhabited or sparsely inhabited areas replaced the once dense settlement network in the Great Hungarian Plain, the Danube Valley and the eastern areas of the Little Hungarian Plain in northwestern Hungary. The incredible number of destroyed villages, the scars of which have not been erased to this day in spite of the arrival of new settlers, provides a virtually unparalleled opportunity for the archaeological study of late medieval and Ottoman period villages. The archaeological investigation of the villages from these two periods is practically inseparable from each another. It

is therefore hardly surprising that villages inhabited until the end of the 16th century were first excavated between the two world wars, practically for the first time in Europe. There is far less archaeological information on Transdanubian villages than on those of the Great Hungarian Plain.

The archaeological record would suggest that the transition between the late Middle Ages and the Ottoman period occurred without a dramatic break in most villages. Some villages were no doubt devastated by the armies marching through the country, but the network of settlements in the Great Hungarian Plain survived more or less intact until the mid-16th century. As a matter of fact, the archaeological evidence indicates that these settlements prospered, perhaps as a result of the boom in the cattle trade. The houses whose groundplan had evolved in the late Middle Ages usually had three rooms. The tiled stove, quite widespread by the 16th century, stood in the room with plastered floor facing the street. This tiled stove and the cooking stove were stoked from the kitchen. The houses were timber framed, with the timber posts set in a narrow foundation trench and postholes; the space between the timbers was filled by wattling daubed with clay. Some houses had a porch in front of the long side with the entrance. The roof structure was supported by a purlin resting on wooden uprights set in the ground. Nails of various sizes, iron door fittings, hinges, bolts and padlocks are found regularly among the house remains. Sties and the occasional stable for the domestic animals lay by the house. The deep storage pits can be well observed with archaeological methods. Houses usually stood 30 to 50 meters apart in most villages, while in the market towns they were more closely spaced, with hardly more than a few meters between them.

The Fifteen Years' War dealt a serious blow to the settlements of the Great Hungarian Plain and eastern Transdanubia. The number of hoards concealed during these years too reflects the extent of destruction. The earlier strategy of hiding in a nearby marsh or forest to escape the tax collectors and the armies was no longer possible since the army troops remained stationed near the theatre of war for years, and they devoured and destroyed the crops. It is hardly surprising, then, that the surviving rural population retreated to the safety of a major market town or a nearby border fortress. Neither did the practice of double taxation encourage them to remain. Villages were abandoned gradually: only a few inhabitants left at first, to be followed by the others. They were first partially vacated, later temporarily deserted and finally left uninhabited for decades. Their territory was eventually seized by the expanding large market towns. The former village churches, falling slowly into disrepair, became popular landmarks. The cemeteries around the churches often remained in use for some time, with secondary burials (such as those of unbaptized infants) appearing after their abandonment.

HUNGARIAN MATERIAL CULTURE IN THE OTTOMAN PERIOD

The archaeological sites yielding relics of Hungarian material culture during the Ottoman period include not only the towns, castles and villages outside the Turkish occupied area, but also the villages and market towns inhabited by Hungarians that lay in the areas under Turkish control.

The 16th century saw major changes in the production of pottery wares. The production techniques and forms of Hungarian folk pottery gradually replaced the late medieval technology and forms. Vessel walls became thinner and the use of lead glaze more widespread, to the extent that by the mid-17th century it was used for most pottery types. However, this glaze was ordinarily confined to the interior of pots and bowls and to the upper exterior part of pitchers and jugs. Black ceramic wares fired in a reducing atmosphere also appeared and spread from the beginning of this period. This ware was undecorated at first, while later specimens were ornamented with vertical burnishing and grid patterns. Only at the end of the period did floral and geometric patterns characterizing folk pottery (Nádudvar) appear. In eastern Hungary, pottery fired to a white colour was one of the dominant wares and even simple pots were painted with elaborate red patterns. One of the characteristic decorative and table wares in this area, mainly during the 16th century, was the so-called streak glazed pottery covered with different coloured glazes. Bowls, pitchers and jugs were fired to a reddish colour and decorated with white, green, red and brown floral patterns on a white or, more rarely, brown ground under a colourless glaze. Similarly to the bird figures, the stylized leaf, tendril, flower and simple geometric patterns survived well after this period and formed the basis of the 18th–19th century folk pottery of the Middle Tisza river region. Rare finds from the 17th century are the tin glazed vessel and stove tiles made by the Habán craftsmen (Anabaptists who arrived to Hungary from Switzerland).

In the 16th–17th centuries, the shapes of stove tiles became more simple: in addition to cup shaped tiles, stove tile production was essentially limited to square tiles, as well as cornice and ridge tiles. The mass production of these tiles resulted in the widespread use of tiled stoves. The patterns and decorative motifs ornamenting the stove tiles were rooted in the Renaissance (sirens, dolphins, acanthus leaves, tendrils, etc.). The development of stove tiles differed from region to region. Few finds have been published from Transdanubia: the tiles from this region include simple, bowl shaped forms, as well as figural tiles depicting allegories and saints inspired by western models. The sites in the more intensively studied northeastern areas of Hungary have yielded tiles decorated with floral patterns that became popular in the later 16th century. Tiles bearing depictions of mounted Hussars were the late counterparts of the knight motifs of the late Middle Ages. Stove tiles bearing two-headed eagles are typical finds from the more important

royal castles. The stove tiles from the southeastern part of the Great Hungarian Plain included a group with openwork faces, apparently the late, orientalizing echo of medieval tiles decorated with openwork tracery. The extensive destruction at the turn of the century also influenced the heating installation used in the Great Hungarian Plain. Tiled stoves disappeared and were replaced by the earlier oven and stove types in peasant houses.

The archaeological finds also allow a glimpse into how new customs were diffused in the post-medieval period. The custom of smoking first began to spread in the 17th century. On the testimony of the clay pipe bowls decorated in a variety of manners that are particularly often found in castle excavations, pipes with a clay bowl and a wooden stem of Turkish origin were generally used for smoking (*Fig. 84*). The custom of drinking coffee is archaeologically demonstrable at the very end of this period: coffee cups (finjans) imported from the East have only been found in major centres.

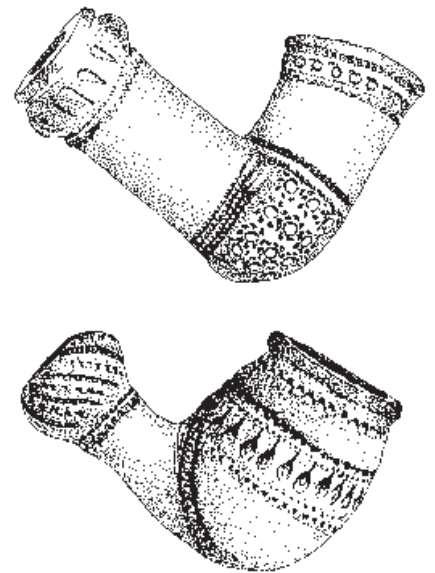


Fig. 84. Turkish pipes from Kanizsa Castle

Archaeology can also contribute to the study of Renaissance gold- and silverwork through the publication of hoards. These hoards usually contained silver cups and spoons, as well as elaborately decorated belt buckles, clasps and hairpins. The main source for the changes in costume are contemporary depictions, but very often various garments, especially the ones worn by aristocrats, have survived intact. Iron boot mounts, as well as copper buttons and iron or copper clasps are typical objects among the stray finds. Burials and cemetery sections that can be linked to ethnic Hungarians have mostly been uncovered during the excavation of medieval graveyards that continued to be used in the post-medieval period. The most frequent finds from these burials are decorative headdresses made from copper plates, wire and textiles. Certain items of the costume sometimes survive under favourable conditions in a relatively good state of preservation, enabling their reconstruction (as in

the crypts of Sárospatak). The use of coffins as part of the burial rite is indicated by wood remains and coffin nails. Rosaries strung from bone buttons and glass beads, as well as small crucifixes represent the modest grave goods of post-medieval burials.

Even though the bulk of post-medieval weapons has survived in arms collections and in the possession of their later owners, the castle excavations and other fortunate finds have also contributed to a better knowledge of post-medieval armaments. The most common finds are musket balls, made primarily from iron and more rarely from lead, a four pronged iron implement used for warding off attackers and flints for hand-held firearms, while the fragments of sword fittings, wheel-locks and flintlocks from various guns are found more rarely. On rare occasions pieces of armour, such as the morion helmet from Eger, pikes, halberds and the fragments of cannon or harquebus barrels have also come to light. Handled musket-ball moulds were used for the local manufacture of lead balls.

The spread of glass manufacture and the fact that glass articles became less expensive brought the widespread use of glass articles. Round panes of glass were by this time found in great numbers not only in major ecclesiastical buildings, but also in smaller castles and even in the houses of market towns. Cylindrical and stemmed glasses, sometimes ornamented with painted or applied decoration, were no longer a rarity in the households of the upper classes. In addition to the high quality import glasses, the fragments of more easily oxidized glasses, probably manufactured in Hungarian glass-works, have also been recovered from a number of sites. The archaeological record indicates that in addition to glasses, thick-walled cylindrical and angular glass bottles that were more durable too became quite popular.

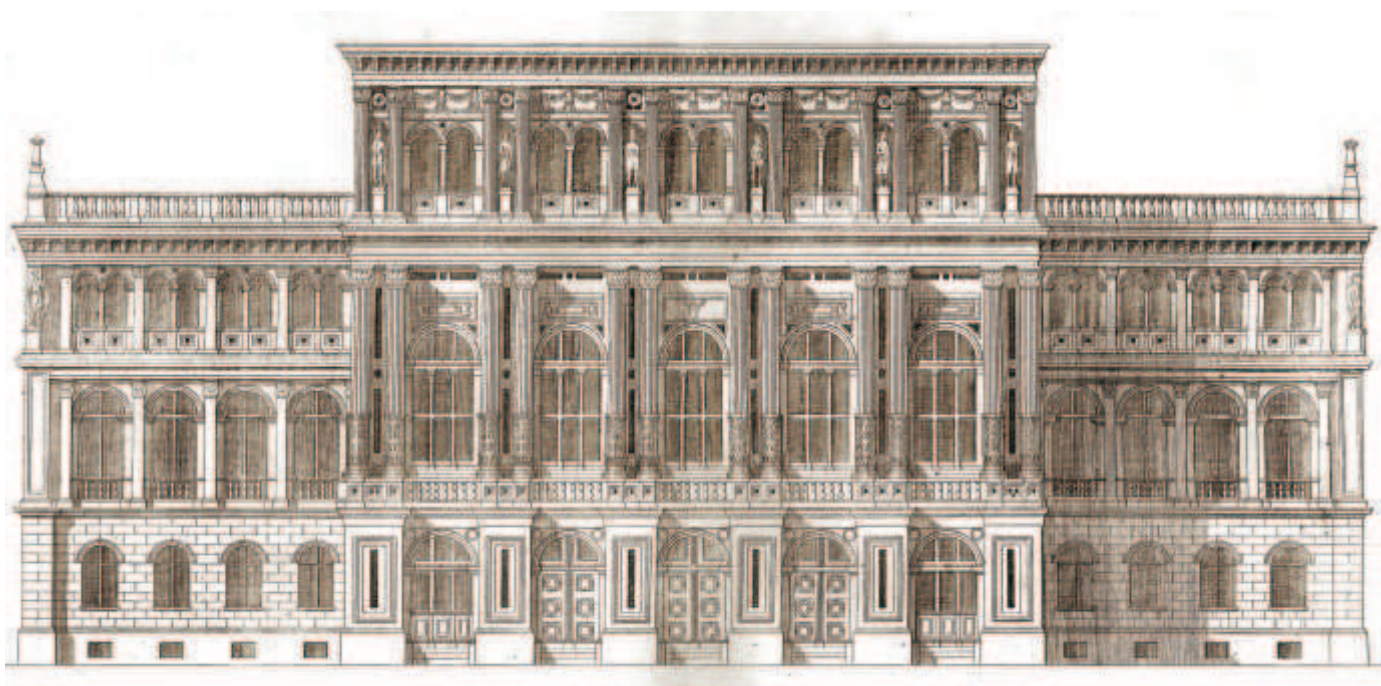
The products of the bone-working industry are primarily carved knife handles and weapon ornaments. Knife handles

inlaid with mother-of-pearl were usually produced by Habán craftsmen.

AN ENIGMATIC SETTLEMENT TYPE: HAMLETS AND FARMSTEADS

The archaeological excavations preceding major construction projects in the past decade provided the opportunity to investigate various settlement types that were previously unknown. These also include the small, scattered settlements from the post-medieval period that are only indicated by a few surface finds of pottery sherds. The removal of the topsoil on these sites usually brings to light house remains indicated by ditches enclosing a rectangular area, postholes and fireplaces, as well as a few finds. These settlement remains hardly represent a village and they can be identified with the farmsteads and cultivated fields mentioned in the tax registers and other documents. It seems likely that the archaeological remains of scattered settlements resemble each other, even if they originally differed as regards their origins and function. Near the market town of Muhi, no more than a few hundred meters from the settlement's centre, areas enclosed by ditches were created over the former site of an animal pen. Cultivated fields lying farther from the settlement have also been discovered – these can be identified with the remains of the farmsteads and fields mentioned in the sources. These settlements were not independent settlement sites: they were established on the leased land of distant villages and market towns, no doubt to overcome the difficulties caused by the great distances. The study of the structure and extent of these post-medieval scattered settlement sites will no doubt contribute to a better understanding of the emergence of the Hungarian farmstead system.

XIII. ARCHAEOLOGICAL INSTITUTIONS

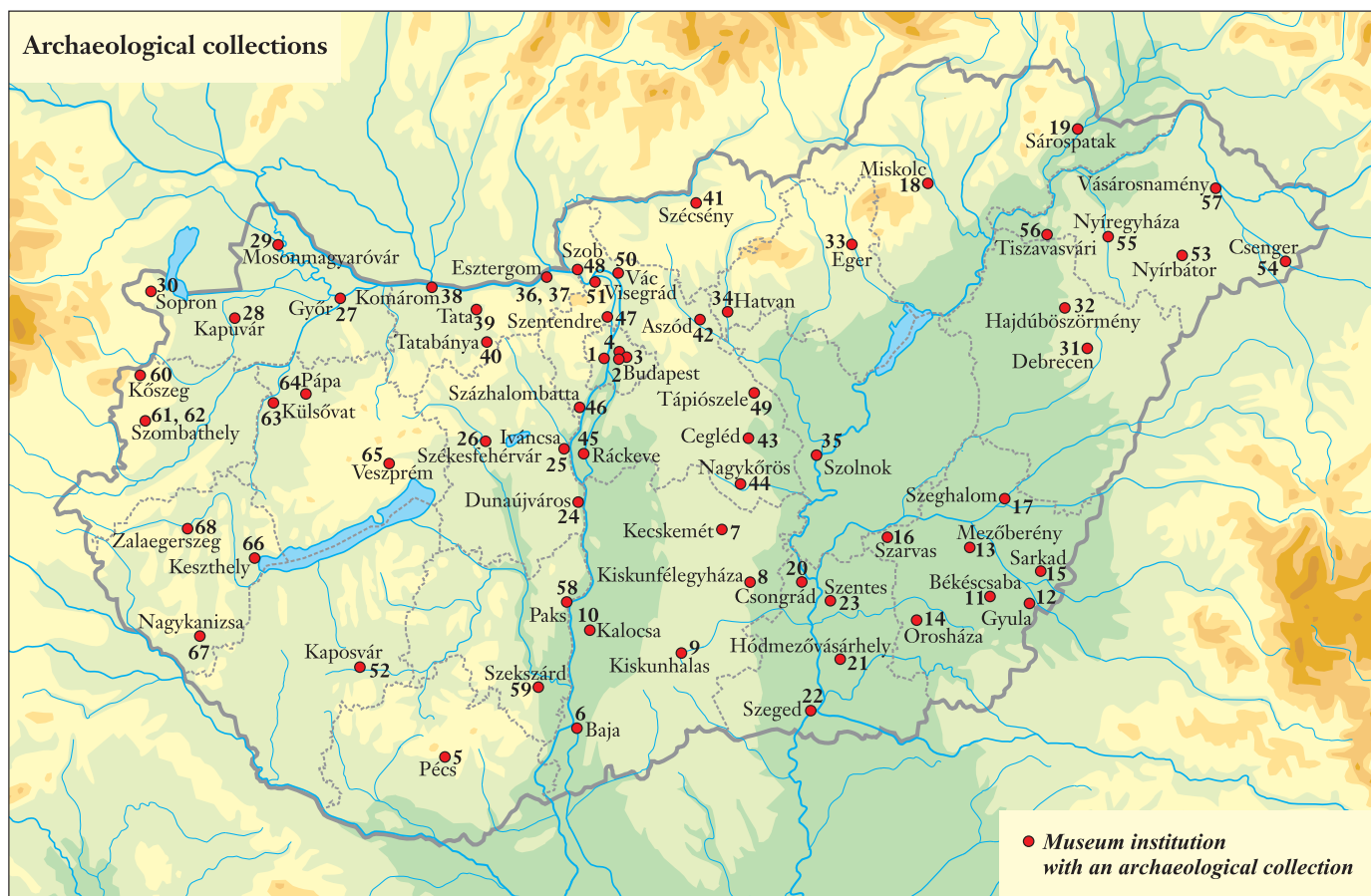


ACADEMICIANS IN ARCHAEOLOGY

BÁLINT, CSANÁD (1943)
BELLA, LAJOS (1850–1937)
BÓNA, ISTVÁN (1930–2001)
BÖKÖNYI, SÁNDOR (1926–1994)
CZOBOR, BÉLA (1852–1904)
ÉRDY, JÁNOS (1796–1871)
FETTICH, NÁNDOR (1900–1971)
FRÖHLICH, RÓBERT (1844–1894)
GEREVICH, LÁSZLÓ (1911–1997)
HAMPEL, JÓZSEF (1849–1913)

HEKLER, ANTAL (1882–1940)
KISS, FERENC (1791–1859)
KUBINYI, ANDRÁS (1929)
KUBINYI, FERENC (1796–1874)
KUZSINSZKY, BÁLINT (1864–1938)
LÁNG, NÁNDOR (1871–1952)
MÓCSY, ANDRÁS (1929–1987)
MAJLÁTH, BÉLA (1831–1900)
NAGY, GÉZA (1855–1915)
NAGY, LAJOS (1897–1946)
NYÁRY, JENŐ (1836–1914)

ORTVAY, TIVADAR (1843–1916)
PAUR, ISTVÁN (1805–1888)
PULSZKY, FERENC (1814–1897)
RÓMER, FLÓRIS (1815–1889)
SUPKA, GÉZA (1883–1956)
SZABÓ, MIKLÓS (1940)
SZENDREI, JÁNOS (1812–1882)
TÉGLÁS, GÁBOR (1848–1916)
TOMPA, FERENC (1893–1945)
TORMA, KÁROLY (1829–1897)
WOSINSZKY, MÓR (1854–1907)



Hungarian museum institutions with an archaeological collection and an archaeological activity sphere

Budapest

- 1 Budapest History Museum
- 2 Hungarian National Museum
- 3 Museum of Agriculture
- 4 Museum of Fine Arts

Baranya county

- 5 Janus Pannonius Museum

Bács-Kiskun county

- 6 Türr István Museum
- 7 Katona József Museum
- 8 Kiskun Museum
- 9 Thorma János Museum
- 10 Viski Károly Museum

Békés county

- 11 Munkácsy Mihály Museum
- 12 Erkel Ferenc Museum
- 13 Orlai Petrics Soma Museum
- 14 Szánó Kovács János Museum
- 15 Márki Sándor Museum
- 16 Tessedik Sámuel Museum
- 17 Sárrét Museum

Borsod-Abaúj-Zemplén county

- 18 Herman Ottó Museum
- 19 Rákóczi Ferenc Museum of the Hungarian National Museum

Csongrád county

- 20 Tari László Museum
- 21 Tornyai János Museum
- 22 Móra Ferenc Museum
- 23 Koszta József Museum

Fejér county

- 24 Intercisa Museum
- 25 Local History Collection
- 26 Szent István Király Museum

Győr-Moson-Sopron county

- 27 Xantus János Museum
- 28 Rábaköz Museum
- 29 Hanság Museum
- 30 Sopron Museum

Hajdú-Bihar county

- 31 Déri Frigyes Museum
- 32 Hajdúság Museum

Heves county

- 33 Dobó István Castle Museum
- 34 Hatvany Lajos Museum

Jász-Nagykún-Szolnok county

- 35 Damjanich János Museum

Komárom-Esztergom county

- 36 Balassa Bálint Museum
- 37 Castle Museum of the Hungarian National Museum

38 Klapka György Museum

- 39 Kuny Domokos Museum
- 40 Tatabánya Museum

Nógrád county

- 41 Kubinyi Ferenc Museum

Pest county

- 42 Petőfi Sándor Museum
- 43 Kossuth Lajos Museum
- 44 Arany János Museum
- 45 Árpád Museum
- 46 Matrica Museum
- 47 Ferenczy Museum
- 48 Börzsöny Museum
- 49 Blaskovich Museum
- 50 Tragor Ignác Museum
- 51 Mátyás Király Museum of the Hungarian National Museum

Somogy county

- 52 Rippl-Rónai Museum

Szabolcs-Szatmár-Bereg county

- 53 Báthori István Museum
- 54 Local History Exhibition
- 55 Jóna András Museum
- 56 Vasvári Pál Museum
- 57 Bereg Museum

Tolna county

- 58 Municipal Museum
- 59 Wosinszky Mór Museum

Vas county

- 60 Municipal Museum – “General’s house”
- 61 Savaria Museum
- 62 Smidt Lajos Museum

Veszprém county

- 63 Local History Exhibition
64. Gróf Esterházy Károly Castle and Ethnographic Museum
- 65 Laczkó Dezső Museum

Zala county

- 66 Balaton Museum
- 67 Thury György Museum
- 68 Göcsej Museum

ARCHAEOLOGICAL COLLECTIONS AND MUSEUMS

Paula Zsidi

FROM KING MATTHIAS'S COLLECTION OF ANTIQUITIES TO THE HUNGARIAN NATIONAL MUSEUM AND SPECIALIZED COLLECTIONS

The custom of collecting relics from the past for enjoyment and, later, for intellectual profit, is rooted in ancient times. The first mention of the systematic collection of artworks in Hungary comes from the Renaissance. King Matthias' collection of antiquities adorning his palace in Buda was known far and wide. According to contemporary descriptions, the majority of the objects listed in the collection made their way to the palace from the area of the former Roman town of Aquincum, which lay within Queen Beatrix's estates in Óbuda. However, a long road leads from this royal collection to the establishment of archaeological collections gathered for public benefit and catalogued in a scholarly manner. Many art collections, containing pieces that would today be considered 'archaeological' objects, accumulated in aristocratic palaces and various educational institutions during the period from the 16th to the 18th centuries.

The bequeathal of private collections into the public trust began at the end of the 18th century. The establishment of the Bruckenthal Museum (1777) in Nagyszeben (Sibiu, Romania) and, later, of the Teleki Gallery (1802) in Marosvásárhely (Tîrgu Mureş, Romania) indicate the initial stage of this process. The foundation of the Hungarian National Museum in 1802 and the opening, later, of its own

building in 1848 (*Fig. 1*) provided a home for antiquities, due to the fact that a collection of ancient relics was also part of the many objects that Ferenc Széchenyi bestowed upon the nation. The Palatine Joseph commissioned Ferdinánd Miller to prepare a memorandum for the 1807 National Assembly that, among others, stipulated that relics, artefacts, coins and *objets d'art* found in Hungarian lands be handed over to the museum. The new institution had to fight for the right to collect even those relics that were found in Hungary and had to organize the cores of national collections. Opening in 1811, the museum's first exhibition was held in the former central university building; by 1814, the Collection of Coins and Antiquities grew into an independent department. From 1846, the new acquisitions of the collection were inventoried in Hungarian, and in 1876, the museum hosted the International Archaeological and Anthropological Congress. The Finance Minister's 1867 decree declared that the treasure troves no longer had to be sent to the imperial collection in Vienna, and therefore the Collection of Coins and Antiquities expanded substantially.

More sophisticated methods of acquisition were gradually introduced. János Érdy Lutzenbacher, the first Hungarian field archaeologist, explored the royal crypts in Székesfehérvár in 1848. The river regulations and railway construction projects in the late 19th century too yielded an impressive amount of finds. These projects and a general surge of interest in the national past led to the foundation of many local museums that displayed collections of objects of local interest following the Compromise of 1867. Museum societies and associations were organized on a volunteer basis; their members included interested laymen, as well as some of the most outstanding archaeologists of the age. These groups searched for and gathered the archaeological



*Fig. 1. The building of the
Hungarian National Museum,
opened in 1848*



Fig. 2. The building of the Aquincum Museum, inaugurated in 1894, among the restored ruins of the Roman town

relics of a town or given area, and they often also undertook the scholarly publication of their finds. The creation of the Hungarian Archaeological and Art Historical Society in 1878 marked a milestone in the history of Hungarian archaeology. From the late 19th century, many individual collections (ethnographic, fine arts, applied arts and natural sciences) became independent national museums. Although the pace at which these collections grew slowed down in the first third of the 20th century, those interested could follow the results of scholarly activity in three new regular publications (*Archaeologia Hungarica*, *Bibliotheca Humanitatis Historica* and *Folia Archaeologica*).

Flóris Rómer, renowned also for his pioneering work in the collection of data on archaeological topography, was one of the driving forces behind the process that could rightly be called a national movement for the foundation of museums in the late 19th century. The same period saw the creation of the first municipal archaeological museum in Pest, the Aquincum Museum (1894). Its purpose was to accommodate the archaeological finds from the excavations in Óbuda, and to exhibit them to the public (Fig. 2). The National Advisory Board for Museums and Libraries saw to the professional supervision of the museum until 1922, when its role was taken over by the National Advisory Board for Regional Public Collections. From this period onwards, the national registration of works of art was required.

Following World War 2, after a transitional period of about fifteen years, an institutional network emerged that determined the operational framework for museums involved in 'archaeological' activities for the next decades. One major advance was the creation of the county museum network, designed to replace the earlier central control. By means of the regulations adopted in 1949 and, later, in 1963, the association of the nineteen counties and the Buda-

pest Historical Museum functioned as a type of decentralised agency. This agency was responsible for archaeological collections and for the co-ordination, direction, organization and supervision of areas under its jurisdiction, stimulating thereby the development of regional archaeological centres and scholarly workshops. This meant, however, that the Hungarian National Museum lost its former right to select outstanding works of art, and furthermore did not have jurisdiction over a single square inch of ground containing archaeological or historical relics. Similar modifications took place elsewhere in Europe, affecting 'national' type museums. This change brought an end to the earlier dynamic growth of the museum's collections, and their further enrichment depended on the available funds.

At the beginning of the 1990s, a series of changes affected Hungarian archaeology, whose significance was nearly as important as the establishment of the museums. Excavations connected with large, national construction projects were begun throughout Hungary, affecting museum organizations in several counties, as well as in the capital. The projects came in quick succession, demanding increasingly more excavations conducted over formerly undreamt-of extensive areas. The finds brought to light during these excavations inundated the museums with archaeological assemblages in a quantity that had never been experienced before. Since the research projects and the finds are linked to other museums, it is difficult for the Hungarian National Museum to present an overview of recent advances in archaeological research, or of the history of the peoples who lived here, or of the early history of the Hungarian people. The concept of establishing a 'national custodianship' has been proposed for this reason, the main idea being that objects important for any reason or that have outstanding value should be exhibited in the Hungarian National Museum as part of a short or long-term exhibition.

There are currently sixty-eight museums with archaeological collections in Hungary. In addition, archaeological artefacts are housed in numerous local history collections and galleries amongst the over eight hundred registered museum institutions. In recent years, a noticeable increase in archaeological relics has begun to dominate museums that contain mixed collections. This dynamic growth – representing some 71.6 per cent of the country's annual acquisition expenditures on exhibition objects – can in part be attributed to the pace dictated by the economic sphere and in part to the steady rise in the number of excavations. The statistical data quoted above reflect the legislators' sense of responsibility towards sites and finds representing irreplaceable historical sources that are endangered by construction projects. This concern has led to a series of measures aimed at preventing the destruction of sites and at financing the recovery of these finds.

At the same time, the fortunate increase in archaeological finds experienced in the recent past is not reflected in a similar growth of the inventoried and catalogued archaeological objects in storage. In 1997, the ratio of inventoried pieces to

those not yet inventoried was 81 per cent. Although Act CXL of 1997 contained provisions for financing this phase of work, the fact remains that personnel and working conditions (lack of storage and other space) are insufficient to deal with the growing number of finds, and for the time being there has been no discernable breakthrough in this area as compared to earlier years. The professional recognition and financial remuneration for this work would no doubt contribute to resolving this problem.

THE CHANGING TASKS OF ARCHAEOLOGICAL MUSEUMS FROM THEIR EMERGENCE IN THE LATE 19TH CENTURY UNTIL TODAY

From the time that museums were founded, there were a number of activities that were part of their duties (acquisition for the collections, registration, storage and preservation of the objects, exhibitions and educational activities, as well as scholarly research). The focus of these activities changed over time, however. While at first the collection of archaeological finds themselves was the goal, this was later expanded to include the safeguarding of archaeological sites, namely “the protection of historically significant areas” (Statute 13 of 1949), and we now speak of the interdisciplinary preservation of our archaeological heritage (Act CXL of 1997). The survey, registration and preservation of these sites are the task of the museum engaged in archaeological activities, whose jurisdiction extends over the area. This also involves the safeguarding of finds and materials providing other information (animal or human bones, various samples for analysis, etc.) originating from the site. Most museums have an acquisition strategy that focuses on enhancing the historical source value of their collections.

The academic workshops of museums engaged in archaeological research produce impressive evidence of their activities through the regularly published museum annuals, professional publications and lavish exhibition catalogues. Of the three major tasks – excavation, cataloguing and publication – excavation has inevitably received a greater emphasis in more recent years. So-called micro-regional research projects, focusing on the overall history of a particular region, have also become quite widespread. A staff of experts from the Hungarian National Museum also takes part in these investigations, along with the museums having jurisdiction over the area. This enables the augmentation of the museum’s collections with representative finds, although to a lesser extent than previously.

Museums play an important role in a given area’s cultural life. According to the statistical data, visitors show a marked preference for museums containing archaeological exhibits. The exhibits in ‘archaeological’ museums are complemented by the related archaeological monuments and parks. Besides traditional exhibition programmes, museums have begun organizing ‘live’ archaeological presentations, during

which the use and the original environment of the objects normally kept in glass cabinets are shown.

EXCAVATIONS: FROM TREASURE HUNTING TO MOTORWAY ARCHAEOLOGY

Katalin Ernyey

At first, only coins and objects made of precious metal were considered truly important amongst archaeological finds. The very first “heritage protection” laws, involving also the extension of sovereign rights, stipulated the registration of treasure troves found in the ground. Only the finest, most extraordinary pieces from the assemblages were preserved, the rest were melted down. Until 1812, the finds deemed to be worthy of preservation were sent to the imperial collection in Vienna. For example, even today the trove of twenty-three golden vessels found at Nagyszentmiklós in 1799, is kept and exhibited in the Kunsthistorisches Museum.

The institutionalization of the discipline of archaeology began in the 18th century with the creation of the Department of Numismatics and Archaeology, and later with the activity of the Hungarian National Museum, founded by Count Ferenc Széchenyi in 1802. The Archaeological Committee of the Hungarian Academy of Sciences was instituted in 1858 for the systematic investigation and safeguarding of the relics from the past. After the Compromise of 1867, this committee, along with the Hungarian National Museum and the developing provincial network of museums and associations, took over the supervision of Hungarian archaeology. The Archaeological Committee organized, and in practice also carried out, the collection of finds that turned up accidentally and it also authenticated the sites. It drafted comprehensive professional policies, sponsored excavations, processed materials, performed publishing activities, popularized archaeology and saw to the tasks of monument preservation until 1872, when an independent national monuments board was formed.

Act XXXIX of 1881 on the preservation of monuments stipulated the obligation to report the discovery of historically or artistically significant structures in the ground or on the surface, and made possible the appropriation of excavation sites. Fifty years later, Act XI of 1929 declared that archaeological finds important to public collections could be appropriated by the state. The law also expanded the concept of excavation to include the search for archaeological, historical, anthropological and palaeontological finds and it also regulated the circle of experts who were authorized to conduct an excavation.

According to Statute 13 of 1949 issued after World War 2, archaeological objects resting in the ground became state property. With the acquisition of lands by the state or by co-operatives, access to archaeological sites and agreements with the owners became simpler. The accelerated pace of

state sponsored construction projects offered a realistic chance that this construction work might be suspended for the duration of a rescue excavation, but obviously only if the “interests of the national economy” required this. As a matter of fact, this was the case when several thousand graves of a Bronze Age cemetery came to light at Dunapentele (Dunaújváros). Another positive example of this policy was the Roman villa with a mosaic floor at Meggyfa Street in Budapest, discovered during the construction of an elementary school, whose building plans were altered to ensure the building’s preservation.

The legal regulation of preliminary and rescue excavations began with the investment project codex (Governmental decree 45/1961). The organizers of all planned construction projects were obliged to notify the Documentation Department of the Hungarian National Museum of the project’s location and to submit the building plans. It thus became occasionally possible to conduct excavations on a site before construction work was begun. The first truly large-scale preliminary excavations of this type were linked to the Dunaújváros riverbank project, as well as to the construction of the Tisza II (Kisköre), Tisza III and Bős–Nagymaros dams.

Statute 9 of 1963 ordered the creation of the Excavation Commission. This body has since then remained the most important organ for providing expert opinions on excavations and their licence applications.

Act CXL of 1997 and the associated decree 9/1999 of the Ministry of National Cultural Heritage, followed in the autumn of 2001 by Act LXIV on the preservation of cultural heritage, as well as decree 18/2001 of the Ministry of National Cultural Heritage, were passed after Hungary’s democratic transformation. These laws regulate archaeological excavations and the fate of the archaeological heritage. The ministry’s new name (Ministry of National Cultural Heritage) reflects the significance of its duties. As a result of the topographical work conducted by the Archaeological Institute of the Hungarian Academy of Sciences, 11 per cent of Hungary’s territory has been successfully surveyed: a total of some ten thousand sites have been registered, and together with the sites known from other parts of the country, the total number of Hungary’s archaeological sites can be currently estimated at around 100,000.

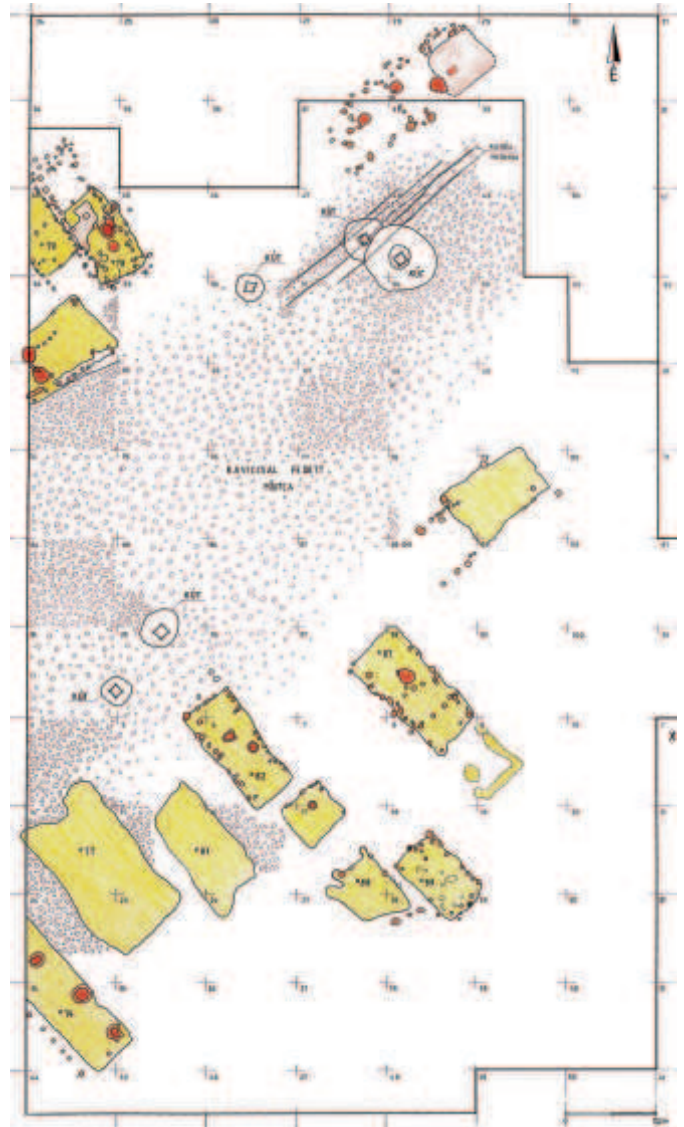
A new administrative body, the Directorate of Cultural Heritage, was established in 1998. The scope of its duties in the archaeological realm included the care and management of sites on the national level, as well as the establishment of a unified, national database of archaeological sites. The creation of a computer database began in the spring of 2000. In October 2001, the Directorate’s tasks were taken over by the National Office of Cultural Heritage.

In Hungary a research permit is necessary for conducting an excavation, for invasive building research and for the use of instruments to detect sites or objects (for example the use of metal detectors or geodetic surveys, as well as aerial and ground surveys). Only museums with archaeological collections, universities with archaeological departments, the Ar-

chaeological Institute of the Hungarian Academy of Sciences and cultural heritage preservation institutions under the supervision of the minister may receive permits. The supervisory body for excavations is the Excavation Commission of the National Office of Cultural Heritage.

The three major types of excavations are rescue excavations (in the case of unexpectedly discovered archaeological finds or possible sites), preliminary excavations (preceding planned construction projects) and planned excavations. Research agendas that are part of institutional research projects and the clarification of various problems can be most fully realized in the course of planned excavations since in these cases the sites(s) to be investigated are chosen in accordance with the goals of the research project. Rescue excavations are conducted when a museum is informed about the discovery of finds, either directly by the contractors, the landowners or through the notary of the local council; in

Fig. 3. Rescue excavation on the planned course of the M3 motorway



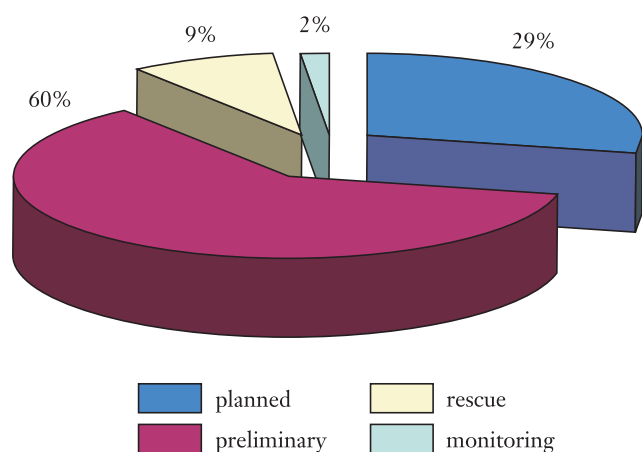
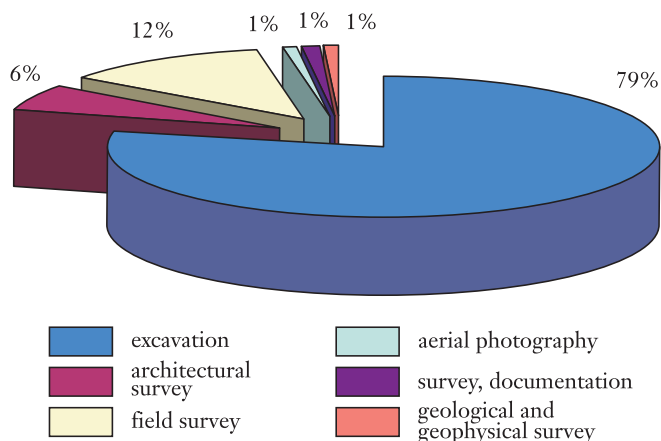


Fig. 4. Distribution of archaeological excavations in 2000 according to category

these cases, the museum must conduct the salvage operation from its own budget, although in some cases the state also contributes to the finances. In contrast, preliminary excavations must be funded by the party in whose interest the elements of archaeological heritage need to be removed from their original location and setting. The law stipulates that a sum of at least 0.09 per cent of the project's budget must be set aside for this type of excavation. At present, most excavations are preliminary in nature. This is due in part to the construction of numerous apartment houses, office buildings and shopping centres, and in part to the vast number of projects involving the laying of gas or oil pipelines (for example by MOL, the Hungarian oil company) and railroad constructions. The largest development project initiated by the state is the construction of motorways.

The planned course of the motorways cut across the country in 100 m wide strips (work was begun on a total of 400 km by 1997), supplemented by land for junctions, exit and access roads, storage of raw materials, service stations and border crossing stations. There are plans to extend the motorway network by a further 787 km in the coming years.

Fig. 5. Distribution of preliminary excavations in 2000



The investigation of extensive areas provides not only an undreamt-of opportunity for research (Fig. 3), but also calls for the introduction of new analytical methods and techniques for processing the hundreds of thousands of finds. In 2000, the Directorate of Cultural Heritage issued permits for 390 archaeological excavations (Fig. 4). Of the issued permits, 278 were preliminary and rescue excavations or the archaeological supervision of an area, while 112 were for planned excavations (Fig. 5). As a matter of fact, the number of preliminary excavations was even higher since many of these permits actually related to more than one site in the case of motorway constructions. Today there are over 300 active archaeologists in Hungary, 211 of whom are museum employees (78 of them work in Budapest). Various teams are working in the areas awaiting excavation: their members include full-time archaeologists, as well as archaeologists working on contract, assistants, university students and other experts, whose tasks include documentation and preservation. Their task is the recovery of the finds and the documentation of the site, the long-term goal being the full evaluation and publication of a given site.

ARCHAEOLOGICAL EDUCATION AND RESEARCH AT THE UNIVERSITIES

Gábor Kalla

INSTITUTE OF ARCHAEOLOGICAL SCIENCES,
EÖTVÖS LORÁND UNIVERSITY, BUDAPEST

The antecedents of archaeological courses in Budapest can be traced to the Jesuit University in Nagyszombat (Trnava, Slovakia), founded by Péter Pázmány in 1635. Despite the fact that there are no direct sources indicating courses in archaeology, the study of the antiquities and coins collected by the School of Liberal Arts was presumably part of the history curricula. Empress Maria Theresa's *Ratio Educationis*, issued in 1777, specified numismatics as the first archaeological subject among the other auxiliary studies to history, and also established an independent numismatics department with the intent of creating a university archaeological collection. The university was transferred to Buda in the same year and the name of the department became the Department of Numismatics and Archaeology. István Schönvisner, the founder of Roman provincial archaeology in Hungary, was appointed as the first professor, and Péter Katančić followed him in 1794. This period was characterized by the predominance of classical archaeology in the curricula and in research. In 1784 the university was transferred to Pest and in 1815 József Weszerle, the founder of modern Hungarian numismatics, was appointed to head the department. He can be credited with cataloguing the department's collection of several thousand coins. This collection included Hungarian and Transylvanian coins, as well as European ones, in addition to specimens from antiquity.



Fig. 6.
János Banner
(1888–1971)

From 1845 university training was continued in Hungarian. Courses now included not only the archaeology of antiquity, but also prehistory and the Middle Ages. This training reached a truly international standard when Flóris Rómer began his activities as a private lecturer at the university. The themes of his lectures were taken from quite a wide range of subjects, including art history, numismatics and archaeology. He did not restrict himself to the find material from the Carpathian Basin, but presented the most recent European archaeological findings as well. He dealt with nearly every archaeological period and put great emphasis on practical experience in the field, not just discussing the topics in theory. In 1872, an Art History Department under the direction of Imre Henszlmann was established within the School of Liberal Arts at Pest, and this department took over many of the former tasks of the archaeology department.

Flóris Rómer was appointed the director of the Hungarian National Museum's Collection of Coins and Antiquities in 1869. From then on, university lecturers and professors in the university department took on the responsibility for some public collection. As a result, the scholarly work of the professors was based on a museum collection, library and workshop, and few efforts were made to develop these facilities at the university. Károly Torma headed the department from 1879, followed by József Hampel in 1890. During this period the department essentially served to train teachers, and did not regard ensuring the supply of archaeologists as its duty. The situation altered slightly with the appointment of Bálint Kuzsinszky, the outstanding scholar of Pannonian and Dacian provincial archaeology, to the post in 1914. The

interwar years were characterized by decentralization in the teaching of archaeological subjects. András Alföldi launched the *Dissertationes Pannonicae* series, each volume containing one of the department's doctoral theses. The department's name was changed to Department of the Archaeology of Hungarian Lands at this time. In 1938, Ferenc Tompa organized the Department of Prehistoric Archaeology. Courses on ancient Greek and Roman art were held at the Department of Art History and Classical Archaeology, headed by Antal Hekler, while medieval archaeology was taught in the Department of Art History and Christian Archaeology under the direction of Tibor Gerevich. In the spirit of liberal arts education, the students could choose freely between the courses, and those who aspired to become archaeologists could receive far more specialized and well-rounded training by this time.

The educational reform of 1949 dominated the period after World War 2. Courses for certified museologists were introduced and, as a branch of this study, diplomas in archaeology were issued for the first time. Zoltán Oroszlán was named professor of the Department of Classical Archaeology, which had separated from Art History, while János Banner (Fig. 6), the renowned prehistoric archaeologist, came from Szeged to direct the Department of Prehistory. In 1949, Gyula László joined the staff of the department. Following another educational reform in 1957, students in archaeology were required to undergo training as teachers as well. Gyula László, who took over the direction of the newly reunified Department of Archaeology in 1967,

Fig. 7. András Mócsy (1929–1987)





Fig. 8. István Bóna (1930–2001)

strove to synthesize the archaeological, historical, linguistic, ethnographic and anthropological evidence on the prehistory of the Hungarian people and the Conquest period. His approach to archaeology influenced successive generations of students, including those outside his narrow field of study. His successor, András Mócsy (Fig. 7), became an internationally acclaimed scholar of the archaeology of the Roman provinces.

New reforms followed in 1990. The Department of Archaeology was split into three sections: the Department of Prehistory and Early History (Archaeology) under the direction of István Bóna (Fig. 8), the Department of Ancient Greek and Roman Archaeology under Miklós Szabó, and the Department of Medieval and Post-medieval Archaeology under András Kubinyi. The Institute of Archaeological Sciences was established to co-ordinate these departments. The training itself continued in the old system, according to which students must specialize in two of five subjects: prehistoric archaeology, archaeology of the Roman provinces, archaeology of antiquity (classical archaeology), archaeology of the Migration period and medieval archaeology. As a result of a recent reform, students can now specialize in a single field and receive a diploma. In addition to courses on archaeology, students also have an opportunity to familiar-

ize themselves with other disciplines by attending courses on the analytical methods that are used in archaeology, they can participate in excavations and work in the field, and they also learn the theory and practice of museology. As part of the most recent educational reform, the universities reacquired the right to give out doctoral (PhD) degrees. The new system requires participation in a certified programme to receive this degree, and at present the Institute of Archaeological Sciences of the Eötvös Loránd University has the only accredited doctoral programme.

After the establishment of the Institute of Archaeological Sciences, the necessary technical background was also developed: storage facilities, conservation and restoration workshops, as well as computer laboratories, such as the GIS lab. Technical support for research improved significantly under the new conditions, and the Institute is now engaged in several major research projects, usually in co-operation with Hungarian or foreign partners. These include the Mont Beauvray–Velem–Szentvid project (a fortified Bronze and Iron Age settlement) and the Visegrád project (the investigation of the medieval Franciscan friary), both French-Hungarian archaeological research projects, the aerial photography project, the Polgár–Csőszhalom excavations, a German-Hungarian project that is part of the Neolithic tell research project in the Great Hungarian Plain, the Upper Tisza River region topographical project in co-operation with an English university, as well as the excavation of a Roman town in the market square in Szőny (Brigetio) and the M3 motorway rescue excavations, conducted with various Hungarian museums and foreign partners.

DEPARTMENT OF ARCHAEOLOGY, JÓZSEF ATTILA UNIVERSITY, SZEGED

István Fodor

Next to Budapest, Szeged is the other centre of Hungarian archaeological education that has a long tradition. The antecedents to the archaeology courses held here can be traced to Kolozsvár (Cluj–Napoca, Romania). Established in 1872, the same year that saw the founding of Kolozsvár University, the Institute of Numismatics and Archaeology operated in conjunction with the Collection of Coins and Antiquities of the Transylvanian Museum Association. The Institute's first professor was the eminent researcher of Roman history and archaeology, Henrik Finály (1825–1898). The institutional structure itself created the conditions that engendered both theoretical and practical education. However, Finály's courses were no more than one of the supplementary subjects to history. The foundations of the renowned "Kolozsvár school of archaeology" only began after his death, under the direction of Béla Pósta who was appointed in 1899. Pósta directed his best students, some of whom were later to become his colleagues, towards more specialized fields of research: Árpád Buday, the researcher of Roman inscriptions and archaeology; Márton Roska, the

outstanding expert on Transylvanian prehistory; and István Kovács, who became a specialist in numismatics and the archaeology of the Migration period. In 1910 Pósta launched *Dolgozatok*, a bilingual (Hungarian and French) journal, in which studies summarizing the finds and findings of new excavations were published. Ten volumes of this journal appeared in all.

Although the Hungarian university in Kolozsvár was closed down after Transylvania was handed over to Romania, it continued its operations in Szeged starting from 1920. In 1940, after the reoccupation of northern Transylvania, the Institute was re-established along with the Hungarian university according to the old framework. Professor Márton Roska was appointed director and was joined by Gyula László (1910–1998) as a private lecturer from 1940 and as professor emeritus from 1944. In 1944, Roska moved to Hungary and Gyula László continued his work at Bolyai University in 1945–1949. Many students attended his extraordinarily popular lectures and became acquainted with his ethno-archaeological approach.

As a matter of fact, archaeological education at the Institute of Archaeology and Antiquity only commenced in 1924 with Árpád Buday's move to Szeged, where he held lectures on antiquity as the institute's first director. Although János Banner (1888–1971) worked as a private lecturer there from 1922, he lectured on ethnography until 1928 and only later

on prehistory. In 1925 the new, Szeged edition of *Dolgozatok* was launched (a total of nineteen volumes appeared until 1943) and an archaeological collection was established, based on the finds from various excavations. Education in archaeology was set within the framework of liberal arts instruction, meaning that besides the main curriculum, students could take special courses that covered the principal archaeological periods and they could receive a PhD in archaeology.

Banner, who was a university professor from 1929 and later director of the Institute starting in 1937, set up one of the most significant archaeological institutions in Hungary during the interwar period. One major advance was the compilation of a bibliography of archaeological literature and the creation of the Land Survey Institute during the war, the country's first initiative towards an archaeological topography. At the end of the war, Banner and his colleagues relocated to the capital, as the well-equipped Institute lay in ruins. Márton Roska, who conducted nearly every course single-handedly, was appointed as head of the Institute in 1946, but the department was abolished after his arrest in 1950.

Although courses in archaeology were held as part of the ancient history curriculum, instruction was only formally re-instituted in 1962, when Gyula Gazdapusztai became the director of the Department of Ancient History and Archaeology. Interested students could receive special certificates of credentials in archaeology, and attended lectures given by Ottó Trogmayer and Alajos Bálint, who were invited as guest lecturers. From the mid-1970s, many of the professors who are still teaching today joined the archaeological staff. The classes and seminars encompassed every period of European and Hungarian archaeology. General instruction in archaeology followed a cyclical system, requiring students to take all of the classes during the course of their studies. Guest lecturers held some of these, as was the case for classes in related fields as well (historical anthropology, numismatics and art history). Practical training was held in the museum and students participated in the museum's frequent excavations, in addition to participating in the work of inventorying and recording in the museum. They wrote, and still write, dissertations on the archaeological topography of certain areas. As a result, the archaeological topography of Csongrád county is almost entirely complete.

In 1988, a Departmental Division of Archaeology was formed under the direction of István Fodor. In 1989, an independent Department of Archaeology was established, with Ottó Trogmayer as its director until 1997, followed by István Fodor. The department is maintained by the university and the Szeged Museum, with the courses held in the two buildings (Fig. 9). The backbone of the training in archaeology is a series of general courses, with specialization made possible by additional series of lectures. There are 60–70 students in the four classes. The primary goal is the training of experts in museum archaeology, who are familiar with the activities



Fig. 9. The Móra Ferenc Museum in Szeged

and maintenance of these institutions and who are capable of conducting fieldwork. The department maintains extensive contacts with Hungarian and foreign institutions. The museum annual's archaeological series, edited and published jointly by the department and the museum, provides the possibility for the publication of scholarly findings.

Amongst the Hungarian institutes of higher education, accredited archaeology training currently exists at the Universities of Budapest and of Szeged; the curriculum of the Department of Medieval Studies at the Central European University in Budapest too includes a range of courses in archaeology.

DEPARTMENT OF ANCIENT HISTORY AND ARCHAEOLOGY, JANUS PANNONIUS UNIVERSITY, PÉCS

Gábor Kalla, based on information kindly provided by
Andrea Vaday and Zsolt Visy

After completing the general archaeology course in the first year and passing the ancient history comprehensive examination that also covers the archaeology of the Carpathian Basin, students majoring in history can register for specialization in Roman provincial archaeology. Although all periods are covered, from the Neolithic to the late Middle Ages, the main emphasis is on the Roman Age. Since the mid-90s, when Mária Fekete, Károly Mesterházy and Andrea Vaday joined the staff, prehistoric and Migration period archaeology has been taught more extensively. The initial archaeology major programme, already assembled and now awaiting accreditation, is designed to cover four major periods of archaeology: prehistory, the Roman provinces, the Migration period and the Middle Ages, as well as the archaeology of the Mediterranean. However, it is already possible to write a thesis with a subject taken from archaeology within the Multidisciplinary Doctoral School's Antiquity programme. In addition to attending lectures and seminars on archaeology, students are required to take courses in Latin, to familiarize themselves with the relevant written sources and with epigraphy. The training encompasses related disciplines, field practice and museology, as well as site survey procedures, analytical and dating methods. Professional experience can be gained in museums and on the excavations run by the department (Lussonium, Babarc). A co-operation agreement with the Janus Pannonius Museum, signed in 1999, provides theoretical and practical educational and research collaboration that also includes researchers and students from the universities of Passau and Atlanta. The findings from these projects and from other research are contained in the annual *Specimina Nova*, published by the department.

The educational co-operation with the Babeş-Bolyai University's Faculty of Humanities in Kolozsvár (Cluj-Napoca, Romania) makes student and professor exchanges possible. One of the department's major research programmes is the aerial archaeological project begun in 1993. Important stages in this project are marked by the

regular flights made by the German Otto Braasch and the aerial archaeological internship organized through an international co-operation agreement (1996), as well as a conference supplemented by a training workshop (1997–1998). The growing collection of archaeological aerial photographs, now numbering some twenty thousand, is Hungary's largest database of this type; the cataloguing and evaluation of the photographs using both traditional methods and GIS is underway.

DEPARTMENT OF PREHISTORY AND ANCIENT HISTORY, MISKOLC UNIVERSITY

Gábor Kalla, based on information kindly provided by
Árpád Ringer

Similarly to Pécs, the teaching of archaeological subjects at the Faculty of Humanities of Miskolc University, begun in 1996, is connected to the history major. Directed by Árpád Ringer, the department offers specialized courses in prehistory; majors in cultural and visual anthropology can take up these courses after fulfilling certain prerequisites. To complete the specialization, indicated by an inset in their diploma, the students must write and defend a thesis on the subject of prehistory based on independent work.

Miskolc University is the single institution in Hungary that offers specialized courses in Palaeolithic archaeology within the prehistory curriculum. The main units of the curriculum are made up of courses and seminars on the Palaeolithic, Neolithic, Bronze and Iron Ages, courses on related disciplines (geology, cultural anthropology, historical anthropology, history of ancient religions, linguistics, prehistoric art, prehistoric religions and palaeo-ecology), as well as basic knowledge of museology. The Palaeolithic courses are supplemented by additional general and methodological courses. Practical training is provided by a course on geology and geological morphology and a two-week archaeological field work.

DEPARTMENT OF HISTORY, BERZSENYI DÁNIEL COLLEGE, SZOMBATHELY

Gábor Kalla, based on information kindly provided by
Gábor Ilon

The Berzsényi Dániel Teacher Training College organized the first archaeological technician training programme in 1994. Its goal is the training of professionals who can provide assistance to archaeologists in the field. Directed by Gábor Ilon, the two-year programme, which has not yet received accreditation, offers specialized courses within the history major. Students who have already completed one year in history are accepted, and each class is made up of ten to twelve students. Experts from the National Museum, the Archaeological Institute of the Hungarian Academy of Sciences and various provincial museums hold lectures as part of the programme.

Theoretical and practical subjects are both covered. The

so-called thematic blocks are the following: museum cataloguing/inventorying; archaeological prospecting (geophysics, aerial photography, field survey); excavation methodology; documentation and interdisciplinary methods during excavation; stone implements and raw materials; palaeobotany; archaeozoology and malacology; historical anthropology; archaeometry; experimental archaeology; conservation and restoration. Field practice is gained on the sites excavated by the Savaria Museum, and a two-week internship is required every year for all students.

ARCHAEOLOGY AND THE HUNGARIAN ACADEMY OF SCIENCES

Csanád Bálint

The Archaeological Committee was one of the first scientific committees of the Hungarian Academy of Sciences, established in 1825 for the cultivation of the Hungarian language and culture. Sadly, archaeology has lost its earlier position, and similarly to the other disciplines of the humanities, it must fight for its survival and for procuring the necessary funds for that survival, in part paralleling the general development of science and in part due to the global spread of a utilitarian attitude.

RESEARCH POLICY AND PUBLICATIONS

Between 1950 and 1990, the Academy was the second main financer of archaeology, after the cultural ministry (under its frequently changing names); it supported major excavations by non-academic institutions (for example at Felgyő, Kölked, Magyarhomorog and Zalavár), as well as researchers' study tours and participation in congresses abroad. The political changes in 1990 brought a new funding system in Hungarian scholarship, creating a new situation and role for the Academy. Most archaeological activities – large-scale excavations, book publication, scholarly workshops and other programmes – are uniformly distributed among the main institution types (museums, universities and academic institutes), as well as between the capital and the provinces. Moreover, all Hungarian researchers can apply for the various grants offered by the Academy (Academy subsidized research programmes, the Academy Research Grant and the Bólyai and Sasakawa Fellowship). In the case of viable initiatives, the Academy's provincial committees assure funds and a home for archaeological programmes and work committees (for example in Pécs and Veszprém). The Academy obviously strives to preserve its research network. One of the Academy's immediate tasks is to create the framework for Hungary's participation in EU programmes and regional co-operation projects, as well as the preservation of the individual features of Hungarian archaeology.

The Academy publishes the two renowned periodicals,

Archaeologiai Értesítő (launched in 1868) and *Acta Archaeologica Academiae Scientiarum Hungaricae* (since 1950); it maintains the Archaeological Commission and supports the Hungarian Archaeological and Art Historical Society. Starting from 1951, the Publishing House of the Hungarian Academy of Sciences has published a number of major series (*Archaeologica Hungarica*, launched in 1951, *Régészeti Tanulmányok*, from 1962–64, *Studia Archaeologica* between 1963–81, *Fontes Archaeologici*, between 1973–92), a series of handbooks (*Az őskor régészete* [The Archaeology of the Palaeolithic] 1965; *Pannonia régészeti kézikönyve* [Handbook of Pannonian Archaeology], 1990; *Römische Inschriften Ungarns*, 1972–1984), major collections (*Corpus of Celtic Finds*, 1987–99; *Corpus of Avar Finds*, 1975–95; *Corpus of Conquest Period Finds*, 1983), the Archaeological Topography of Hungary (1966–98) and archaeological bibliographies (1954–1999). Functioning as the Academy's publishing house until 1996, the Publishing House of the Hungarian Academy of Sciences was the most important publication forum for Hungarian archaeology. The Academy continues to regularly subsidize the publication of books on archaeological subjects.

ACADEMIC CLASSIFICATION

Until 1949 academic classification was based upon progression within the university (i.e. university doctorate, qualification as a university lecturer). Subsequently, with the introduction of the titles of “candidate” and “academic doctor” – after a decade long abolition of the university doctorate – a hybrid (European and Soviet type) classification system was created. From the beginning, there were efforts to include acclaimed researchers among the members of the Archaeology, Art History and Architectural History Commission of the Academic Classification Board functioning within the framework of the Academy; from the 1970s, political considerations did not play a determining role in its composition. From roughly the same time on, the Commission was well balanced with experts representing the different types of institutions, as well as those working in the capital and in the provinces. Until the political changes in 1990, the Commission, by a tacit consensus, encouraged applications for the title of candidate only after the acquisition of a doctoral degree. Today, only the rank “Doctor of the Academy” surpasses the PhD title obtainable in the universities and it is on par with that of a university habilitation. According to the law, the procedure related to obtaining the title “Doctor of the Academy” is performed by the Doctoral Council of the Academy, in co-operation with the Academy's Department of History and Philosophy, as well as the Archaeological Commission.

MEMBERSHIP IN THE ACADEMY

Since the establishment of the Academy, the number of archaeologists selected into its membership ranks is consider-

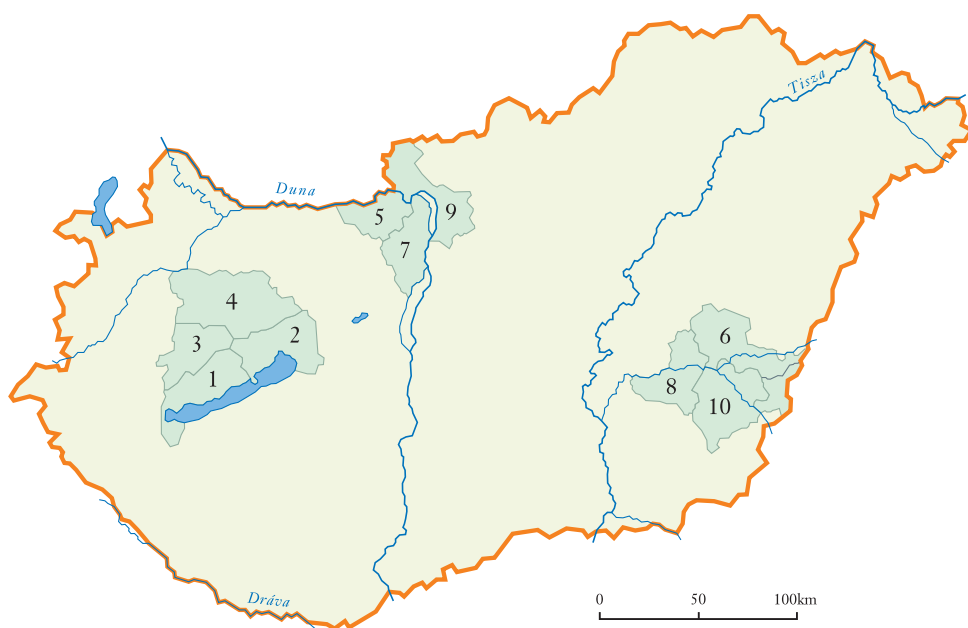


Fig. 10. The areas covered by the volumes of the *Archaeological Topography of Hungary* series

- Vol. 1. The Keszthely and Tapolca district (1966);
 Vol. 2. The Veszprém district (1969);
 Vol. 3. The Devecser and Sümeg district (1970);
 Vol. 4. The Pápa and Zirc district (1972);
 Vol. 5. Esztergom and the Dorog district (1979);
 Vol. 6. The Szeghalom district (1982);
 Vol. 7. Buda and the Szentendre district (1986);
 Vol. 8. The Szarvas district (1989);
 Vol. 9. The Szob and Vác district (1993);
 Vol. 10. Békés and the Békéscsaba area (1998)

able, and a list of them may prove as a surprise to many. Those who were stripped of their membership or downgraded to consulting members for political reasons in 1949 (for example András Alföldi, Nándor Fettich and Nándor Láng) had their rights restored in 1991. At present, archaeology has three academicians: Miklós Szabó, regular member; as well as Csanád Bálint and András Kubinyi, both corresponding members. Miklós Szabó is also a regular member of the French and the Catalan Academies of Sciences, and László Török is an honorary member of the Norwegian Academy of Sciences.

PUBLIC BODY

Act XL of 1994 on the Hungarian Academy of Sciences stipulated that all scholars holding an academic degree may become members of the Academy's public body with a simple affidavit. The members of the public body nominate 200 delegates to the Academy's general assembly (currently the archaeological delegate is László Kovács). The expansion of the role of the members of the public body and also of the status of the delegates is a constant item on the agenda.

THE ARCHAEOLOGICAL INSTITUTE OF THE HUNGARIAN ACADEMY OF SCIENCES

The Archaeological Institute, originally called the Archaeological Research Group, was founded in 1958 under the leadership of László Gerevich (it was transformed into the Institute in 1967). This signifies a lag of about a decade as compared with the path of development in other Eastern European countries. The fact that the Institute was always allotted a more modest financial budget than its counterparts in East-

ern Europe has had an effect on the over all condition of Hungarian archaeology. The public and professional opinion of Hungarian archaeology changed when the part-time positions of several leading experts in the Institute were terminated. The criticism that individual research agendas were raised to an institutional level was by all means well-founded. This was common practice throughout the country in other disciplines and institutions also, but it is a fact that genuine – particularly long-term – teamwork in the humanities is rare even today in Central and Eastern Europe. This situation changed under the directorship of Sándor Bökönyi (1980–1993), who succeeded László Gerevich. During this time, the micro-region research projects in the Great Hungarian Plain and Transdanubia were based on teams that truly worked together. (The findings of both projects were published in two volumes.) Teamwork currently continues in the motorway rescue excavations conducted in Somogy county. The researchers have successfully applied for one EU, three German (DAAD) and three major Hungarian grants (Széchenyi Grant), as well as thirty-four other Hungarian grants. Many of them also participate in the interdisciplinary Danubius project.

The main task of the Institute is archaeological research in the Carpathian Basin from the Neolithic to the post-medieval period. In addition to this, it carries, or has carried out excavations abroad (in the Soviet Union, Mongolia, Egypt and Italy). Currently, the primary academic task is the publication of source materials and monographs, as well as the preparation of the final reports of large excavations. The publication activity of the Institute's researchers surpasses the national average; all researchers have an academic degree, and they also take part in the organization of exhibitions and in the museological tasks related to excavations. Many of them are university lecturers or postgraduate instructors. Three (former) Humboldt fellowship winners now work at

the Institute, and of the Deutsches Archäologisches Institut's sixteen Hungarian members, six are active or retired researchers from the Archaeological Institute.

One of the most important tasks of the Institute since its inception has been the preparation of the successive volumes of the Hungarian Archaeological Topography. The individual volumes of the series are based on field surveys, information contained in local archives, the re-examination of old find assemblages and documentation (preparation of new photographs, drawings and maps), and each volume has been written in co-operation with archaeologists from the authorized regional museums. Ten volumes have been published so far (Veszprém county, nearly all of Békés county, as well as of Komárom-Esztergom and Pest counties), and three more are underway (*Fig. 10*). The Institute's Archives are the country's second largest after that of the Hungarian National Museum, and the accumulated number of records, photographs, drawings, plans, etc. exceeds one million. Computerized databases aid work in the archives. In the 1960s, the Institute, sensing the international tendency, was the first in the country to undertake the co-ordination of the natural sciences connected with archaeology, but both personnel and financial conditions impeded the realization of this goal. After the Institute's financial crisis of the 1990s passed, research opportunities were consolidated, large-scale library expansion occurred on four occasions and the issuing of publications became continuous (the Institute's annual, *Mitteilungen des Archäologischen Instituts der Ungarischen Akademie der Wissenschaften*, recently renamed *Antaeus*, since 1970; and the series *Varia Archaeologica Hungarica*, since 1986).

LISTED ARCHAEOLOGICAL SITES – VOLUNTEERS AND AMATEURS IN ARCHAEOLOGY

Katalin Wollák

Act XI of 1929 was the first Hungarian law to pronounce the sites of archaeological excavations “restricted areas”; law-decree 9 of 1949 provided the opportunity for significant archaeological and historical monuments to be placed under protection. This fundamental principle was adopted in subsequent legislation (law-decree 13 of 1963, Act CXL of 1997 and Act LIV of 2001 on the protection of the cultural heritage). The latter two laws also adopted the principles of the Valletta Convention (1992); Act LIV of 2001 stipulates that known archaeological sites are under general protection by force of law and that the most important archaeological monuments may be placed under heightened or increased protection, while endangered sites may receive temporary protection.

The number of known archaeological sites is around 100,000, a number continuously on the rise since there are many areas of archaeological interest – areas that were suit-

able for human settlement due to their geographic, paedologic and/or hydrographic conditions – that have not yet been investigated, making the discovery of new sites likely. The number of land survey lots listed under protection totals about three hundred in the provinces and over three thousand in the capital. The general international trend is to attempt to preserve not only the actual site itself, but also the cultural landscape, including the environment that evolved over the course of history. These areas play an increasingly important role in planning and development, including the National Development Plan, that tries to strike a balance between the safeguarding of the cultural heritage and sustainable development.

The goal of archaeological protection is to preserve the undisturbed state of the area concerned since new advances in research methods enable the recovery of an ever greater wealth of information. In several European countries non-invasive techniques, including aerial photographs and geophysical examinations, as well as field surveys that supplement these methods, are used in the investigation of archaeological sites. Following the necessary preliminary work, the Ministry decides on the protective listing of a site in the form of an edict that prescribes the expectations and restrictions related to the use of the area, and later this data is entered into the register of title deeds. All those who deal with the area must take into account the aspects of archaeological/heritage preservation already in the planning stage. This prevents the suspension of projects along with the ensuing delays and financial repercussions.

In the 1950s, a vigorous campaign was begun to register the most important or most endangered sites and as a result of this, several hundred sites came under protection, but without proper processing. Because the data did not reach the registry of title deeds, neither the owners, nor those who utilized the land later received notice of the protection, and therefore numerous archaeological sites were destroyed. The review of listed sites and securing the terms of their protection has begun in recent years. The majority of the protected areas lie in Transdanubia; over thirty sites are listed in Pest, Fejér and Hajdu-Bihar counties. Most of these lie on the outskirts, rather than in the centres of settlements, and the number of listed medieval monuments is by far the highest (*Fig. 11*). Many of these are open-air museums or archaeological parks (*Fig. 12*), national memorials and conserved or reconstructed historic monuments, while others, such as hillforts, tumuli, fortifications and caves, can be found in their natural environment.

Metal detectors stand out amongst the dangers affecting the sites since as a result of their use, the finds are not only removed from their archaeological and, also, their historic context, but by digging them up, the site is also damaged. Some of the most endangered are the extensive Roman period sites known for over a century, whose complex excavation or effective guarding is a near-impossible task. A management plan that takes into account the requirements for regular supervision, up-to-date registration and sustain-

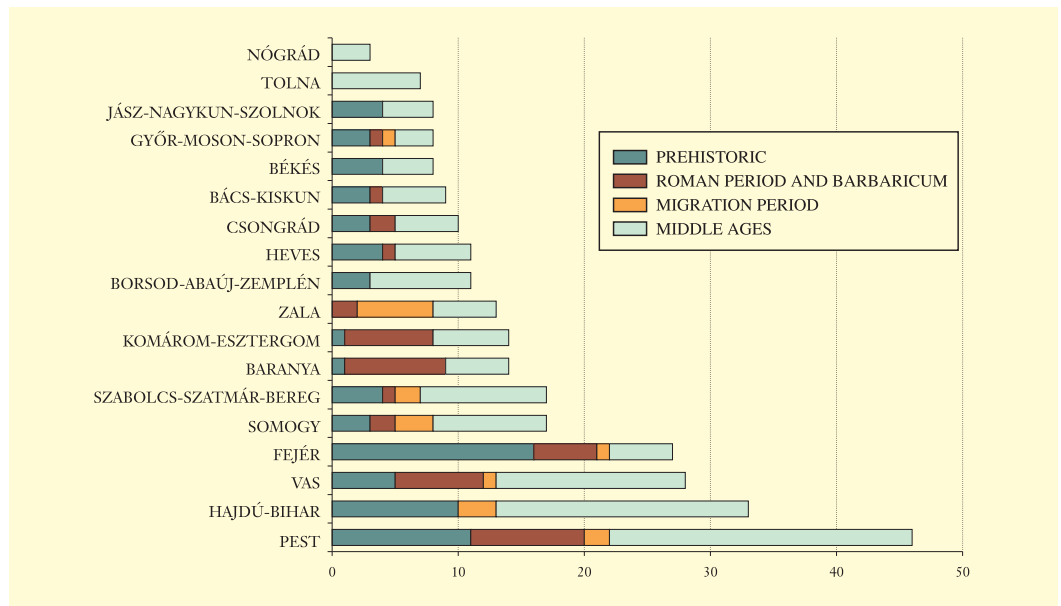


Fig. 11. Distribution of listed archaeological sites according to county

able development can decrease the number of illegal excavations. Owing to the fact that the state has the ownership rights to all finds, they may not circulate in official commerce, nor may they receive export permits. Furthermore, because excavations may only be performed with proper professional and institutional background, in Hungary there is no so-called commercial or amateur archaeology. Moreover, the Penal Code sanctions the looting or destruction of archaeological sites. In countries with different traditions, these activities are channelled; for example in 1997, England initiated the two and a half year “Portable Antiquities” programme funded by the Lottery Heritage Fund that encouraged reporting finds. It resulted in the reporting of nearly twenty-four thousand metal, stone, ceramic and

other finds in the course of the first year, on the basis of which five thousand archaeological sites were registered.

Today in Hungary, the urban and village scenic improvement societies, museum support groups, local history clubs and local volunteers have taken over the role of the museum associations from the last century. The Ministry has a fund for rewarding people who report important sites and finds, and supports the excavation, recognition and exhibition of local assets (the National Heritage Program, the millennium and other grants). Local governments, institutions, as well as private and legal entities that support heritage preservation are honoured with various awards (for example the Schönvisner and Henszlmann Prizes and the Museum Patron Local Government award). There has been experimen-



Fig. 12. View of the Roman ruins at Tác-Gorsium



Fig. 13. Depiction of archaeological sites using GIS methods: digital map of the Danube Bend at 1:100,000 scale (by InfoGraph Co.), showing the archaeological sites from the Migration and the Hungarian Conquest period at Nagymaros, Zebegény, Szob and Börzsönyliget

tation by the agency responsible for heritage preservation to involve amateur archaeologists in heritage preservation. These amateurs are provided with professional guidance for monitoring and registering sites, the ultimate goal being the creation of a local network of informants. Beyond this, adequate information must be provided about the protected and listed sites, and various types and levels of access must be developed not just for experts, but for local inhabitants, visitors, local governments, planners/developers/investors and decision makers. Furthermore, this information should be incorporated into general education and the national curriculum. The main reason for this is that even the most thoroughly conceived legal protection is insufficient if the local community does not feel a concern for its historical and/or archaeological assets and has no interest in their preservation. This type of participation is just as important for the success of a long-term heritage preservation policy as is the creation of the legal and institutional background.

REGISTRATION AND DATABASES

Gábor Rezi Kató

No matter how meticulously carried out and irrespective of the most modern techniques used, archaeological excavations effectively destroy the investigated feature, be it a tomb, a pit or a building. In order to retrieve as much information as possible from the site, archaeologists uncover and cut through evidence that has been hidden in the ground for centuries or millennia, disturbing the surviving material remains in the process. Although efforts are made that this be accompanied by the least destruction possible, for example

by preserving the finds *in situ* or by conserving and restoring the finds, the possibilities are limited. The archaeologist's most important task, in addition to excavating and interpreting the finds, is documenting the process of excavation. Anyone is capable of 'collecting' archaeological objects, but without the professional and precise recording of the observations made during excavation, the results are difficult or impossible to interpret. The preparation of a precise documentation on the excavation is serious, time-consuming work, involving the making of drawings, photographs, videos and a conscientiously written excavation diary, all of which demand a large amount of professional knowledge and expertise. As a result of continually expanding technical possibilities, as well as the increasing demands made on archaeology, such as the rescue excavations preceding the motorway constructions, documentation procedures have developed significantly in recent years. Excavations on a scale never conducted previously must be documented according to modern standards, utilizing the most up-to-date scientific and information processing methods, including the creation of new techniques that are best suited to these tasks.

Institutions that conduct the excavations must also store the archaeological documentation. In addition to reports on modern excavations, museum archives naturally contain a wide array of documents relating to a given area's history. The archives of a provincial museum founded at a relatively early date can, in certain cases, be a nearly as important source of information as the finds held in the magazines. Besides these regional institutions, and especially the archives of county museums, the documentation contained in 'central' archives must also be mentioned.

In 1952 the Central Archaeological Archives was estab-

lished in the Hungarian National Museum. Numerous irreplaceable, unique records and excavation documentations from the 19th and 20th centuries, including site reports and other documents with an archaeological relevance, are kept here. A copy of the documentation of every excavation conducted in Hungary has been placed here. This documentation contains the excavation diary, together with the drawings and the photo documentation. The collection's size now exceeds 18,000 items. Maps play a significant role in the revised documentary information. Act CXL of 1997 stipulated the registration of archaeological sites. One of the requirements for the creation of a nationwide database is that the available information be represented with precision on appropriately scaled maps (Fig. 13).

Brief reports of a few sentences were prepared on the basis of the excavation documentation, forming the backbone of *Régészeti Füzetek* Series I that provided an annual overview of all excavations. The twenty-five volumes of *Régészeti Füzetek* Series II mostly contained reports on the National Museum's archaeological research. The first series, revised in both content and form, appeared under its new name, *Régészeti Kutatások Magyarországon* [Archaeological Investigations in Hungary] with an issue on the excavations of the year 1998, as a joint publication of the Hungarian National Museum and the Directorate of Cultural Heritage. In addition to brief excavation reports, the new publication contains short papers in Hungarian and other languages on the given year's major excavations and finds.

Besides information related to excavations, the Central Archaeological Archives also has a valuable collection of photographs, often the only source of information on objects that have been destroyed or lost. A similarly important section of the archives contains the bequests of Hungarian archaeology's outstanding scholars, an irreplaceable source for academic history. The publication of these records and documents was one of the primary goals of the series *Adattári Közlemények* [Archive News]. Although only two volumes were published, the series was recommenced in 2000 under a new title, *Documentationes et Communicationes*, with the same objective.

Until 1998, the tasks of the Central Archaeological Archives included also an involvement with protected archaeological sites. Its Database of Protected Archaeological Sites was one of the first databases of the Information Infrastructure Development Programme.

The Archaeological Institute of the Hungarian Academy of Sciences has been involved in the archaeological topography of Hungary for several decades. The huge topographical database stored in their archives is of outstanding significance and is the largest in the country. The archives of the Budapest Historical Museum represent a similarly important source of information for the capital. An independent publication containing excavation reports is *Aquincum – A BTM Aquincumi Múzeumának ásatásai és leletmentései* [Aquincum – Excavations and Rescue Excavations of the Aquincum Museum of the Budapest Historical Museum]. The

Office of National Cultural Heritage's listings, as well as their collection of construction plans and photos contain data on the research and protection of historic properties.

Smaller collections of aerial photographs that are currently scattered in smaller collections also represent an important research tool. The most important collections are housed in the University of Pécs, the Institute and Museum of Military History in Budapest, the Institute of Archaeological Sciences of the Eötvös Loránd University and the Institute of Archaeology of the Hungarian Academy of Sciences. Aerial photography has much to contribute to the discovery of archaeological sites and the monitoring of known sites. Before 1989, the preparation, analysis and collection of aerial photographs for archaeological purposes did not play as significant a role in Hungary as in other countries owing to political and financial reasons. There is now reason to hope that the creation of a central archive will remedy this situation.

In addition to the data recovered during excavations, the actual finds unearthed during the investigation of a site, the primary source of information, are also kept in museum collections. Following the cleaning and conservation/restoration of the objects, the first task is to catalogue them. This has a dual purpose. The first is to provide information for the identification of an object (inventory number, description, photos, etc.), while the second is in part scholarly work since in addition to a detailed description, the object's probable date and function, the culture or ethnic group that produced and/or utilized it, as well as the precise location of its discovery is also entered into the acquisitions register, enabling the object to be later be linked to the excavation documentation.

While the current laws determine the rules of cataloguing, the extent to which the registered data will stand the test of time depends on the expert. The excavations of the last decade have nearly doubled the material finds and this has forced researchers to work out new techniques, involving the registration of the finds during the excavation itself, instead of the earlier, traditional procedure (excavation, museum, conservation, photographing, drawing, registration, cataloguing, etc.). One prerequisite for this is the creation of an on-site archaeological base, where cleaning, conservation, photographing and data registration can be performed.

An enormous amount of archival and other information has accumulated since the establishment of museums. The hand-written acquisitions registers from the 19th century containing drawings of the more important objects have themselves become museum pieces. The increase in the amount of information and the nature of the data has prompted the use of computerized databases since the appearance of the first generation of computers. Begun about a decade and a half ago, the creation of these databases has been impeded by numerous difficulties. At first, these were mainly technical problems (software/hardware capacity), while today it is the creation of a professional consensus that

requires the greatest energy (the creation of an accepted terminology, together with dictionaries and thesauri). A number of databases were created by enthusiastic individuals who also worked out a solution to the problems in a specific area. The expanding technical possibilities mean that the creation of a system that satisfies the demands of both data registration and professional requirements is no longer impossible. This is an important task because Hungary is exceedingly rich in archaeological and historical remains owing to its geographic position. The evaluation and preservation of these relics is not only a national duty, but also the country's best interest. The looting of archaeological sites, as well as the organized theft and smuggling of artworks can only be prevented if there are up-to-date, accurate records, databases and geographic information systems. This digitized information can be used in various other ways as well: for example, the finest works of art can be presented on a museum's homepage or on a CD-ROM to attract the attention of potential visitors and they can also be used for educational and other purposes.

One of the immediate tasks, calling for co-ordinated efforts, is the archiving, systematizing and processing of the accumulated knowledge of almost two centuries in the slightly dusty, timeless atmosphere of archaeological archives and storage rooms.

THE CONSERVATION AND EXHIBITION OF ARCHAEOLOGICAL REMAINS: ARCHAEOLOGICAL PARKS AND EXPERIMENTAL ARCHAEOLOGY

Ildikó Poroszlai

An archaeological excavation usually fascinates the general public, even if visitors are often at loss to interpret what they see. They are unaware of the function of the holes dotting an excavation surface (the postholes), the seemingly haphazard heaps of stone (the remains of walls or the stone ring encircling a burial) or the amorphous lumps of clay (debris from a house or some other building), as well as a number of other phenomena that are only meaningful to the trained eye. The settlements, the burials and the material cultures of successive archaeological and historical eras are intimately connected to the geographic setting, climatic conditions, subsistence practices, the availability of raw materials, trade routes, historic events and the religious beliefs of the given culture/population.

What happens to a site after its excavation? What is the fate of the stone, wood or perhaps clay or earthen objects, buildings, defences and burials? What would be the best procedure? To rebury the remains after the photographs have been taken, the drawings and other up-to-date documentation have been completed, or to exhibit the site? Is it perhaps worthwhile to exhibit certain elements from a

structure in a museum? The *in situ* exhibition of excavated remains is in part the task of historic preservation and architecture, and in part of experimental archaeology. The expertise of a professional conservator is necessary in both cases. The Venice Charter provides the guidelines for the *in situ* conservation and presentation of a historic monument; the charter considers all additions as restoration and rejects reconstructions based on "conjecture". Reconstruction has been the subject of many heated debates in historic preservation, as well as in archaeological research, especially the issue of to what extent the excavated remains may be complemented in order to present a meaningful interpretation of the structure's original function, architecture and appearance. Today, many professionals working in the field of historic preservation advocate a faithful reconstruction based on the surviving remains, but only if these remains are not harmed or destroyed and if the changes remain reversible.

In the case of the built heritage that has survived in the form of ruins, including a large portion of medieval and post-medieval structures, the designation "ruins garden" or "ruins district" seem correct, while the term "archaeological park" seems better for the exhibition of remains that had originally been built of perishable materials and have been reconstructed as part of experimental archaeology projects.

The question of what the buildings they had uncovered had actually looked like has since long fascinated archaeologists. In 1955, László Vargha published the reconstruction drawings of log houses uncovered on the Bronze Age tell at Békés. István Méri worked out and applied precise excavation and documentation methods during his investigation of Árpadian Age settlements, and he later prepared reconstructions of the dwellings he had uncovered – first in drawings, then in scale models (Tiszalök–Rázompusztá, Kardoskút–Hatablak). Later reconstructions were mainly of buildings found on Neolithic and Bronze Age tells (Gorzsa, Herpály, Tiszaug, Túrkeve; *Fig. 14*), together with a few of the sunken dwellings from the Hungarian Conquest period and the early Middle Ages (Tatabánya, Gergelyugornya, Kerekegyháza). It still remains to be established whether it is possible to actually construct these houses on the basis of the beautiful illustrations since most of these drawings concentrated on the outward appearance of the houses, and little attention was devoted to the structural elements and static requirements that call for a measure of architectural expertise.

Although the accuracy of these reconstructions could only be verified by buildings constructed at full scale, the preparation of a model represents the first step in this process. Good examples of the latter are the models of late medieval vernacular buildings reconstructed on a 1:25 scale (Szentkirály, Visegrád, Sarvally), and the full-scale section of a house in the Agricultural Museum. The next step is the construction of actual houses, stoves, workshops and other buildings for experimental purposes and for exhibition, based on the excavated groundplans with the collaboration of archaeologists, ethnographers and architects. There have

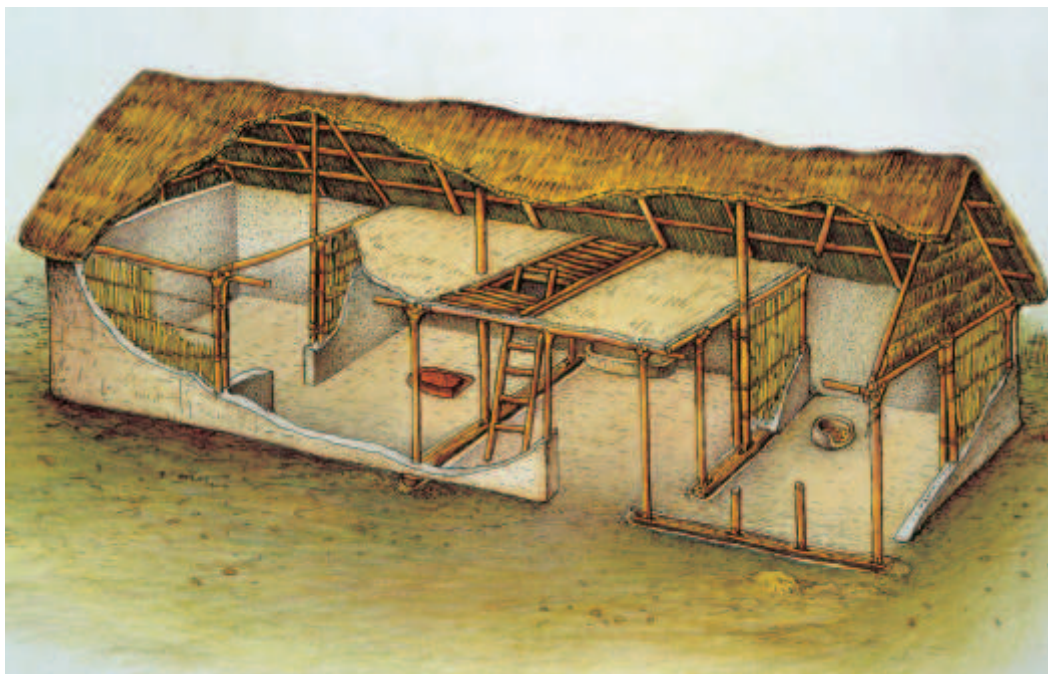


Fig. 14. Reconstruction of a Bronze Age house from Túrkeve-Terehalom, layer 4

been a number of initiatives in this respect in Hungary, following examples from Western Europe, primarily England (Butser Ancient Farm) and Scandinavia (Lejre).

Gábor Bándi was the first to consider presenting to visitors reconstructed features – streets, shops and houses – of the Late Bronze Age–Early Iron Age fort he had excavated at Velem. Ahead of his time with this idea, he laid the foundations for an archaeological park by building stoves and wattle-and daub houses, as well as sections of a street and wattle fences along the edges of the terraces. Begun in 1979–80, this experiment was discontinued due to financial and other problems.

Three Árpadian Age houses were built at Ópusztaszer between 1996 and 2000: one was a sunken dwelling, whose roof was covered with thatch bound by rawhide; István Méri's sunken house with an earthen roof from Kardoskút–Hatablak; and a gable roofed, above ground building with wattle-and-daub walls.

In 1997, a different team built a replica of the sunken dwelling from the Árpadian Age, based on the one excavated at Rákospalota during the rescue excavation preceding the construction of the northeastern section of the M0 motorway.

The single archaeological park that draws on the findings



Fig. 15. Detail of the archaeological park at Százhalombatta



Fig. 16. The interior of tumulus 115 at Százhalombatta, with the original and reconstructed sections

of experimental and environmental archaeology and offers a wide array of educational programmes for the public is the one at Százhalombatta (*Fig. 15*). The archaeological site, a Bronze and Iron Age fortified hillfort and an Iron Age burial ground with tumuli, lies on the Érd-Batta plateau on the outskirts of Százhalombatta-Óváros. Placed under archaeological and environmental protection, the idea to make the site accessible to the public was suggested already in the 1970s and 1980s. Unfortunately, agricultural cultivation and horticulture continues to endanger the whole site, with the exception of the imposing Iron Age ramparts (some of the tumuli have already been destroyed). With the support of the Százhalom Foundation's Board of Trustees, the archaeologists working in the Matrica Museum elaborated a plan for preserving and exhibiting the prehistoric fort and the tumuli. The original plans were altered after Ágnes Holport investigated one of the tumuli in 1990. She discovered a passage tomb built of oak that had survived in exceptionally good condition. The burial chamber – a 'chest' with log walls and wooden beams – remained well preserved owing to the infill of hot charcoal. The floor was paved with flat stones, upon which oaken beams, split lengthwise, were placed. An open passage led to the burial chamber; the ashes of the deceased actually lay in the passage, while the grave goods, pottery vessels containing food and beverages for the netherworld, were deposited in the chamber, encircled by a ring of stones and covered with earth.

The reconstruction plan for opening the tumulus to visitors was worked out by András Gelesz, Ágnes Lenzsér and Tamás Mezős, based on the co-operation of experts in archaeology, restoration, architecture and historic preservation. Exploiting the tumulus' strict east-west orientation, a corridor running parallel to the original passage was cut through the tumulus. Walking through this corridor, visi-

tors can view the interior of the mound: the burial chamber, the ring of stones and the mound's restored section. The southwestern corner and the wooden floor can be seen in their original (conserved) condition, while in the southeastern corner, a section of the chamber's roof and the passage's south wall have been reconstructed with wood identical to the original in a manner that the reconstructed sections are separate from the original remains (*Fig. 16*). Visitors can also enjoy a multimedia presentation providing an overview of the Bronze and Iron Age, a tour of the site and an Iron Age burial ceremony, accompanied by light and sound effects inside the tumulus itself.

Authentic copies of the houses, outbuildings and stoves from the Bronze and Iron Age uncovered on the site have been built in the park, and there is an ongoing project for reconstructing the one-time environment, the purpose of which is to restore the cultural landscape of the Middle Bronze Age and the Iron Age. Based on the pollen samples from the site and the ecological study of the site's broader environment, there is a project to re-create the loess steppe forest of Tatarian maple and oak by planting these trees in the area. Attempts are being made to present the diverse composition of the periods' landscape in the six hectares of the site, including pastures, ploughland and gallery woods. There are also vegetable gardens around the houses and fruit trees in their vicinity.

In addition to experiments in prehistoric construction techniques, visitors can also try their hand at making clay, stone and bone artefacts with the help of the staff of conservators, craftsmen and museum educators, who also explain how these artefacts were used. Visitors can also experiment with bronze casting and grain cultivation. Every summer there are several camp sessions for presenting everyday life in the Bronze and Iron Age, while on the so-called Family Days

the visitors can explore various aspects of the Bronze Age, the Iron Age, the Roman Age, the Hungarian Conquest period and the Middle Ages (craft activities, baking bread from wheat produced on the site, children's programmes, military re-enactments, outdoor theatrical productions).

The experimental settlements and archaeological parks described above provide the setting for a relatively new field in archaeology, namely environmental and experimental archaeology. Professionals involved in environmental archaeology do not regard a site as a group of isolated finds, but examine the finds together with their environment, together with the changes in the environment. Experimental archaeology attempts to shed light on the manufacturing techniques, function and use of tools, implements and vessels by drawing on examples from ethnography, ethnology and cultural anthropology. An archaeological park is an interdisciplinary site with many functions: the findings of the discipline are presented through experiments and educational programmes and, at the same time, the park can be incorporated into cultural tourism as presenting one aspect of the built heritage and the cultural environment.

The Hungarian open-air museums, parks and national memorials at historically significant locations, such as the prehistoric settlement at Vértesszőlős, Tác–Gorsium, Budapest–Aquincum, Nagytétény, Balácapusztá, Visegrád, Diósgyőr and Esztergom, offer a wide range of programmes to visitors, including re-enactment activities, the evocation of past lifeways and ceremonies from prehistory, the Roman

Age and the Middle Ages (depending on the nature of the historical or archaeological site), providing a memorable experience to visitors.

HUNGARIAN ARCHAEOLOGICAL SITES ON THE WORLD HERITAGE LIST

János Jelen

The World Heritage List, established under the terms of the World Heritage Convention, currently contains over seven hundred sites, a number that has been growing since 1978. Even though the 1972 Convention only recognizes three categories – cultural, natural and mixed properties – the preparation of nominations for inscription and the comparison of the nature of sites already inscribed on the List has led to the introduction of numerous sub-categories, as well as their periodical revision. The International Council of Monuments and Sites (ICOMOS), the advisory body under the terms of the Convention, has grouped the inscribed sites according to the following criteria: archaeological sites, historic towns (town centres), Christian, Islamic, Buddhist, Hindu and other religious properties, military sites, landscapes, palaces/castles, industrial sites, tombs, architectural works, symbolic sites, and settlements characteristic of a nation or an indigenous people. There are 133 archaeological sites on the List, with the following regional distri-

Fig. 17. The World Heritage site in Pécs



bution: Europe (including Turkey): 49 sites, Asia: 27 sites, Africa: 26 sites, North America: 14 sites, Central and South America (including the Caribbean): 16 sites, Australia and Oceania: 2 sites.

According to the criteria mentioned above, none of the Hungarian World Heritage sites can be regarded as primarily archaeological, except for Pécs. The Hungarian sites are the following: Budapest, the Banks of the Danube and the Buda Castle Quarter (1987), Hollókő (1987), Caves of the Aggtelek and Slovak Karst (1995, 2000), Millenary Benedictine Monastery of Pannonhalma and its Natural Environment (1996), Hortobágy National Park (1999), Pécs (Sopianae) Early Christian Cemetery (2000); Cultural Landscape of Fertő/Neusiedler See (2001), Andrassy Avenue and the Millennium Underground Railway (2002), an extension of the previous Banks of the Danube and the Buda Castle Quarter site, and the Tokaj Wine Region Cultural Landscape (2002). Obviously, this does not mean that the World Heritage Committee that makes the decisions involving inscription is unaware of the archaeological value of the Hungarian World Heritage sites already listed, but rather that the inscription of the Hungarian sites were designed to reflect the different, internationally recognized categories related to the country's history. An awareness of the archaeological significance of these sites, whether representing urban (Buda Castle) and historical settlement patterns (Hollókő), a unique architectural monument integrating different periods (Pannonhalma Monastery) or the human manipulation of the landscape (the environment of Pannonhalma and the Hortobágy kurgans) is reflected in the justification for inscription and in the brief, official descriptions of the sites.

The administrative bodies for the World Heritage, including the Committee and the professional advisory bodies (the International Council of Monuments and Sites [ICOMOS], the International Union for Conservation of Nature and National Resources [IUCN], the Centre for the Study of the Preservation and Restoration of Cultural property [ICCROM]) mentioned above, as well as the agency responsible for the implementation of the Convention, the World Heritage Centre, examine and evaluate the proposals for inscription submitted by governments before making their final decision.

The decision on Budapest established that "the Committee took note of the statement made by the observer from Hungary that his Government undertook to make no modifications to the panorama of Budapest by adding constructions out of scale." The Directives that define the Committee's activities state that the government concerned must inform the Committee in a timely manner about any construction or other large-scale projects to be undertaken on the inscribed site that might affect the values described in the justification for inscription. The creation of various government facilities at Szent György Square in the Buda Castle District and the archaeological excavations preceding these, as well as the new buildings constructed earlier within the area certainly fall under this obligation. Accordingly, the plans were prepared with

this restriction in mind and international experts were occasionally consulted to examine specific problems. In this way, the excavation of archaeological sites in historic urban districts and the natural development of World Heritage sites are interlinked. The goal is to create a viable balance between preservation and development. The brief, formal description of the site condenses these requirements into two sentences: "This site has the remains of monuments, such as the Roman city of Aquincum and the Gothic Castle of Buda, which have had a considerable influence on the architecture of various periods. It is one of world's outstanding urban landscapes and illustrates the great periods in the history of the Hungarian capital." At the time of Budapest's inscription, the significance of the panorama and the cityscape only appeared among the criteria for inscription indirectly; since 1994, these factors are in themselves sufficient for inscription on the World Heritage List. Since then, an additional twenty-five sites have gained World Heritage status on the basis of this justification.

The World Heritage criteria appear slightly differently in the case of Hollókő. The brief description summarizes the values to be protected: "This village, which developed mainly during the 17th and 18th centuries, is a living example of rural life before the agricultural revolution of the 20th century." The preservation of a settlement's structure and its related agrarian life-style is no mean task. A "cultural landscape" is one of the frequent justifications in nominations presented to the Committee, particularly in Europe, the placing of traditional settlement patterns under World Heritage protection has been pioneered primarily in the East European and African regions. Landscape and environmental archaeology, as well as the growing collaboration between ethnography and archaeology, are welcome advances that will hopefully provide additional insights into these sites.

The Millenary Benedictine Monastery of Pannonhalma and its natural environment was inscribed in 1996. The description for this site emphasizes the incorporation of a cultural landscape and a spirituality into a monument deemed worthy of international protection in view of the site's "outstanding universal value illustrating in an exceptional manner the structure and setting of an Early Christian Monastery that has evolved over a thousand years of continuous use. Its location and the early date of its foundation bear unique witness to the propagation and continuity of Christianity in Central Europe. This nomination called attention to the importance of the Benedictine Monks who had been working toward peace among countries and among its people and therefore clearly reflects the spirit of UNESCO's Constitution." The environment, the architectural complex and the settlement structure, as well as the work performed by the monks and the spiritual relevance of their activity illustrate the sophisticated ideal of the late 1990s, reflected in the site's inscription on the World Heritage List.

A brief overview of how the Hortobágy National Park was inscribed reveals yet another aspect of the modern concept of archaeology and the World Heritage, as well as of human achievement in exploiting the natural resources of an environment and the preservation of this environment. Hungary's

first nomination of the Hortobágy National Park to the World Heritage List in 1988, with emphasis on the Park's natural features, was rejected. This rejection was deemed controversial by both Hungarians and a number of renowned foreign experts. When cultural landscapes were included among the independent categories for inscription, the Hortobágy National Park was nominated again, providing an opportunity for reviewing the region's cultural values. The international experts examining the nomination requested a more detailed description of the archaeological features before they made their final decision. The justification notes that "the Hungarian Pusztas is an outstanding example of a cultural landscape shaped by a pastoral human society. The landscape of the Hortobágy National Park preserves intact and visible the evidence of its traditional use over more than two millennia and represents the harmonious interaction between human beings and nature."

The single Hungarian World Heritage site whose archaeological features are not mentioned even indirectly either in the justification for inscription, or in the formal brief description, is the Caves of Aggtelek and the Slovak Karst. This is understandable since the outstanding value of the site, proposed jointly with Slovakia, lay in the fact that 112 of the 712 already explored caves represented "an outstanding example of on-going geological processes and a significant geomorphic feature." The Baradla-Dómica cave system, which humans have been using as a shrine and burial site ever since the Neolithic Age, did not remain unmentioned. The remains of the Bükk, Piliny and Hallstatt cultures are well known, as are the Hussite wall inscriptions from 1447.

The vicissitudes of the nomination of the Roman Age burials in Pécs – the site was nominated several times since 1994, although on different grounds – and the eventual success of the nomination reflects the growing significance of urban archaeology (Fig. 17). The justification for inscription was that the Early Christian burial chambers represent a unique monument. "The burial chambers and memorial chapels of the *Sopiana* cemetery bear outstanding testimony to the strength and faith of the Christian communities of the Late Roman Empire. The unique Early Christian sepulchral art and architecture of the northern and western Roman provinces is exceptionally well and fully illustrated by the *Sopiana* cemetery at Pécs."

THE INTEGRATION OF HISTORIC MONUMENT PRESERVATION INTO HERITAGE PROJECTS

Tamás Fejérdy

The concept of historic monument preservation encompasses real properties, even though there are partial overlaps with the archaeological heritage (building remains). The term historic monuments is generally applied to buildings and architectural ensembles and, occasionally, to public works of sculpture. Historic monument preservation in Hungary is inseparable from archaeology. Disregarding a

few early forerunners, the first systematic formulation of the concept of historic preservation can be linked to the Congress of Physicians and Naturalists held in Kassa (Košice, Slovakia) in 1846.

Institutional historic preservation began with the establishment of the Provisional Monuments Commission in 1872. Between these two dates – during the period of Absolutism – the safeguarding of historic monuments was the task of the Austrian "Central-Commission zur Erforschung und Erhaltung der Baudenkmäler" and, later, after the changes in the political circumstances (essentially from 1858), of the Archaeological Committee of the Hungarian Academy of Sciences, as shown by the studies in the *Monumenta Hungariae Archaeologica* series and in the journal *Archaeologiai Értesítő*. The three great outstanding pioneers of Hungarian historic preservation were Imre Henszlmann (1813–1888), Flóris Rómer (1815–1889) and Arnold Ipolyi (1823–1886), in whose work scientific or applied archaeology also played a role.

Passed in 1881, Act XXXIX was the first Hungarian law on the preservation and maintenance of historic monuments that stipulated the creation of the National Monuments Board. The changes in the institutional system of historic preservation were connected to major events in Hungarian history. Under the new circumstances created by the Treaty of Trianon, Tibor Gerevich (1882–1954) reorganized the National Monuments Board into a modern, efficient professional agency following the Italian model (1934–1949). Following World War 2 and the Communist takeover, the Board was attached to different institutions (the National Centre for Museums and Monuments, the Castle Trust and the Architectural Office), and it was dedicated individuals, rather than the institutional opportunities, who kept Hungarian historic preservation alive.

Originally intended as a token gesture of the appreciation of national and historical values after the 1956 revolution, the National Monuments' Inspectorate was established on April 1, 1957 (the Budapest Inspectorate of Monuments with authority over the capital was established slightly later). The Inspectorate's complex organization of a wide array of historic preservation and conservation institutions with some 1200 employees undertook every activity in this field, from research (archaeological and art historical research, including also the investigation of historic buildings, usually performed by art historians, architects, archaeologists and conservators in co-operation with each other), through planning and the provision of official permits, to the execution of architectural and art restoration projects and the reconstruction of historic gardens.

In the thirty-five years until 1992, countless high quality historic restoration projects were completed, gaining international acclaim in the field. The truly outstanding and successful projects always included significant archaeological and art historical research as part of the interdisciplinary collaboration. From 1992, the National Board for the Preservation of Historic Monuments and its institutions, estab-



Fig. 18. View of Visegrád Palace at the beginning of the millennial restoration project and in its current state

lished through the transformation of the Inspectorate, performed the tasks related to Hungarian historic preservation and the restoration of historic properties.

The National Board functioned as the official authority in the case of archaeological investigations involving listed historic buildings and properties, as well as in cases calling for the conservation and exhibition of listed archaeological properties.

One of the main duties of the central historic preservation institution was the supervision of the fate of all listed properties, but in some cases it proved impossible to perform this complex task. As a result, it often took upon itself the organization and co-ordination of work involving listed historic properties, in co-operation with experts, including archaeologists, working in other institutions, as for example in the case of the so-called royal centres at Esztergom, Székesfehérvár and Visegrád (Fig. 18), and the Roman remains at TÁC–Gorsium and Aquincum.

Focusing on restoration and conservation, the archaeological research commissioned by the Inspectorate was primarily aimed at aiding restoration projects. The archaeological research performed or contracted in this manner by the National Board and the State Centre for Restoration and Conservation, the professional institute established to carry out the active work of historic restoration, can be regarded as planned excavations in the majority of cases. Even today, many of these excavations are consciously restricted to what is absolutely necessary for restoration (such as determining the original floor level) or unavoidable (such as the investigation of areas or structures that will become inaccessible after the completion of the restoration work), but do not include related investigations that are not absolutely necessary (such as the excavation of the graveyard beside a medieval church).

A new, unified institution, the Office of National Cultural Heritage was established in October, 2001 to perform the administrative and official tasks relating to the moveable and immovable heritage; the office also continued the institution's activities in preparing the professional basis for this work. As a result, the management of listed archaeological and/or historical heritage sites has become complementary and inseparable in official administrative work. A part of the research preceding the restoration and exhibition of historic monuments is still carried out by the employees of the institution and of the State Centre for Restoration and Conservation.

The institution's archives (Manuscript and Book Archives, Photo Archives, Design Archives), expanded continuously since 1872, contain many valuable source materials, such as Flóris Rómer's notebooks. The Museum of Architecture, now part of the Office of National Cultural Heritage, too houses a number of important collections containing a wide array of architectural information that is invaluable for archaeological research. The Office of National Cultural Heritage published its research results and source materials in a number of publications, the most important of these being the volumes of *Lapidarium Hungaricum*, the periodical *Magyar Műemlékvédelem* [Hungarian Historic Preservation] published by the Inspectorate and, later, by the Office of National Cultural Heritage (of which eleven volumes appeared between 1960 and 2002), the periodical *Művészettörténet–Műemlékvédelem* [Art History–Historic Preservation] and the volumes of the *Források* [Sources] series; other journals include *Műemlékvédelmi Szemle* [Historic Preservation Review] and – particularly before the publication of the former – the issues of *Műemlékvédelem* [Historic Preservation]. The list is completed by the essays contributed to exhibition catalogues and the *Lapis Angularis* series published by the Museum of Architecture.

The following list provides an overview of some important research projects related to historic preservation, here listed according to the major periods in the history of the institutions. The most significant archaeological investigations under the aegis of the Inspectorate included the

excavations at Miskolc–Diósgyőr Castle by Ilona Czeglédi, at Eger Castle by Károly Kozák, at Siklós Castle by András Gergelyffy and Ilona Czeglédi, at the Szekszárd church ruins (in the courtyard of the county hall) by Károly Kozák, at Szerencs Castle by Ilona Valter and István Feld, and at Ozora Castle by István Feld.

Archaeological research within the National Board for the Preservation of Historic Monuments was and is conducted by the Research Division of the Scientific Department. The main task of the experts is the continuation of the long-term investigations of the most outstanding historic monuments. The excavation sites included the Romanesque church in Ják and its surroundings by Ilona Valter, the Cistercian monastery in Bátaszék by Ilona Valter (*Fig. 19*); the Premonstratensian ruins and their surroundings in Zsambék by Ilona Valter, the Bishop's Palace and the medieval university in Pécs by Mrs. Mária Sándor Gerő, the

Szászvár Castle by Mrs. Mária Sándor Gerő, the church ruins in Vértesszentkereszt by Éva M. Kozák and the Nyírbátor Castle, as well as the archaeological investigation of minor churches from the Árpadian Age, as part of the millennial programme by Tamás Balázsik and Lajos Bozóki.

The Research Department of the State Centre for Restoration and Conservation too has undertaken a number of archaeological investigations linked to restoration projects, both in the preparatory phase and as part of ongoing work, especially in the case of listed monuments, whose restoration has been entrusted to this organization. The major research projects included the former Carthusian monastery in Városlőd by Péter Csengel and László Gere, the Veszprémvölgy Convent and Jesuit church in Veszprém by Juan Cabello, András Koppány and András Fülöp, and the Benedictine Monastery of Pannonhalma by Csaba László.



Fig. 19. Bátaszék, the Cistercian Monastery after restoration

INDEX OF SITES*

A

Abaújvár (Borsod-Abaúj-Zemplén county), 329
 Acsa (Pest county), 197
 Ad Flexum → Mosonmagyaróvár
 Ad Statuas → Ács-Vaspuszta
 Adony, *Vetus Salina* (Fejér county), 24, 209, 210, 211
 Aggtelek (Borsod-Abaúj-Zemplén county), 64, 436, 437
 – Baradla Cave, 99, 101, 164
 Ajak (Szabolcs-Szatmár-Bereg county), 170
 Alap (Fejér county), 390
 Alattyán (Jász-Nagykun-Szolnok county)
 – Tulát, 303, 309
 Algyő (Csongrád county), 341
 Alisca → Öcsény
 Almásfüzitő, *Azaum* (Komárom-Esztergom county), 210, 211, 212, 214
 Alpár (Bács-Kiskun county), 151, 152, 153, 155, 161
 Alsóhetény, *Iovia* (Tolna county), 215, 216, 217, 220, 246, 251, 290
 Alsópél (Dolný Pial, Slovakia), 196
 Alsórajk (Zala county), 236, 237, 313, 314
 Alsótelekes (Borsod-Abaúj-Zemplén county), 180
 Anarcs (Szabolcs-Szatmár-Bereg county), 334
 Andautonia → Ščitarjevo
 Annamatia → Baracs
 Apa (Apa, Romania), 168, 271
 Apahida (Apahida, Romania), 295
 Aquae Iasae/*Municipium Iasorum* → Daruvár
 Aquileia (Aquileia, Italy), 218, 227
 Aquincum → Budapest
 Arka (Borsod-Abaúj-Zemplén county), 90, 91
 Arrabona → Győr
 Aszód (Pest county), 102, 112, 115, 116, 117
 Aszófő (Veszprém county), 237
 Asszonyszállás (Jász-Nagykun-Szolnok county), 394
 Azaum → Almásfüzitő
 Ács-Vaspuszta, *Ad Statuas* (Győr-Moson-Sopron county), 210, 211, 212
 Árdánháza (Ardanovo, Ukraine), 271
 Árpás, *Mursella* (Győr-Moson-Sopron county), 219, 222, 245
 Ártánd (Hajdú-Bihar county), 180, 181, 182

B

Babarc (Baranya county), 238, 425
 Babócsa (Somogy county), 408
 Badacsony (Veszprém county)
 – Lábdi, 200
 Bagota (Bohatá, Slovakia), 325
 Bajcsavár (Zala county), 383
 Bajna (Komárom-Esztergom county), 246
 Bak (Zala county), 132
 Bakonszeg (Hajdú-Bihar county), 158
 Bakonybánk (Komárom-Esztergom county), 237
 Bakonycsernye (Fejér county)
 – Tűzkövesárok, 118, 119
 Bakonyszűcs (Veszprém county), 170
 Bakódpusztá → Dunapataj-Bakódpusztá
 Baks (Csongrád county)
 – Levelény, 170
 – Temetőpart, 165
 Balácsa → Nemesvámos-Balácsa

Balatonakali (Veszprém county), 149, 170
 Balatonaliga (Veszprém county), 243, 246
 Balatonföldvár (Somogy county), 199
 Balatonfüred (Veszprém county), 237, 239, 244
 Balatonyörök (Zala county), 237, 239
 Balatonhídvég (Zala county), 219
 Balatonmagyaród (Zala county)
 – Hídvégpuszta, 66, 133, 134, 149, 164, 314
 Balatonőszöd (Somogy county), 135
 Balatonszemes (Somogy county), 120, 292, 293
 Balf (Győr-Moson-Sopron county), 188, 202
 Balotaszállás (Bács-Kiskun county), 341
 – Balotapuszta, 390
 Balsa (Szabolcs-Szatmár-Bereg county), 294
 Baracs (Fejér county), 143, 152
 – Annamatia, 26, 214
 Barcs (Somogy county), 381, 382, 383, 409
 Basal (Baranya county), 219
 Bassianae → Donji Petrovci
 Battonya (Békés county), 115, 116, 168, 169, 170, 296, 297
 – Gödrösök, 101
 – Parázs-tanya, 113
 Bánkeszi (Bánov, Slovakia), 325
 Bánkút (Borsod-Abaúj-Zemplén county), 390
 Bárca (Barca) (Slovakia), 161
 Bába (Tolna county), 200, 214
 Bátaszék (Tolna county), 285, 286, 392, 409, 439
 Becsehely (Zala county), 102, 116
 Belgrade, *Singidunum* (Beograd, Serbia), 193, 302
 Beregsurány (Szabolcs-Szatmár-Bereg county), 271, 278, 279
 Beregszász (Beregovo, Ukraine), 342
 Berettyóújfalu (Hajdú-Bihar county)
 – Herpály, 43, 47, 101, 117, 130, 158, 432
 – Szilhalom, 158
 Berhida (Veszprém county), 243
 Berkesz (Szabolcs-Szatmár-Bereg county), 170
 Besenyszög (Jász-Nagykun-Szolnok county)
 – Fokoru, 178, 179
 Bezenye (Győr-Moson-Sopron county), 284
 Békés (Békés county), 158, 383, 432
 Bélápátfalva (Borsod-Abaúj-Zemplén county), 314
 Bia (Pest county), 243
 Bicsérd (Baranya county), 243, 245
 Biharkeresztes (Hajdú-Bihar county), 173
 – Ártánd, 296
 – Ártánd-Nagyfarkasdomb, 335, 341
 Biharugra (Békés county), 178
 Bikács (Tolna county)
 – Belső-sziget, 377
 Boba (Vas county), 187
 Bodrogkeresztúr (Borsod-Abaúj-Zemplén county), 19, 120, 173
 – Henye, 87
 Boldogkőváralja (Borsod-Abaúj-Zemplén county), 118
 Bozsok (Vas county), 235
 Bócsa (Pest county), 305
 Bölske (Tolna county), 22, 23, 24, 25, 143, 152, 153, 155, 161
 – Szentandrás-pusztá, 209
 Börcs (Győr-Moson-Sopron county)
 – Paphomlok-dűlő, 165, 166
 Brigetio → Szőny

* Names in *italics* denote the classical or medieval name of a given locality.

- Budajenő (Pest county), 182
 Budakalász (Pest county), 126, 135, 136, 236, 244, 254, 303, 304, 305, 307, 308, 311
 – Dolina, 237
 Budapest
 – Albertfalva, 210, 211, 212, 248
 – Angyalföld, 178, 179
 – *Aquincum*, 16, 19, 20, 23, 28, 29, 30, 50, 206, 209, 210, 212, 215, 218, 219, 220, 222, 223, 224, 227–229, 232, 233, 234, 235, 236, 237, 239, 244, 245, 246, 248, 249, 250, 251, 252, 253, 255, 256, 257, 289, 418, 435, 436, 438
 – Aranyhegyi-árok, 228
 – Bem Square, 211
 – Békásmegyer, 142, 164, 167, 168, 171, 236, 237, 241, 244, 245
 – Bogdáni Road, 50
 – Buda, 348, 366, 383, 395, 396, 397, 398, 399, 403, 406, 408, 409, 410
 – Buda Castle, 67, 349, 355–359, 364, 367, 380, 403, 436
 – Budakeszi-Tangazdaság, 120
 – Budaszentlőrinc, 374
 – Budaújlak, 30
 – *Contra Aquincum*, 33
 – Corvin Square, 366
 – Csepel Island, 66
 – Csúcshegy, 30
 – Csúcshegy–Kaszás-dűlő, 236, 237
 – Farkasrét, 118
 – Filatorigát, 30
 – Flórián Square, 17
 – Gazdagrét, 255
 – Gellérthegey, 184, 199, 200, 241
 – Hajógyár Island, 24, 248
 – Jablonka Road, 238
 – Március 15 Square, 212
 – Meggyfa Street, 420
 – Nagytétény, *Campona*, 23, 210, 211, 435
 – Óbuda, 66, 173, 348, 349, 353, 355, 364, 365, 367, 380, 383
 – Pest, 367, 383, 395, 396, 406, 407
 – Rákospalota, 66
 – Rákospalota, 433
 – Római-part, 232, 234
 – Sujtás Street, 50
 – Tabán, 241, 245
 – Vihar Street, 238
 – Víziváros, 209
 Bugyi (Pest county)
 – Kavicsbánya, 57
 Buj (Szabolcs-Szatmár county), 182
 Buják (Nógrád county), 161
 Bujánháza (Boinești, Romania), 271
 Bükkzentlászló (Borsod-Abaúj-Zemplén county), 199
 – Nagysánc, 165

C

- Campona* → Budapest–Nagytétény
Carnuntum → Deutsch-Altenburg
Castra ad Herculem → Pilismarót
 Cegléd (Pest county), 181
 Celldömölk (Vas county), 219
 – Sághegy, 172, 173, 174, 185, 191
Cibalae → Vinkovci
 Cikádor (Bátaszék, Tolna county), 373
Cirpi → Dunabogdány
Crumerum → Nyergesújfalu

Cs

- Csabdi (Fejér county)
 – Télizöldes, 61
 Csabrendek (Veszprém county), 194

- Csanytelek (Csongrád county)
 – Újhalastó, 101, 180, 182
 Csáford (Zala county), 131, 133
 Csákberény (Fejér county), 306
 Csákvár (Fejér county), 90
 – *Floriana*, 243, 289, 290, 291
 Csárdaszállás (Békés county), 182
 Csátalja (Bács-Kiskun county)
 – Vágotthegey, 383
 Csekej (Čakajovce, Slovakia), 325
 Csengele → Szeged–Csengele
 Csengersima (Szabolcs-Szatmár-Bereg county), 268, 271, 278, 279, 280
 Cserszegtomaj (Zala county), 201
 Csobaj (Borsod-Abaúj-Zemplén county), 199
 Csobánka (Pest county), 243
 Csomaköz (Ciumești, Romania), 95
 Csongrád (Csongrád county), 287
 – Bokros, 101
 – Felgyő, 325, 426
 Csopak (Veszprém county), 244
 Csorna (Győr-Moson-Sopron county), 287
 Csorva (Csongrád county), 164, 170
 Csóka (Čoka, Serbia), 305
 Csólyospálos (Csongrád county)
 – Csólyospusztá, 390, 391
 Csöngö (Vas county), 187

D

- Dabronc (Veszprém county)
 – Ötvöpusztá, 292, 293
 Daruvár, *Municipium Iasorum/Aquae Iasae* (Daruvár, Croatia), 222
 Debrecen (Hajdú-Bihar county)
 – Fancsika, 171, 266
 Derecske (Hajdú-Bihar county), 173, 296
 Deszk (Csongrád county), 100, 161, 168, 169, 288, 306
 Deutsch-Altenburg, *Carnuntum* (Austria), 209, 215, 218, 222, 223, 233, 249, 250
 Dinnyés (Fejér county), 178
 Diósd (Pest county), 168
 Diósgyőr (Borsod-Abaúj-Zemplén county), 378, 379, 380, 435, 439
 Doboz (Békés county), 21, 165, 177, 178, 325
 – Hajdúirtás, 383
 Dombóvár (Baranya county), 410
 Domony (Pest county), 168
 Donji Petrovci, *Bassianae* (Serbia), 222, 223
 Dörög (Komárom-Esztergom county)
 – Hosszúrétek, 237
 Dömös (Komárom-Esztergom county), 90, 244, 245
 Drégelypalánk (Nógrád county), 382
 Drnovo, *Neviodunum* (Slovenia), 222
 Dunaalmás (Komárom-Esztergom county), 168
 Dunabogdány, *Cirpi* (Pest county), 210, 212
 Dunaföldvár (Tolna county), 143, 215, 382, 383
 Dunaharaszti (Pest county), 272
 Dunakeszi (Pest county)
 – Székesdűlő, 67
 Dunakömlőd (Tolna county), 168, 178
 – *Lussonium*, 209, 210, 211, 212, 213, 214, 425
 Dunapataj (Bács-Kiskun county)
 – Bakodpusztá, 294
 Dunapentele → Dunaújváros
 Dunaszekcső, *Lugio* (Baranya county), 209, 241–242, 249
 Dunaszentmiklós (Komárom-Esztergom county)
 – Hosszúvontató, 118
 Dunaújváros (Fejér county), 19, 143, 151, 155, 293, 306, 307, 410, 420
 – *Intercisa*, 16, 21, 210, 211, 213, 214, 215, 233, 235, 246, 247, 248, 249, 250, 251, 252, 253, 255, 287
 – Kosziderpadlás, 152, 155, 161, 174
 – Öreghegy, 383

E

- Edde (Somogy county), 258
 Edelény (Borsod-Abaúj-Zemplén county)
 – Borsod earthen fort, 67, 326, 327, 328, 329, 330, 372, 383
 Eger (Heves county), 372, 380, 407, 413, 439
 – Kőporos-tető, 84
 Egerlővő (Borsod-Abaúj-Zemplén county), 297
 Egyek (Fejér county), 162
 Egyházasdengeleg (Nógrád county), 199
Emona → Ljubljana
 Endrőd (Békés county), 181
 – Pap-halom, 40
 – Szujókereszt, 273
 Eperjes (Csongrád county), 296, 311
 Ercsi (Fejér county), 214
 Erdőbénye (Borsod-Abaúj-Zemplén county)
 – Sás-patak, 118, 119
 Erdőtelek (Heves county), 390
 Eszék, *Mursa* (Osijek, Croatia), 209, 222, 224
 Esztergom (Komárom-Esztergom county), 348, 350, 352–354, 364, 365,
 367, 372, 380, 381, 383, 395, 397, 409, 435, 438
 – Gyurgyalag, 86
 – Ispitahegy, 168
 – *Solva*, 210, 212, 214
 – Szentgyörgymező, 325
 – Szenttamás-hegy, 409
 – Vár(hegy), 199
 Ete (Dacs, Tolna county), 21, 369–370
 Écs (Győr-Moson-Sopron county), 27, 202
 Érd (Pest county), 15, 82
 Érdliget (Pest county)
 – Hamzsabég, 244
 Érsekújvár (Nové Zámky, Slovakia), 325

F

- Fajsz (Bács-Kiskun county), 168
 Farkasgyepű (Veszprém county), 170
 Fehérvársurgó (Székesfehérvár, Fejér county), 184
 Fejéregyháza (Pest county), 340
 Feldebrő (Heves county), 374
 Felsőgöd (Pest county), 267
 Felsőtárkány (Heves county), 374
 – Várhegy, 165
 Felsőtöbörzsők (Fejér county), 390
 Fertőrákos (Győr-Moson-Sopron county), 227
 – Alsóültetvény-dűlő, 237, 244
 Fertőszentmiklós (Győr-Moson-Sopron county), 299, 301
 Fiad (Somogy county)
 – Kérpuszt, 323
Floriana → Csákvár
 Fonyód (Somogy county)
 – Béltelep, 66
 Függő (Borsod-Abaúj-Zemplén county), 178
 Füzesabony (Heves county), 101
 – Gubakút, 66, 103–104
 – Kettőshalom, 177
 – Öregdomb, 19, 156–157, 177
 – Pusztaszikszó, 133, 134

G

- Galánta (Galanta, Slovakia), 325
 Galgahévíz (Pest county)
 – Szentandrás-part, 27
 Galgóc (Hlohovec, Slovakia), 321
 Garabonc (Zala county)
 – Ófalu, 312
 Gáborján (Hajdú-Bihar county), 158

- Gáta (Győr-Sopron-Moson county), 19
 Gáva (Szabolcs-Szatmár-Bereg county), 294
 Gellénháza (Zala county), 102
 Gellért Hill (Budapest), 224, 241, 245
 Gelsesziget (Zala county), 258
 Gergelyugornya (Szabolcs-Szatmár-Bereg county), 311, 432
Gerulata → Oroszvár
 Gégyén (Szabolcs-Szatmár-Bereg county), 337
 Gibárt (Borsod-Abaúj-Zemplén county), 271
 Gőr (Vas county)
 – Kápolnadomb, 41, 43, 164, 165, 172, 184
Gorsium → Tác
 Gorzsa → Hódmezővásárhely–Gorzsa
 Gönc (Borsod-Abaúj-Zemplén county), 375

Gy

- Gyálarét (Szeged, Csongrád county), 100
 Gyenesdiás (Zala county), 304, 306, 308
 Gyirmót (Győr-Moson-Sopron county), 299
 Gyoma (Békés county), 115, 268, 270, 276, 277
 – site 133, 61, 62
 – Őzed, 288
 Gyöngyös (Heves county), 181, 182, 367
 Gyöngyöshalász (Heves county)
 – Encspuszt, 59
 Gyöngyöspata (Heves county), 330
 Gyöng (Tolna county), 301
 Györe (Tolna county), 112
 Győr (Győr-Moson-Sopron county), 313, 330, 372, 383
 – *Arrabona*, 209, 213, 218, 220, 247, 252, 289
 – Kálvária, 246
 – Káptalan Hill, 364
 – Szabadrétdomb, 127, 135
 – Széchenyi Square, 246
 – Újszállás, 194
 Győrújbarát (Győr-Moson-Sopron county)
 – Nagybarát, 187
 Gyula (Békés county), 406, 408
 – Castle, 381, 383
 – Törökzug, 67
 Gyulafirátót (Veszprém county), 374
 – Pogánytelek, 236, 237, 238
 Gyulavári (Békés county), 294

H

- Hajdúbagos (Hajdú-Bihar county), 170
 Hajdúböszörmény (Hajdú-Bihar county)
 – Szentgyörgypuszt, 171
 Hajdúdorog (Hajdú-Bihar county)
 – Gyulás, 336, 337
 – Temetőhegy, 336, 342
 Hajdúsámson (Hajdú-Bihar county), 168
 Hajdúszoboszló (Hajdú-Bihar county), 173
 Halimba (Veszprém county)
 – Cseres, 323, 341, 342
 Hant (Tolna county), 259
 Harka (Győr-Moson-Sopron county)
 – Kányaszurdok, 244
 Hatvan (Heves county), 131
 – Gombospuszt, 267
 – Strázsahegy, 145, 148
 Hács (Somogy county)
 – Béndekpuszt, 283, 293, 383
 Hárskút (Veszprém county)
 – Édesvízmajor, 118, 119
 Hegyeshalom (Győr-Moson-Sopron county), 385
 Hegykő (Győr-Moson-Sopron county), 299
 Hencida (Hajdú-Bihar county), 130, 133

Herculia → Szabadbattyán

Hernádkak (Borsod-Abaúj-Zemplén county), 169, 170

Herpály → Berettyóújfalu–Herpály

Heténypusztá → Alsóhetény

Hévíz-Egereg (Zala county), 244

Hódmezővásárhely (Csongrád county), 100, 113, 161, 177

– Gorzsa, 70, 101, 106–107, 108, 115, 296, 432

– Kakasszék, 270

– Kishomok, 195, 296, 297

– Kopáncs-tanya, 113

– Kőkénydomb, 101, 115, 116

– Nagysziget, 341, 342

Homokrév (Mokrin, Serbia), 304

Hortobágy (Hajdú-Bihar county)

– Árkus, 309

Horvátkimle (Győr-Moson-Sopron county), 211

Hosszúhetény (Baranya county), 236, 237

Hosszúvölgy (Zala county), 243

Hőgyész (Tolna county), 287

Hunya (Békés county), 311

I

Igar (Fejér county), 306

Ikervár (Vas county), 325

Ikrény (Győr-Sopron county), 66

Inoka (Jász-Nagykun-Szolnok county), 390

Inota (Veszprém county), 258, 259, 260, 261

Intercisa → Dunaújváros

Iovia → Alsóhetény

(Ipoly)Damásd (Nógrád county), 382

Ipolykiszkeszi (Malé Kosihiy, Slovakia), 325

Ipolytölgyes (Pest county), 270

Istállóskő Cave (Szilvásvárad, Heves county), 84, 85, 90, 91

Iván (Győr-Moson-Sopron county), 197

Ivác (Vas county), 261

Ivácsa (Fejér county), 169, 306

Izsák (Bács-Kiskun county)

– Balázspusztá, 343

J

Ják (Győr-Moson-Sopron county), 439

Jankovich Cave (Bajót, Komárom-Esztergom county), 82, 83, 90

Jánoshida (Jász-Nagykun-Szolnok county)

– Berek, 162–163

– Portelek, 25

Jánosszállás (Csongrád county), 270

Jászapáti (Jász-Nagykun-Szolnok county)

– Nagyállás, 309

Jászágó (Jász-Nagykun-Szolnok county), 393

Jászberény (Jász-Nagykun-Szolnok county), 93, 95, 293

Jászdózsa (Jász-Nagykun-Szolnok county)

– Kápolnahalom, 146–147, 148, 150, 170, 174

– Négyszállás, 392, 393

Jászladány (Jász-Nagykun-Szolnok county), 131

Jásztelek (Jász-Nagykun-Szolnok county), 93, 94, 95

Juta (Somogy county), 258

K

Kajdacs (Tolna county), 299

Kakasd (Tolna county), 178

Kalocsa (Bács-Kiskun county), 372

Kapolcs (Veszprém county), 293

Kapornak (Krplivnik, Croatia), 382

Kaposvár (Somogy county), 313

Karcag (Jász-Nagykun-Szolnok county)

– Örgöndaszentmiklós, 392, 394

Kardoskút (Békés county), 270

– Hatablak, 383, 432, 433

Karos (Borsod-Abaúj-Zemplén county)

– Eperjesszög, 325, 335, 340, 341

– Tobolyka, 328

Katafa (Vas county), 219, 220, 257

Kál (Heves county), 338

Kápolnásnyék (Fejér county), 301

Kecel (Pest county), 305

– Rózsaberek, 58

– Tőzegtelep, 58

Kehida (Zala county), 304, 305

Kelemér (Borsod-Abaúj-Zemplén county), 54

Kemenesszentpéter (Veszprém county), 220, 258, 259, 261

Kengyel (Jász-Nagykun-Szolnok county), 170, 296

– Halastó, 383

Kerekegyháza (Bács-Kiskun county), 432

Keszthely (Zala county), 170, 287

– Apátdomb, 191

– Fenéki Road, 300, 301

– Fenékpusztá, 70, 284, 287, 290, 292, 305, 306

– Fenékpusztá, *Valcum?*, 215, 216, 217, 218, 246, 247, 251

– Úsztató, 197

Kékce (Szabolcs-Szatmár-Bereg county), 271, 278

Kékesd (Baranya county), 252

Kékkút (Veszprém county), 237, 238

Kétegyháza (Békés county), 137

Kétpó (Jász-Nagykun-Szolnok county), 337

Kézdivásárhely (Țirgu Secuiesc, Romania), 364

Kilimán (Zala county)

– Felsőmajor, 291

Királyhida (Bruckneudorf, Austria), 236, 238

Kisapostag (Fejér county), 214

Kisköre (Heves county), 296, 420

– Gát, 108, 109

Kiskundorozsma (Csongrád county)

– Nagyszék, 66

Kiskunmajs (Bács-Kiskun county)

– Kígyóspusztá, 390, 391

Kismarton (Eisenstadt, Austria), 396

– Várhegy (Burgstall), 378

Kismákfa (Vas county), 290

Kisselyk (Șeica Mică, Romania), 295

Kisterenye (Nógrád county), 171

Kisújbánya (Baranya county)

– Szamárhegy, 118, 120

Kisvárd (Szabolcs-Szatmár-Bereg county), 271, 278

Kiszombor (Csongrád county), 161, 296, 336, 337

Kláráfalva (Csongrád county)

– Hajdova, 161

Kolozsvár (Cluj-Napoca, Romania), 311

Komló (Baranya county)

– Mecsekjános, 236

Kompolt (Heves county), 66, 177

– Kistér, 268, 270, 276

– Kistéri-tanya, 276, 277

Korlát (Borsod-Abaúj-Zemplén county)

– Ravaszlyuktető, 118

Kosd (Pest county), 194, 195, 201

Kórós (Baranya county), 168

Kölesd (Tolna county), 390

Kölked (Baranya county), 21, 305, 426

– Feketekapu, 304, 307

Körmend (Vas county), 219, 365, 369, 396

Környe (Komárom-Esztergom county), 305

– *Vincentia* (Komárom-Esztergom county), 215, 216, 217

Körösladány (Békés county)

– Vermes, 246

Kőszeg (Vas county), 364, 380, 383

Kőszegszerdahely (Vas county), 235

Kővágószőlős (Baranya county), 236, 237, 238, 251

Krasznokvajda (Borsod-Abaúj-Zemplén county), 171
 Kunágota (Békés county), 302
 Kunbábony (Bács-Kiskun county), 304
 Kunszentmárton (Jász-Nagykun-Szolnok county), 306, 390
 Kunszentmiklós (Bács-Kiskun county), 169, 178
 Kunsziget (Győr-Sopron-Moson county)
 – Toronyvár-dűlő, 24
 Kurd (Tolna county), 172
 Külsővat (Veszprém county), 244, 246, 400

L

Ladánybene (Bács-Kiskun county)
 – Bene-pusztas, 70, 321
 Lajosmizse (Bács-Kiskun county), 164
 – Kónya-major, 273
 Lasztóc (Lastovce, Slovakia), 271
Lauriacum → Lorch
 Lábatlan (Komárom-Esztergom county)
 – Margittető, 118
 – Pisznice, 118
 Lánycsók (Baranya county), 102, 110, 132
 Lászlófalva (Bács-Kiskun county)
 – Szentkirály, 43, 67, 68, 383, 390, 391, 392, 400, 432
 Lengyel (Tolna county), 99, 110, 117
 – Földvár, 171
 – Sác, 102
 Lengyeltóti (Baranya county), 287
 – Tatárvár, 168
 Lébény (Győr-Moson-Sopron county), 287
 – Bille-domb, 66, 311, 383
 Lébényszentmiklós (Győr-Moson-Sopron county)
 – Barátföldpuszta, *Quadrata*, 24, 210, 211, 212
 Litér (Veszprém county), 195, 220
 Ljubljana, *Emona* (Slovenia), 218, 221
 Lorch, *Lauriacum* (Austria), 302
 Lovas (Veszprém county), 83, 91
 – Mackóbánya, 118
 Lovasberény (Fejér county), 151
 Lövöld (today Városlőd, Veszprém county), 374, 439
 Ludas (Heves county), 165
Lugio → Dunaszekcső
Lussonium → Dunakömlőd

M

Madaras (Bács-Kiskun county), 339
 Magyarhomorog (Békés county), 131, 132, 342, 426
 Majs (Baranya county), 325, 342
 Malomfalva (Morești, Romania), 296
 Maroskarna (Blandiana, Romania), 312
 Maroslele (Csongrád county), 100
 Marosvásárhely (Tîrgu Mureș, Romania), 296, 364
 Marosveresmart (Unirea, Romania), 296
Matrica → Százhalombatta
 Máriabesnyő (Pest county), 72
 Máriakálnok (Győr-Moson-Sopron county), 24
 Mártély (Csongrád county), 160
 Mátészalka (Szabolcs-Szatmár-Bereg county), 311
 Mátraszele (Nógrád county), 181, 182
 Mátraszentimre (Heves county)
 – Ágasvár, 165
 Mecseknádasd (Baranya county), 382, 409
 Medina (Tolna county), 102
 Megyaszó (Borsod-Abaúj-Zemplén county), 169
 – Szelestező, 88
 Mende (Pest county), 152
 Mezőbánd (Band, Romania), 296, 306
 Mezőcsát (Borsod-Abaúj-Zemplén county), 136, 137, 170, 177
 Mezőkászony (Kasony, Ukraine), 294

Mezőkeresztes (Borsod-Abaúj-Zemplén county)
 – Cethalom, 296
 – Zöldhalompusztas, 179, 180, 182
 Mezőkövesd (Borsod-Abaúj-Zemplén county), 101
 – Mocsolyás, 294
 Mezőlak (Veszprém county), 182
 Mezőörs (Győr-Sopron-Moson county), 16
 Mezőszemere (Heves county), 265, 266, 277
 Mezőszilas (Fejér county), 261
 Mezőtárkány
 – Kettőshalom, 157
 Méhi (Včelince, Slovakia), 135
 Méhtelek (Szabolcs-Szatmár-Bereg county), 100
 Ménfőcsanak (Győr-Moson-Sopron county), 50, 151, 194, 195, 200–202,
 219, 235, 241, 242, 243, 247, 293, 300
 – Szeles-dűlő, 384
 Miskolc (Borsod-Abaúj-Zemplén county), 271
 – Ávas, 118
 – Diósgyőr, 182
 – Kőlyuk Cave, 101
Mogentiana → Somlóvásárhely
 Mogyorósbánya (Komárom-Esztergom county)
 – Újfalusi Hills, 88
 Mohács (Baranya county), 286, 299, 301
 Moigrád (Moigrad, Romania), 131
Mosaburg → Zalavár
 Mosdós (Somogy county), 258, 260
 – Pusztasárákánytó, 168
 Moson (Győr-Moson-Sopron county), 330
 Mosonmagyaróvár (Győr-Moson-Sopron county)
 – *Ad Flexum*, 211
 – Németdűlő, 67
 Mosonszentmiklós (Győr-Moson-Sopron county), 151
 – Egyéni földek, 104–106
 Mórág (Tolna county), 110, 111, 112
 Mörbisch am See (Austria), 202
 Mözs (Tolna county), 287
 – Icséi-dűlő, 291, 292
 Muhi (Borsod-Abaúj-Zemplén county), 50–51, 182, 194, 370–372, 403–
 405, 413
Municipium Faustianensium (Croatia), 223
Municipium Iasorum/Aquae Iasae → Daruvár
Municipium Volgensium, 222
Mursa → Eszék
Mursella → Árpás

N

Nadap (Fejér county), 172
 – Kőbánya, 86
 Nagypád (Baranya county), 168
 Nagybátany (Nógrád county), 170
 Nagyberki (Somogy county), 170
 – Szalacska, 183, 185, 189, 199
 Nagydém (Veszprém county), 171
 Nagyecséd (Szabolcs-Szatmár-Bereg county), 51
 Nagyigmánd (Komárom-Esztergom county)
 – Thaly-pusztas, 237
 Nagykamarás (Békés county)
 – Bánkút-Rózsamajor, 389
 Nagykanizsa (Zala county), 258, 378, 381
 Nagykőrös (Pest county), 152–153, 155, 161
 Nagylózs (Győr-Moson-Sopron county), 243
 Nagymágocs (Csongrád county), 276
 Nagyréce (Zala county), 258
 Nagyrév (Jász-Nagykun-Szolnok county)
 – Zsidóhalom, 143, 144–145
 Nagyszentmiklós (Sînnicolau Mare, Romania), 302, 311, 419
 Nagyszombat (Trnava, Slovakia), 364
 Nagytarcsa (Pest county), 182

- Nagyút (Heves county), 165
 Nagyvárád (Oradea, Romania), 373
 Nagyvarsány (Szabolcs-Szatmár-Bereg county), 271
 Nagyvázsöny (Veszprém county)
 – Csepely, 383
 Nádasd (Vas county), 220
 Nemeskér (Győr-Moson-Sopron county), 314
 Nemesrempehollós (Vas county), 244
 Nemesvámos
 – Baláca (Veszprém county), 206, 236, 237, 238, 239, 246, 258, 260, 261, 435
 – Baláca-Likas Hill, 259
 Neszmély (Komárom-Esztergom county), 171
Neviodunum → Drnovo
 Némethbánya (Veszprém county), 164, 165, 166
 Nyergesújfalu, *Crumerum* (Komárom-Esztergom county), 214
 Nyitra (Nitra, Slovakia), 325, 372
 Nyírácsád (Hajdú-Bihar county), 173, 335
 Nyírbátor (Szabolcs-Szatmár-Bereg county), 439
 Nyíregyháza (Szabolcs-Szatmár-Bereg county)
 – Mandabokor, 180, 181, 182
- O**
- Oggau (Austria), 202
 Orci (Somogy county), 258
 Orosháza (Békés county), 180, 338
 Oroszvár, *Gerulata* (Rusovce, Slovakia), 243
 Ostffyasszonyfa (Vas county), 241
 Ozora (Tolna county), 409, 439
 – Castle, 378, 380, 382, 383, 439
 – Tótipuszt, 302, 306
 Óbesenő (Dudești Veche, Romania), 108
 Ócsa (Pest county), 374
 Ófehértó (Szabolcs-Szatmár-Bereg county), 173
 Ópályi (Szabolcs-Szatmár-Bereg county), 170, 171
 Ópusztaszer (Csongrád county), 383, 433
 Ószentiván → Tiszasziget
 Ózd (Borsod-Abaúj-Zemplén county)
 – Center, 135, 136
 – Stadion, 21, 271
- Ö**
- Öcsöd (Szolnok county), 304
 – Kováshalom, 43, 47
 Örménykút (Békés county), 288, 311
 Örvényes (Veszprém county), 236, 238, 239, 240, 246
 Öskü (Veszprém county), 234
 – Bánta-puszt, 244
 Ócsény, *Alisca* (Tolna county), 215
- P**
- Paks (Tolna county), 23, 209
 Pannonhalma (Győr-Moson-Sopron county), 220, 286, 436, 439
 Pácin (Borsod-Abaúj-Zemplén county), 171
 Pásztó (Nógrád county), 367, 373, 383, 396
 Pátka (Fejér county), 234, 258
 Páty (Pest county), 243
 Penc (Pest county), 182
 Perjámos (Periam, Romania), 161
 Perkáta (Fejér county)
 – Kőhalmi-dűlő, 393, 394
 Perse (Prša, Slovakia), 325
 Petőháza (Győr-Moson-Sopron county), 246
 Pécs (Baranya county), 364, 367, 372, 399, 406, 407, 408, 409, 435, 439
 – Jakabhegy, 171, 172, 177, 178, 183, 185
 – *Sopiana*, 208, 218, 220, 223, 224, 230–231, 251, 255, 257, 436, 437
 – Üszögpuszta, 286
 Pécska (Pecica, Romania), 161
 Pécsvárád (Baranya county), 395
 Piliny (Nógrád county), 170, 182
 Pilis (Pest county), 375
 Piliscsév (Komárom-Esztergom county), 220, 241
 Pilismarót (Komárom-Esztergom county), 89, 90, 135, 214
 – Basaharc, 90, 135, 136, 194
 – *Castra ad Herculem*, 213
 – Malompatak, 246
 – Pálrét, 90
 – Szobi rév, 129
 Pilisszántó (Pest county), 220
 Pilisvörösvár (Pest county), 243
 Pinchehely (Tolna county), 243
 Pitvaros (Csongrád county), 100, 168
Poetovio → Ptuj
 Polgár (Hajdú-Bihar county), 197, 268
 – Csőszhalom, 43, 47, 59, 66, 101, 103, 423
 – Csőszhalom-dűlő, 276
 – Kengyelköz, 276, 277
 – site 29, 164
 – site M-3/1, 164
 Pomáz (Pest county)
 – Lugi-dűlő, 236
 Poroszló (Heves county)
 – Aponhát, 165
 Pölöske (Zala county), 369
 Pördefölde (Zala county), 258
 Pötréte (Zala county), 172
 Pötsching (Austria), 202
 Prügy (Borsod-Abaúj-Zemplén county), 178
 Ptuj, *Poetovio* (Slovenia), 205, 218, 222, 235, 250
 Pusztægres (Fejér county)
 – Pusztahatvan, 178, 179
 Pusztaiadványháza (Jász-Nagykun-Szolnok county), 19, 126
 Pusztaszabolcs (Fejér county)
 – Felsőcikola, 258
 Pusztaszentlászló (Zala county), 132, 325, 342
 Pusztaszikszó (Heves county), 157
 Püspökhatvan (Pest county), 87
- Q**
- Quadrata* → Lébényszentmiklós-Barátföldpuszta
Quadriburgium/Triccianae → Ságvár
- R**
- Rakamaz (Szabolcs-Szatmár-Bereg county), 334, 336, 339, 341
 Rábaszentandrás (Győr-Moson-Sopron county), 219
 Rácalmás (Fejér county), 214
 Ráckeve (Pest county), 369
 Rákóczi (Jász-Nagykun-Szolnok county), 170, 296
 Recsk (Heves county), 130, 171
 Regöly (Tolna county), 183, 241, 286, 287
 – Földvár, 168, 171, 184, 199, 200
 – Fűzfás, 197
 – Kesziszállás, 172
 Remete, Upper Cave (Nagykovácsi, Pest county), 83
 Rezi (Veszprém county), 194, 237
 Répcelak (Vas county), 293
 Rinyaszentkirály (Somogy county), 171, 172
 Rohonc (Austria), 235
 Rozsály (Szabolcs-Szatmár-Bereg county), 170
 Röske (Csongrád county)
 – Lúdvár, 100
 Rudabánya (Borsod-Abaúj-Zemplén county), 71, 130

S

- Sajóabony (Borsod-Abaúj-Zemplén county), 83
 Sajókeresztúr (Borsod-Abaúj-Zemplén county), 271
 Sajópetri (Borsod-Abaúj-Zemplén county), 197
 Sajoszentpéter (Borsod-Abaúj-Zemplén county), 182
 Salgótarján (Nógrád county)
 – Pécskő, 129
Salla → Zalalövő
 Sarud (Heves county)
 – Báb, 383
 Sarvaly (Veszprém county), 388, 432
Savaria → Szombathely
Sághegy → Celldömölk–Sághegy
 Ságvár (Somogy county), 21, 88, 243
 – *Quadriburgium/Triccianae*, 215, 216, 217, 220, 251
 – Tömlőc Hill, 217
 Sály (Borsod-Abaúj-Zemplén county)
 – Lator, 325, 383
 – Őrsúr vára, 330
 Sándorfalva (Csongrád county), 339
 – Eperjes, 273, 288
 Sáradsadány (Borsod-Abaúj-Zemplén county), 170, 173
 Sárbogárd (Fejér county), 169, 342
 – Tinódpuszt, 389, 390
 Sármellék (Zala county), 132
 – Égenföld, 129, 136, 291
 Sárosd (Fejér county), 393
 Sárospatak (Borsod-Abaúj-Zemplén county), 413
 Sárretudvari (Hajdú-Bihar county)
 – Hízóföld, 334, 335
 – Órhalom, 141, 168
 Sárszentágota (Fejér county), 28, 211
 Sárvár (Vas county), 219, 261, 313
Scarbantia → Sopron
 Ščitarjevo, *Andautonia* (Croatia), 222
 Sé (Vas county), 116
 – Doberdó, 198
 Siklós (Baranya county), 406, 439
 Simontornya (Tolna county), 169
Singidunum → Belgrád
Sirmium → Szévaszentdemeter
 Sirok (Heves county), 177, 271
Siscia → Sziszek
 Sistaróc (Șiștarovăț, Romania), 32
 Sokorópátka (Győr-Moson-Sopron county), 237
Solva → Esztergom
 Solymár (Pest county), 152, 155, 161
 Somlóhegy (Veszprém county), 185, 186
 Somlóvásárhely, *Mogentiana* (Veszprém county), 222
 Somogyaszaló (Somogy county), 258
 Somogyjád (Somogy county), 258
 Somogyvár (Somogy county), 329, 364, 374
 – Kapuhegy, 141
 Somogyzsitva (Somogy county), 219
Sopianae → Pécs
 Sopron (Győr-Moson-Sopron county), 313, 330, 364, 365, 367–368, 372, 383, 396–397
 – Bánfalva, 235
 – Bécsidomb, 194, 195, 198, 201
 – Burgstall (Várhely), 19, 183, 185, 186, 188, 189, 190, 199
 – Hátulsó Street, 255
 – Krautacker, 42, 43, 184, 188, 190–191, 194, 196, 197, 198
 – *Scarbantia*, 219, 222, 223, 224, 226–227, 233, 235, 236, 244, 245, 246, 247, 248, 289
 – Warischberg (Károlymagaslat), 185, 190
 Sopronbánfalva (Győr-Moson-Sopron county), 242
 Sorokpolány (Vas county), 219, 220, 325
 Söjtör (Zala county), 258, 308, 309
 Subalyuk Cave (Cserépfalu, Borsod-Abaúj-Zemplén county), 71, 83

Sümege (Veszprém county)

- Mogyorósdomb, 118, 119
 – Sarvaly, 383
 Süttő (Komárom-Esztergom county), 183, 185, 189
- Sz**
- Szabadbattyán (Fejér county), 293
 – *Herculia*, 208, 220
 Szabadszállás (Bács-Kiskun county), 180
 Szabolcs (Szabolcs-Szatmár-Bereg county), 372, 383
 – Váralja, 325, 328, 329
 Szajla (Heves county), 164
 Szajol (Jász-Nagykun-Szolnok county)
 – Felsőföld, 108
 Szakály (Tolna county), 241, 242, 243
 Szakony (Győr-Moson-Sopron county), 339, 343
 Szalka (Ipolyzalka, Salka, Slovakia), 162
 Szamosfalva (Someșeni, Romania), 311
 Szanda (Nógrád county), 178
 Szarvas (Békés county), 133, 284, 296, 304
 – Rózsás, 383
 Szászvár (Baranya county), 439
 Szévaszentdemeter, *Sirmium* (Sremska Mitrovica, Serbia), 209, 220, 223, 224, 250
 Százhalombatta (Pest county), 15, 17, 143, 183, 185, 186, 187, 199, 215, 295, 434–435
 – Földvár, 151, 152, 153–154, 155, 161, 169, 170, 174
 – *Matrica*, 210, 252
 Szeged (Csongrád county), 374, 380, 395
 – Algyő, 177
 – Csengele, 390
 – Nagyszéksós (today: Röske–Nagyszéksós), 285, 286
 – Óthalom, 21
 – Szillér, 130
 Szeghalom (Békés county), 336, 337
 – Károlyderék, 168, 169
 Szegvár (Csongrád county)
 – Oromdűlő, 304, 305, 306
 – Tűzköves, 101, 113, 114, 115
 Szécsény (Nógrád county), 51, 67, 182, 374
 Székesfehérvár (Fejér county), 32, 33, 325, 348, 349–351, 364, 365, 383, 395, 396, 408, 417, 438
 Szekszárd (Tolna county), 142, 215, 305, 307, 439
 – Palánk, 22, 64
 Szeleta Cave (Miskolc, Borsod-Abaúj-Zemplén county), 78, 83, 84, 85
 Szelevény (Jász-Nagykun-Szolnok county), 170
 Szentendre (Pest county), 171, 236, 237, 299, 300, 302, 305
 – *Ulcisia Castra*, 210, 211, 213
 Szentes (Csongrád county)
 – Berekhát, 276
 – Vekerzug, 180, 181, 182
 Szentgál (Veszprém county)
 – Tűzköveshegy, 118, 119, 120
 Szentgotthárd (Vas county), 373
 Szentgyörgyvölgy (Zala county)
 – Pityerdomb, 102, 115, 116
 Szentkirályszabadja (Veszprém county)
 – Romkút, 237, 238, 239, 245
 Szentlőrinc (Baranya county), 184, 190
 Szentmargitbánya (St. Margarethen, Austria), 244
 Szentmihály (Michal nad Ľitavou, Slovakia), 325
 Szered (Sereď, Slovakia), 325
 Szerencs (Borsod-Abaúj-Zemplén county), 439
 Szigetszentmárton (Pest county), 126, 136
 Szigetvár (Baranya county), 219, 380, 381, 406
 Szihalom (Heves county)
 – Földvár, 168
 – Pamlényi-tábla, 133
 Szilágysomlyó (Șimleul Silvaniei, Romania), 295

Szilvásvárad (Heves county)
 – Töröksánc, 165
 Sziszek, *Siscia* (Sisak, Croatia), 221, 223, 250
 Szolnok (Jász-Nagykun-Szolnok county), 381, 408, 409, 411
 – Szanda, 108
 – Szandaszőlős, 196
 – Zagyvapart, 181, 297, 298
 Szolyva (Svaljava, Ukraine), 270, 337, 338
 Szombathely (Vas county), 313, 364
 – *Savaria*, 15, 206, 218, 219, 221, 223, 224–226, 233, 234, 235, 236, 244, 247, 248, 250, 251, 252, 253, 255
 Sződliget (Pest county)
 – Csörög, 273
 Szőny, *Brigetio* (Komárom-Esztergom county), 15, 16, 20, 26, 209, 211, 212, 215, 218, 220, 223, 224, 229–230, 232, 233, 235, 237, 244, 246, 249, 252, 254, 255, 423
 Szőreg (Csongrád county), 100, 161, 168, 169, 170, 296

T

Tahitótfalu (Pest county), 245
 Taktabáj (Borsod-Abaúj-Zemplén county), 165
 Tamási (Tolna county), 287, 299, 301
 Tardoskedd (Tvrdošovce, Slovakia), 325
 Tarjánpuszta (Győr-Moson-Sopron county), 307
 Tarnóc (Liptovský Trnovec, Slovakia), 325
 Tarpa (Szabolcs-Szatmár-Bereg county), 173
 Tata (Komárom-Esztergom county)
 – Castle, 16, 378, 380
 – Kálváriadomb, 118, 119
 – Öregtő, 82
 – Porhanyóbánya, 82
 Tatabánya (Komárom-Esztergom county), 193, 432
 – Bánhida, 218
 – Szelim Cave, 90
 Tác, *Gorsium* (Fejér county), 206, 216, 217, 220, 223, 232, 235, 244, 246, 247, 248, 249, 251, 256, 289, 429, 435, 438
 Tápi (Győr-Moson-Sopron county), 304
 Tápi (Csongrád county), 162, 164, 170
 – Kemeneshát, 164
 – Lebő, 101
 Tápiószéle (Pest county), 180
 Tápiószentmárton (Pest county), 180, 182
 Tárnok (Pest county), 220, 243
 Tátika (Veszprém county), 185
 Telkibánya (Borsod-Abaúj-Zemplén county), 130, 367
 Terpes (Heves county), 271
 Téglás (Hajdú-Bihar county), 168, 169
 Tihany (Veszprém county), 374
 – Óvár, 183, 185, 199
 Tiszabезд (Szabolcs-Szatmár-Bereg county), 333, 334
 Tiszacsege (Hajdú-Bihar county), 116
 Tiszadob (Szabolcs-Szatmár-Bereg county), 274
 – Sziget, 288
 Tiszaeszlár (Szabolcs-Szatmár-Bereg county)
 – Bashalom, 335, 336, 339, 383
 – Sinkahegy, 337
 Tiszaföldvár (Jász-Nagykun-Szolnok county)
 – Téglagyár, 274, 277, 288
 Tiszafüred (Jász-Nagykun-Szolnok county), 133, 162, 296, 298, 308, 311, 336, 390
 – Ásotthalom, 157
 – Kender-földek, 170
 – Majoroshalom, 157–158, 169, 170
 Tiszakanyár (Szabolcs-Szatmár-Bereg county), 271, 278
 Tiszakarád (Borsod-Abaúj-Zemplén county), 274, 294
 – Inasa, 293
 Tiszaladány (Borsod-Abaúj-Zemplén county), 168, 169
 Tiszalök (Szabolcs-Szatmár-Bereg county), 21, 294
 – Rázom, 383, 432

Tiszalúc (Borsod-Abaúj-Zemplén county)
 – Sarkadpuszta, 129
 Tiszanána (Heves county), 341
 Tiszapolgár → Polgár
 Tiszasüly (Jász-Nagykun-Szolnok county), 170
 – Éhhalom, 334, 335
 Tiszasziget (Csongrád county), 100, 161
 Tiszaszőlős (Jász-Nagykun-Szolnok county), 131, 133
 Tiszaug (Jász-Nagykun-Szolnok county)
 – Kéménytető, 143–144, 432
 Tiszavalk (Borsod-Abaúj-Zemplén county), 274
 – Tetes, 132
 Tiszavasvári (Szabolcs-Szatmár-Bereg county), 181, 182, 287
 Tokod (Komárom-Esztergom county), 220, 243, 246, 247, 255, 290, 293
 – Erzsébet-akna, 209, 210, 211, 212
 Tolnanémedi (Tolna county), 168
 Toronyalja (Nógrád county), 375
 Tószeg (Jász-Nagykun-Szolnok county)
 – Laposhalom, 19, 45, 46, 143, 161, 168
 – Ökörhalom, 145
 Tököl (Pest county), 135, 171
 Törökkanizsa (Novi Kneževac, Serbia), 335
 Törökszentmiklós (Jász-Nagykun-Szolnok county), 182, 298, 383
 – Surány, 273
 Törtel (Pest county), 169, 287
Triccianae/Quadriburgium → Ságvár
 Trizs (Borsod-Abaúj-Zemplén county)
 – Vörössár, 331, 332
 Túrkeve (Jász-Nagykun-Szolnok county)
 – Móric, 383, 392
 – Terehalom, 43, 65, 158–160, 161, 168, 432, 433

U

Ugod (Veszprém county)
 – Diópuszta, 246
Ulcisia Castra → Szentendre
 Uny (Vas county), 242
 Uzdorbórd (Uzd is now administratively part of Sárszentlőrinc, Borjád is part of Kölesd, Tolna county), 170
 Újhartyán (Pest county), 270
 Újlak (Ilok, Croatia), 378
 Újpalánk (Tolna county), 383, 409
 Újszilvás (Pest county), 272

V

Vajdácska (Borsod-Abaúj-Zemplén county), 171
Valcum → Keszthely–Fenekpuszta
 Vaskeresztes (Vas county), 184
 Vasvár (Vas county), 369, 396
 Vaszar (Veszprém county), 183, 187
 Vác (Pest county), 62, 63, 304, 365, 365, 383, 395, 409
 – White Friars' Church, 69, 71
 – Kavicsbánya, 194, 196
 – Széchenyi Street, 63
 Vácszentlászló (Pest county), 272
 Vál (Fejér county), 171, 382, 409
 Vállaj (Szabolcs-Szatmár-Bereg county), 271
 Váradhegyfok → Nagyvárad
 Várpálot (Veszprém county), 169, 287, 299, 378
 Várvölgy (Zala county)
 – Felsőzsid, 173
 – Kis-Láz-hegy, 172, 174
 Városnamény (Szabolcs-Szatmár-Bereg county), 271
 Velem-Szentvid (today: Velem, Vas county), 165, 172, 173, 174, 184, 185, 191, 235, 423, 433
 Vereb (Fejér county), 321
 Veresegyház (Pest county), 311
 – Ivacs, 383

Verseg (Pest county), 148
 Véglás (Viglas, Slovakia), 378
 Vértesszentkereszt (Fejér county), 374, 439
 Vértesszőlős (Komárom-Esztergom county), 71, 77, 78–81, 435
 Veszprém (Veszprém county), 168, 372, 439
 Veszprémvarsány (Veszprém county), 220
Vetus Salina → Adony
 Vésztő (Békés county)
 – Mágor, 101, 110
 Vienna, *Vindobona* (Wien, Austria), 215, 218, 223
Vincentia → Környe
Vindobona → Vienna
 Vinkovci, *Cibalae* (Croatia), 222, 223, 250
 Visegrád (Pest county), 25, 43, 325, 329, 347, 348, 349, 350, 359–363,
 364, 375–377, 383, 399–402, 403, 423, 432, 435, 438
 – Gizella-telep, 212
 Vlasac (Serbia), 60
 Vonyarcvashegy (Zala county), 237
 Vörösvár (Slovakia), 325
 Vörs (Somogy county), 102, 168, 299
 – Papkert B, 150, 151
 – Tótok dombja, 148–149

Z

Zagyvapálfalva (Nógrád county), 170
 Zajta (Szabolcs-Szatmár-Bereg county), 169
 Zalaegerszeg (Zala county), 102

Zalaháshágy (Zala county), 257
 Zalakomár (Zala county), 304, 310
 Zalalövő, *Salla* (Zala county), 219, 222, 257, 258, 260
 Zalasabab (Zala county), 151
 – Borjúállás-sziget, 314, 316, 317
 Zalaszentbalázs (Zala county), 115, 116, 125
 Zalavár (Zala county), 66, 382, 383, 426
 – Basasziget, 127, 128
 – Mekenye, 132
 – Récéskút, 316
 – Vársziget, *Mosaburg*, 313, 314, 315–316, 383
 Zamárdi (Somogy county), 135, 142, 168
 – Réti földek, 303, 304, 305, 307
 Závod (Tolna county), 283
 Zemplén (Zemplín, Slovakia), 335, 337, 338, 339
 Zengővárkony (Baranya county), 102, 110, 111, 120, 130
 Zirc (Veszprém county), 220, 386
 Zók (Baranya county)
 – Várhegy, 167, 168
 Zólyom (Zvolen, Slovakia), 378

Zs

Zsámbék (Pest county), 439
 Zselicszentjakab (Somogy county), 374
 Zsennye (Vas county), 237
 Zsitvabesenyő (Bešeňov, Slovakia), 325
 Zsujta (Borsod-Abaúj-Zemplén county), 171

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VIII. THE ROMAN PERIOD

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ABBREVIATIONS

AAWG	Abhandlungen der Akademie der Wissenschaften zu Göttingen (Göttingen)	Arrabona	Arrabona. A Győri Xántus János Múzeum Évkönyve (Győr)
ActaAntHung	Acta Antiqua Academiae Scientiarum Hungaricae (Budapest)	ArsHung	Ars Hungarica. A Magyar Tudományos Akadémia Művészettörténeti Kutató Csoportjának Közleményei (Budapest)
ActaArchHung	Acta Archaeologica Academiae Scientiarum Hungaricae (Budapest)	ASC	Archaeologica Slovaca Catalogi (Bratislava)
ActaBiolSzeged	Acta Biologica Szegediensis (Szeged)	AT	Antik Tanulmányok. Studia Antiqua (Budapest)
ActaGeolHung	Acta Geologica Hungarica (Budapest)	AUBSB	Annales Universitatis Budapestinensis de Rolando Eötvös nominatae. Sectio Biologica (Budapest)
ActaHistHung	Acta Historica Academiae Scientiarum Hungaricae (Budapest)	AW	Antike Welt. Zeitschrift für Archäologie und Urgeschichte (Feldmeilen)
ActaMP	Acta Musei Porolissensis (Zalău–Zilah)	BÁMÉ	A Béri Balogh Ádám Múzeum Évkönyve (Széksárd)
ActaMusPapensis	Acta Musei Papensis = Pápai Múzeumi Értesítő (Pápa)	BAR	British Archaeological Reports (Oxford)
ActaOr	Acta Orientalia Academiae Scientiarum Hungaricae (Budapest)	BIA	Bulletin of the Institute of Archaeology (London)
Agria	Agria. Az Egri Múzeum Évkönyve (Eger)	BMA	Bibliotheca Musei Apulensis (Alba Iulia)
AkadÉrt	Akadémiai Értesítő (Budapest)	BMÉ	A Békéscsabai Múzeumegyesület Évkönyve (Békéscsaba)
Alba Regia	Alba Regia. Annales Musei Stephani Regis (Székesfehérvár)	BMMK	A Békés Megyei Múzeumok Közleményei (Békéscsaba)
AnnHN	Annales Historico-Naturales Musei Nationalis Hungarici (Budapest)	BerRGK	Bericht der Römisch-Germanischen Kommission (Berlin)
Antaeus	Mitteilungen des Archäologischen Instituts der Ungarischen Akademie der Wissenschaften (Budapest)	BudRég	Budapest Régiségei (Budapest)
AnthrK	Anthropológiai Közlemények (Budapest)	BUKSZ	Budapesti Könyvszemle (Budapest)
ANRW	Aufstieg und Niedergang der römischen Welt (Berlin–New York)	BVbl	Bayerische Vorgeschichtsblätter (München)
AR	Archeologické Rozhledy (Praha)	CommArchHung	Communicationes Archaeologicae Hungariae (Budapest)
ArchA	Archaeologia Austriaca (Wien)	Cumania	Cumania. A Bács-Kiskun Megyei Múzeumok Közleményei (Kecskemét)
Archaeolingua SerMin	Archaeolingua, Series Minor (Budapest)	DissArch	Dissertationes Archaeologicae ex Instituto Archaeologico de Rolando Eötvös nominatae (Budapest)
ArchÉrt	Archaeologiai Értesítő (Budapest)	DissPann	Dissertationes Pannonicae (Budapest)
ArchHung	Archaeologia Hungarica (Budapest)	DME	A Debreceni Déri Múzeum Évkönyve (Debrecen)
ArchKözl	Archaeologiai Közlemények (Budapest)		
ArchPolona	Archaeologia Polona (Warszawa)		
ArchÖst	Archäologie Österreichs (Wien)		

Dolg	Dolgozatok a Szegedi Tudományegyetem Régiségtudományi Intézetéből (Szeged)		Arbeitsgemeinschaft Für Ur- und Frühgeschichte (Wien)
EAZ	Ethnographisch-Archäologische Zeitschrift (Berlin)	MonArch MPK	Monumenta Archaeologica (Praha)
Eirene	Eirene. Studia Graeca et Latina (Praha)		Mitteilungen der Prähistorischen Kommission der Österreichischen Akademie der Wissenschaften (Wien)
EJA	European Journal of Archaeology (London)		Magyarország Régészeti Topográfiája (Budapest)
EMÉ	Az Egri Múzeum Évkönyve (Eger)	MRT	A Magyar Tudományos Akadémia Társadalmi-Történeti Osztályának Közleményei (Budapest)
ERAUL	Études et Recherches Archéologiques de l'Université de Liège (Liège)	MTAK (II)	Magyar Tudomány (Budapest)
FontesArchPrag	Fontes Archaeologici Pragenses (Praha)	MTud	Művészettörténeti Értesítő (Budapest)
FMS	Frühmittelalterliche Studien. Jahrbuch des Instituts für Frühmittelalterforschung der Universität Münster (Berlin)	MűÉ	Művészettörténeti Füzetek (Budapest)
FolArch	Folia Archaeologica (Budapest)	MűF	A Nógrád Megyei Múzeumok Évkönyve (Balassagyarmat)
FontesArchHung	Fontes Archaeologici Hungariae (Budapest)	NyK	Nyelvtudományi Közlemények (Budapest)
FrÉ	Földrajzi Értesítő (Budapest)	OJA	Oxford Journal of Archaeology (Oxford)
FöldrKözl	Földrajzi Közlemények (Budapest)	OMRTÉ	Az Országos Magyar Régészeti Társulat Évkönyve (Budapest)
GeolHung	Geologica Hungarica (Budapest)		Památky Archeologické (Praha)
HOMÉ	A Herman Ottó Múzeum Évkönyve (Miskolc)	PamArch	Prähistorische Archäologie in Südosteuropa (Kiel)
HOMK	A Miskolci Herman Ottó Múzeum Közleményei (Miskolc)	PAS	Prähistorische Bronzefunde (München)
IKMK	Az István Király Múzeum Közleményei (Székesfehérvár)	PBF	Paulys Realenzyklopädie der klassischen Altertumswissenschaft beg. von G. Wissowa (Stuttgart)
IPH	Inventaria Praehistorica Hungariae (Budapest)	PWRE	Praehistorische Zeitschrift (Berlin–New York)
JAMÉ	A Nyíregyházi Jós András Múzeum Évkönyve (Nyíregyháza)	PraehZeitschr	Régészeti Füzetek (Budapest)
Jelentés	Jelentés. A Kulturális Örökség Igazgatóságának Évkönyve (Budapest)	RégFüz	Régészeti Tanulmányok (Budapest)
JIES	Journal of Indo-European Studies (Hattiesburg, Miss.)	RégTan	Reallexikon der Germanischen Altertumskunde (Berlin–New York)
JMV	Jahresschrift für Mitteldeutsche Vorgeschichte (Berlin)	RGA	Savaria (Szombathely)
JPMÉ	A Janus Pannonius Múzeum Évkönyve (Pécs)	Savaria	Slovenská Archeológia (Bratislava)
JRGZM	Jahrbuch des Römisch-Germanischen Zentralmuseums (Mainz)	SlovArch	Somogyi Múzeumok Közleményei (Kaposvár)
LaurAquin	Laurae Aquincenses memoria Valentini Kuzsinszky dedicatae, I–II. DissPann II:10, 11 (Budapest)	SMK	Soproni Szemle (Sopron)
MAA	Monumenta Avarorum Archaeologica (Budapest)	SSz	Studia Agriensia (Eger)
MÁFIJ	A Magyar Állami Földtani Intézet Jelentései (Budapest)	StAgr	Studia Comitatus (Budapest)
MAGW	Mitteilungen der Anthropologischen Gesellschaft (Wien)	StComit	Studia Archaeologica (Budapest)
MBV	Münchner Beiträge zur Vor- und Frühgeschichte (München)	StudArch	Studia Praehistorica (Sofia)
MFME	A Móra Ferenc Múzeum Évkönyve (Szeged)	StudPraeh	Študijne Zvesti Arheologického Ústavu Slovenskej Akadémie Vied (Nitra)
MFME-StudArch	A Móra Ferenc Múzeum Évkönyve. Studia Archaeologica (Szeged)	ŠtZ	A Szolnok Megyei Múzeumok Évkönyve (Szolnok)
MittArchInst	Mitteilungen des Archäologischen Instituts der Ungarischen Akademie der Wissenschaften (Budapest)	SzMMÉ	A Tapolcai Városi Múzeum Közleményei (Tapolca)
MK	Múzeumi Közlemények (Budapest)	TapolcaVMK	Természettudományi Közlöny (Budapest)
MMMK	A Magyar Mezőgazdasági Múzeum Közleményei (Budapest)	TrK	Universitätsforschungen zur Prähistorischen Archäologie (Bonn)
MNy	Magyar Nyelv (Budapest)	UPA	Varia Archaeologica Hungarica (Budapest)
MÖAG	Mitteilungen der Österreichischen	VAH	A Veszprém Megyei Múzeumok Közleményei (Veszprém)
		VMMK	Veröffentlichungen des Vorgeschichtlichen Seminars Marburg (Marburg)
		VVSM	A Wosinsky Mór Múzeum Évkönyve (Szekszárd)
		WMMÉ	Zalai Gyűjtemény (Zalaegerszeg)
		ZalaiGy	Zalai Múzeum (Zalaegerszeg)
		ZalaiMúz	Zeitschrift für Archäologie (Berlin)
		ZfA	

LIST OF ILLUSTRATIONS

Cover page: Ócsény–Oltovány, excavation of the 14th–16th century *castellum*, 1992. Aerial photo by Zsuzsa Miklós

Upper left corner: Clay idol head from Füzesabony–Gubakút. Gábor Ilon's excavation, photo by Mrs György Lónyai

Lower right corner: Masked bead from Vác, grave 29. Later 3rd century B.C. Magdolna Hellebrandt's excavation (after FITZ 1974, Cat. no. 538)

I. ARCHAEOLOGICAL RESEARCH IN HUNGARY

Frontispiece: "Archaeology", by Károly Ferenczy (1896). Hungarian National Gallery

Map: Ferenc Karacs' archaeological map. Copper engraving, 1800

- Fig. 1. Excavation of a Roman mosaic in Szombathely, 1896. Hungarian National Museum, Archaeological Archives
- Fig. 2. Flóris Rómer. National Office of Cultural Heritage, Photo Archives
- Fig. 3. Arnold Ipolyi. National Office of Cultural Heritage, Photo Archives
- Fig. 4. The exhibition organized on the occasion of the Congress of Prehistory and Protohistory, 1876. Hungarian National Museum, Archaeological Archives
- Fig. 5. Jenő Zichy and Béla Pósta. Hungarian National Museum, Archaeological Archives
- Fig. 6. Excavations at Aquincum, 1887–1888. Residential building and the *laconicum* of the Atilia Firma baths, from the east. Hungarian National Museum, Archaeological Archives
- Fig. 7. Roman altar stones brought to light between 1986 and 1996, exhibited in the square before the Wosinsky Mór Museum in Szekszárd. Photo by Attila Gaál
- Fig. 8. Diver archaeologists lift a Roman altar stone at Bölske in 1988. Photo by Attila Gaál
- Fig. 9. The lifting of stone relics near the Roman *ala* fort of Vetus Salina at Adony in June, 2000
- Fig. 10. Late Neolithic or Early Copper Age enclosure and rampart at Jánoshida–Portelek. Photo by Otto Braasch
- Fig. 11. Brigetio, marching camps VI and VII at Szőny. Photo by Otto Braasch
- Fig. 12. Annamátia, watchtower 9 with the *limes* road at Dunakömlőd. Photo by Otto Braasch
- Fig. 13. Roman period tumuli at Écs. Photo by Otto Braasch
- Fig. 14. Medieval earthen fort and ramparts. Galgahévíz–Szentandrás-part. Photo by Otto Braasch
- Fig. 15. Roman fort. Sárszentágota. Photo by Otto Braasch
- Fig. 16. Urban archaeology: excavation on the territory of the military town of Aquincum in Óbuda in the 1980s. Photo by Péter Komjáthy
- Fig. 17. Eastern gate of the legionary fortress of Aquincum, a reconstructed monument in an urban environment. Photo by Péter Komjáthy
- Fig. 18. Baron Gyula Forster. National Office of Cultural Heritage, Photo Archives
- Fig. 19. Portrait of Count Ferenc Széchenyi. Photo by Bence Képesy
- Fig. 20. Section of the royal basilica at Székesfehérvár from János Erdy's excavations in 1848. Contemporary drawing by János Varsányi. Photo by András Dabasi
- Fig. 21. Imre Henszlmann. National Office of Cultural Heritage, Photo Archives

II. MAN AND HIS ENVIRONMENT

Frontispiece: The confluence of the Kapos and Koppány rivers, from the southeast, near the village of Szárazd. Aerial photo by Gábor Bertók

Map: Radiocarbon dated environmental archaeology sites

- Fig. 1. The regulated Kapos and Koppány rivers, from the northwest. The oxbows of the Kapos river enclosing archaeological sites can be clearly seen. Aerial photo by Gábor Bertók
- Fig. 2. Aerial photograph of the surroundings of the Pap-halom site, south of Endrőd, showing the former river beds and floodplains. Photo by György Csáky and Erzsébet Jerem
- Fig. 3. Detail of the 3D map of the Békés County Microregion Project, showing the relationship between ancient riverbeds, loess ridges and archaeological sites (after JEREM et al. 1992)
- Fig. 4. Map of the Upper Tisza Project, showing the location of Middle Neolithic sites along the edge of floodplain of the Tisza river (after CHAPMAN & DOLUKHANOV 1997, Fig. 2)
- Fig. 5. Series of screens used in the water-sieving of archaeobotanical samples at Gőr–Kápolnadomb. Photo by Gábor Ilon
- Fig. 6. Scanning electron microscope picture of alder (*Alnus glutinosa/incana*), from a charcoal sample collected at Sopron–Krautacker. Photo by Edina Rudner
- Fig. 7. Gallery wood, part of the landscape reconstruction at Sopron–Krautacker (after GARAMI 1993)
- Fig. 8. Profile section of the Tószeg–Laposhalom tell settlement showing the sequence of the occupation layers (after MEIER-ARENDET 1992, 109, Figs 70–71)
- Fig. 9. A comparison of calibrated radiocarbon dates for Neolithic tell settlements (after HERTELENDI et al. 1998)
- Fig. 10. Section of wood used in dendrochronological sampling. Drawing by Béla Antal
- Fig. 11. Rectangular timber frame of a well unrecovered in the medieval market town of Muhi. Photo by József Laszlovszky
- Fig. 12. Distribution of woodland snail species and taiga woods in the Carpathian Basin 18,000–16,000 years ago. Map by Pál Sümegi
- Fig. 13. Scanning electron microscope photos of the two typical taiga-forming tree species in the Carpathian Basin: common pine (*Pinus sylvestris*) and common spruce (*Picea abies*). Photo by Edina Rudner
- Fig. 14. The late Quaternary vegetation of the Carpathian Basin, (after WILLIS et al. 1997, with slight alterations)
- Fig. 15. The Neolithization of the Carpathian Basin. Map by Pál Sümegi
- Fig. 16. Upper tooth of an Upper Pleistocene mammoth. Bugyi–Kavicsbánya. Photo by Bence Képesy
- Fig. 17. Dynamics in the occurrence of mammalian species by orders in Hungary
- Fig. 18. "Trophy" of an Upper Pleistocene red deer, found in the Tisza river at Csongrád. Photo by Bence Képesy
- Fig. 19. Shed antler of an Upper Pleistocene moose from the Tisza river. Photo by Bence Képesy
- Fig. 20. Mesolithic aurochs skull. Kecel–Rózsaberek. Photo by Bence Képesy
- Fig. 21. Iron Age bison skull. Kálmánréti zomboly in the Bükk Mountains. Photo by Bence Képesy
- Fig. 22. Bones from the hind leg (metatarsus and phalanges) of a Mesolithic European wild ass. Kecel–Tőzegtelep. Photo by Bence Képesy

- Fig. 23. Facial skull of a Copper Age Persian lion. Gyöngyöshalász–Encspusztá, Boleráz group. Photo by Bence Képesy
- Fig. 24. The first cervical vertebra (atlas) of a Late Neolithic aurochs; a flintstone arrowhead was embedded in the lower part of the articular surface. Polgár–Csőszhalom. Photo by Bence Képesy
- Fig. 25. Diachronic changes in the proportion of hunted mammals on the basis of finds from 286 Holocene sites
- Fig. 26. The times and places of domestication of the most important domestic animals.
- Fig. 27. The complete skeleton of a young cattle from a Late Neolithic pit. Csabdi–Télizöldes, Lengyel culture. Judit Antoni's excavation, photo by László Bartosiewicz
- Fig. 28. Dog skeletons in a refuse pit of a Sarmatian settlement. Gyoma, site 133. Andrea Vaday's excavation, photo by Krisztina Pálfi
- Fig. 29. Horse skull from a Sarmatian settlement. Gyoma, site 133. Andrea Vaday's excavation, photo by Krisztina Pálfi
- Fig. 30. Sarmatian bone skates made from the metacarpal bones of horse. Gyoma, site 133. Andrea Vaday's excavation, photo by Tibor Kádas
- Fig. 31. The decline of pork consumption in the city of Vác during the Ottoman period as shown by the percentage of pig bones in the animal bone sample
- Fig. 32. "Racka" type, twisted horn core of a ewe. Vác–Széchenyi Street, Middle Ages. Zsuzsa Miklós' excavation, photo by Tibor Kádas
- Fig. 33. Bones from the left hock joint of a young dromedary from the Ottoman period fort at Szekszárd–Palánk. Zsuzsa Miklós' excavation, photo by Krisztina Pálfi
- Fig. 34. Ear types of chaffed wheat: einkorn, emmer and spelt. Photo by Ferenc Gyulai
- Fig. 35. Einkorn (*Triticum monococcum*) was a basic bread cereal for prehistoric cultures in the Carpathian Basin; recultivation experiment at the Biohistory Farm in Szarvasgede. Photo by Ferenc Gyulai
- Fig. 36. Bread remains from the floor of a Middle Bronze Age house. Túrkeve–Terehalom. Judit Tárnoki's excavation, photo by Tibor Kádas
- Fig. 37. Sedentary communities were successful at cultivating legumes, such as pea (*Pisum sativum*; from the Late Bronze Age site of Balatonmagyaród–Hídvépusztá) and lentil (*Lens culinaris subsp. microsperma*; from the late Migration period settlement of Fonyód–Bélatelep). Photo by Ferenc Gyulai
- Fig. 38. The grouping of skeletal remains by individuals is one of the basic tasks in historical anthropology. The churchyard of Gyula–Törökzug, from the 14–17th century church. Dénes Jankovich–Bésán's excavation and photo
- Fig. 39. The eruption sequence of teeth is instrumenting the age at death. Photo by Erzsébet Fóti
- Fig. 40. Traces of osteomyelitis. Photo by Ildikó Pap
- Fig. 41. Typical deformations caused by syphilis on a child's skull. Szentkirály, 16–17th century. Photo by Ildikó Pap
- Fig. 42. Healed trauma, still visible on the skull of an adult man. Photo by Ildikó Pap
- Fig. 43. Deformation in the orbita caused by anaemia related to iron deficiency. Photo by Erzsébet Fóti
- Fig. 44. Dental pathologies caused a lot of suffering to our ancestors. Photo by Erzsébet Fóti
- Fig. 45. Skull of an adult man from Keszthely–Fenékpusztá, showing visible deformations caused by the bandages. Photo by Tibor Kádas
- Fig. 46. Facial reconstruction of a man from the Hungarian Conquest period. Ladánybene–Bene-pusztá. Reconstruction by Ágnes Kustár, photo by András Keve
- Fig. 47. Facial reconstruction of a young Sarmatian girl. Hódmezővásárhely–Gorzsá. Reconstruction by Ágnes Kustár, photo by András Keve
- Fig. 48. Facial reconstruction based on a child's skull from the Subalyuk Cave, and the face of a modern child. Reconstruction and photo by Gyula Skultéty
- Fig. 49. Some well preserved mummies show the marks of dissection, evidence of medical autopsy in the 18th century. White Friars' Church, Vác. Photo by Emil Ráduly
- Fig. 50. Excavating the crypt of the Grassalkovich family at Máriabesnyő. Photo by Ildikó Pap

III. THE PALAEOLITHIC AND MESOLITHIC

- Frontispiece:* Stone tools from the Szeleta Cave. Photo by András Dabai
- Map:* Palaeolithic sites in Hungary
- Fig. 1. Chronology. The phases of the Ice Age and the most important Palaeolithic cultures in Hungary (after Pécsi 1993, Fig. 65)
- Fig. 2. Open-air museum of the Hungarian National Museum at Vértesszőlős. Hungarian National Museum, Archaeological Archives
- Fig. 3. Plant remains from the calcareous tuff. Vértesszőlős. Hungarian National Museum, Archaeological Archives
- Fig. 4. Sámuel's remains: the occipital bone of an adult male from the Palaeolithic site at Vértesszőlős and Gyula László's reconstruction of Sámuel. Hungarian National Museum, Archaeological Archives
- Fig. 5. Middle Palaeolithic site in the calcareous tuff under the secondary school. Tata–Porhanyóbánya. Hungarian National Museum, Archaeological Archives
- Fig. 6. *Tjurunga* polished from a mammoth tooth lamella. Tata–Porhanyóbánya. Photo by Gábor Telcs
- Fig. 7. Bifacially retouched leaf shaped scraper. Jankovich Cave. Photo by Gábor Telcs
- Fig. 8. Archive photo showing the excavation of the Subalyuk Cave. Courtesy of István Vörös
- Fig. 9. Middle Palaeolithic type stone tool. Eger–Kőporos. Photo by Gábor Telcs
- Fig. 10. Aurignacian bone point. Szeleta Cave. Photo by Gábor Telcs
- Fig. 11. Flute made from cave bear bone. Istállóskő Cave. Photo by Gábor Telcs
- Fig. 12. Leaf shaped point from the Szeleta Cave. Photo by Gábor Telcs
- Fig. 13. Bone spearhead from the upper Aurignacian layer of the Istállóskő Cave. Photo by Gábor Telcs
- Fig. 14. The source of the raw materials used for the production of the stone tools found at Esztergom–Gyurgyalag lay in territories beyond the Carpathian Basin. Photo by Gábor Telcs
- Fig. 15. Stone tools made from chocolate coloured radiolarite and flint with cream coloured cortex. Nadap–Kőbánya. Photo by Gábor Telcs
- Fig. 16. Fossil shells collected from Tertiary layers. Esztergom–Gyurgyalag. Photo by Gábor Telcs
- Fig. 17. Polished limestone disc with serrated edges ("moon calendar"). Bodrogheresztúr–Hénye. Photo by Gábor Telcs
- Fig. 18. Excavated occupation level. Mogyorós-bánya–Újfalusi Hills. Viola T. Dobosi's excavation and photo
- Fig. 19. Glacial terraces and valleys at Pilismarót. Hungarian National Museum, Archaeological Archives
- Fig. 20. Polished sandstone object with incisions of unknown function. Pilismarót–Pálrét. Photo by Gábor Telcs
- Fig. 21. Bone pendant with incised ornament ("ladder patterned amulet"). Jankovich Cave. Photo by Gábor Telcs
- Fig. 22. Perforated wolf tooth pendant. Tatabánya, Szelim Cave. Photo by Gábor Telcs
- Fig. 23. Perforated red deer canines. Csákvár rock shelter. Photo by Gábor Telcs
- Fig. 24. Carved bone pendant. Istállóskő Cave. Photo by Gábor Telcs
- Fig. 25. Fragment of a bone ornament. Istállóskő Cave. Photo by Gábor Telcs
- Fig. 26. Polished serpentine amulet. Arka. Photo by Gábor Telcs
- Fig. 27. Bone tools from the paint mine at Lovas. Photo by Gábor Telcs
- Fig. 28. The mosaic patterning of the Jászság area during the Mesolithic. Drawing by Ágoston Dékány and Márta Lacza
- Fig. 29. Aerial photo of the Jásztelek I site, with the channels of the palaeo-Zagyva. Photo by Károly Kozma
- Fig. 30. The hunter's hut unearthed at Jásztelek I. Photo by Károly Koz-

ma, drawing and reconstruction by Ágoston Dékány and Márta Lacza

- Fig. 31. Geometric microliths and arrowheads from sites in the Jászság area. Photo by Károly Kozma
 Fig. 32. Reconstruction of a Mesolithic arrow. Reconstruction by Árpád Szűcs, Ágoston Dékány and Márta Lacza

IV. THE NEOLITHIC

Frontispiece: Vessel of the Bükk culture (Bodrogkeresztúr), obsidian core (Nyírlugos), polished stone axe (Bakonynána). Photo by Balázs Holl
Map: Neolithic sites and cultures in Hungary

- Fig. 1. Radiocarbon dates for the Hungarian Neolithic (after HERTELENDI et al. 1995)
 Fig. 2. The layout of a Neolithic village. Füzesabony–Gubakút. László Domboróczki's excavation and drawing
 Fig. 3. Clay idol head. Füzesabony–Gubakút. László Domboróczki's excavation, photo by Mrs. György Lónyai
 Fig. 4. Map of the site. Mosonszentmiklós–Egyéni földek. Ildikó Egry's excavation and photo
 Fig. 5. Grinding stone. Mosonszentmiklós–Egyéni földek. Ildikó Egry's excavation and photo
 Fig. 6. Bird shaped vessel. Mosonszentmiklós–Egyéni földek. Ildikó Egry's excavation and photo
 Fig. 7. Pot with Notenkopf decoration. Mosonszentmiklós–Egyéni földek. Ildikó Egry's excavation and photo
 Fig. 8. Detail of house 2. Hódmezővásárhely–Gorzsa. Ferenc Horváth's excavation and photo
 Fig. 9. Collared vessel. Hódmezővásárhely–Gorzsa. Ferenc Horváth's excavation and photo
 Fig. 10. Bracelet strung of shell beads, deer teeth and bone. Kisköre–Gát, Tisza culture. Photo by Gábor Telcs
 Fig. 11. Bracelets made from Spondylus shell. Kisköre–Gát, Tisza culture. Photo by Gábor Telcs
 Fig. 12. Middle and Late Neolithic burials. Kisköre–Gát (after KOREK 1989)
 Fig. 13. Girl's burial with Spondylus bracelets and vessels. Mórág. István Zalai-Gaál's excavation and photo
 Fig. 14. Burial of an infant girl. Mórág. István Zalai-Gaál's excavation and photo
 Fig. 15. The *bothros* and the female idol found in the cemetery. Mórág. István Zalai-Gaál's excavation and photo
 Fig. 16. Early Neolithic altar. Hódmezővásárhely–Kopáncs tanya, Körös culture. Photo by Balázs Holl
 Fig. 17. Steatopygous idol. Röske–Lúdvár, Körös culture. Photo by György Nagy
 Fig. 18. Flat idol. Dévaványa, Alföld Linear Pottery culture. Photo by György Nagy
 Fig. 19. Clay idols. Szegvár–Tűzköves, Tisza culture. Photo by György Nagy
 Fig. 20. Vessel with a female body. Hódmezővásárhely–Gorzsa, Körös culture. Photo by György Goldman
 Fig. 21. Face pots. Battonya and Gyoma, Szakálhát culture. Photo by György Nagy
 Fig. 22. The Venus of Kékénydomb. Hódmezővásárhely, Tisza culture. Photo by György Nagy
 Fig. 23. Cattle statuette. Szentgyörgyvölgy–Pityerdomb, Transdanubian Linear Pottery culture. Eszter Bánffy's excavation
 Fig. 24. Two-headed ram. Zalazentbalázs, Lengyel culture. Eszter Bánffy's excavation
 Fig. 25. Mythical bird. Aszód, Lengyel culture. Nándor Kalicz's excavation
 Fig. 26. Prehistoric mines in Hungary. The location of the mines is shown on the geologic map of Hungary. Map by Katalin T. Biró
 Fig. 27. Flint mining pit. Tata–Kálváriadomb. Photo by Katalin T. Biró
 Fig. 28. Open-air museum in the Geologic Park at Tata, presenting the remains of prehistoric flint mining. Photo by Katalin T. Biró
 Fig. 29. Large block of radiolarite from Balatonszemes–Bagódomb

(early Transdanubian Linear Pottery), originating from Szentgál–Tűzköveshegy. Viktória Kiss' excavation

- Fig. 30. Conical core of Szentgál radiolarite from Budakeszi–Tangazdasági szőlők. Photo by Gábor Telcs
 Fig. 31. Vessel for storing red paint. Bodrogkeresztúr. Photo by Balázs Holl

V. THE COPPER AGE

Frontispiece: Copper diadem from the grave of a high status individual. Vörs–Majorsági épületek. Late Copper Age, Baden culture. Photo by Tibor Kádas

Map: Copper Age sites and cultures in Hungary

- Fig. 1. Grave goods from the Tiszapolgár–Basatanya cemetery. Early Copper Age, Tiszapolgár culture. Photo by András Dabasi
 Fig. 2. Vessels of the late Lengyel culture. Zalazentbalázs. Early Copper Age. Photo by Krisztina Pálfay
 Fig. 3. The characteristic “milk jug” of the Bodrogkeresztúr culture. Pusztavánháza, Middle Copper Age. Photo by András Dabasi
 Fig. 4. Clay wagon models from Budakalász and Szigetszentmárton. Late Copper Age, Baden culture. Photo by Lajos Sugár
 Fig. 5. Copper disc from Zalavár–Basasziget. Middle Copper Age, Balaton–Lásinja culture. Photo by Zsuzsanna M. Virág
 Fig. 6. Aerial photo showing the outlines of Early and Middle Copper Age houses. Győr–Szabadrétdomb. András Figler's excavation and photo
 Fig. 7. Excavated houses from the Middle Copper Age settlement at Zalavár–Basasziget. Balaton–Lásinja culture. Zsuzsanna M. Virág's excavation, photo by Róbert Müller
 Fig. 8. Reconstruction of a Middle Copper Age house. Zalavár–Basasziget, Balaton–Lásinja culture. Reconstruction by Tibor Sabján
 Fig. 9. Map of the excavated section of the Middle Copper Age settlement at Zalavár–Basasziget. Balaton–Lásinja culture. Zsuzsanna M. Virág's excavation, drawing by Erzsébet Csernus
 Fig. 10. Map of the excavated section of the Middle Copper Age settlement at Tiszalúc–Sarkadpuszta. Hunyadihalom culture. Pál Patay's excavation (after PATAY 1995b)
 Fig. 11. Oven plastered with pottery sherds. Sármellék–Égenföld. Late Copper Age, Baden culture. Zsuzsanna M. Virág's excavation and photo
 Fig. 12. Hoard from Szeged–Szillé. Middle Copper Age, Bodrogkeresztúr culture. Photo by Andrea Pamuk, photo-editing by Gábor Telcs
 Fig. 13. Native copper from Rudabánya. Photo by Géza Kulcsár
 Fig. 14. Gold pendants and tubes from the Middle Copper Age cemeteries of Jászládány and Magyarhomorog. Bodrogkeresztúr culture. Photo by András Dabasi (after RACZKY 1999)
 Fig. 15. Gold discs. Csáford, early phase of the Middle Copper Age, Balaton–Lásinja culture. Photo by András Dabasi (after RACZKY 1999)
 Fig. 16. Large gold pendant. Hatvan, Middle Copper Age, Bodrogkeresztúr culture. Photo by András Dabasi (after RACZKY 1999)
 Fig. 17. Crucible and copper ornaments. Zalavár–Mekenye, Middle Copper Age, Stroke Ornamented Pottery culture. Photo by Zsuzsanna M. Virág
 Fig. 18. Copper dagger. Sármellék, Late Copper Age, Baden culture. Photo by Zsuzsanna M. Virág
 Fig. 19. Middle Copper Age female burial, with a multiple string of stone beads around the waist. Szihalom–Pamlényi-tanya, Bodrogkeresztúr culture. Adél Váradi's excavation (after RACZKY et al. 1997, Fig. 42)
 Fig. 20. Clay idol. Tiszafüred, later phase of the Middle Copper Age, Hunyadihalom culture. Photo by András Dabasi
 Fig. 21. Groundplan of an Early Copper Age enclosure. Balatonmagyaród–Hídvégpuszta, late Lengyel culture. László Horváth's excavation (after MÜLLER 1989, Fig. 2)
 Fig. 22. Excavated section of the Balatonmagyaród enclosure, with a section showing the infill levels. Early Copper Age, late Lengyel culture. László Horváth's excavation and photo

- Fig. 23. Aerial view of a Middle Copper Age enclosure during excavation. Füzesabony–Pusztaszikszó, Ludanice culture. Ágota Sz. Kállay's excavation.
- Fig. 24. Plan of the excavated section of the enclosure. Füzesabony–Pusztaszikszó, Middle Copper Age, Ludanice culture. Ágota Sz. Kállay's excavation (after Sz. KALLAY 1988)
- Fig. 25. Headless idol. Zamárdi, Late Copper Age, Boleráz group. Photo by Mrs. Gábor Góczy
- Fig. 26. Clay mask, modelled on the human face. Balatonőszöd–Temetődűlő, Late Copper Age, Baden culture. Photo by Tibor Kádas, drawing by Sándor Ósi
- Fig. 27. Late Copper Age grave with stone packing. The discoloured patch of the grave pit can be seen beside the stones. Pilismarót–Basaharc, Boleráz group. István Torma's excavation, photo by János Polinger
- Fig. 28. Mass grave from a Late Copper Age settlement. Sármellék–Égenföld, Baden culture. Zsuzsanna M. Virág's excavation and photo
- Fig. 29. Anthropomorphic urns. Ózd–Center, Late Copper Age, Baden culture. Photo by András Dabasi
- Fig. 30. Stone stele, during excavation. Mezőcsát, Late Copper Age, Baden culture. Erzsébet Patek and Nándor Kalicz's excavation, photo by László Susits
- Fig. 31. Burial mound (kurgan), during excavation. Kétegyháza, Late Copper Age. Gyula Gazdapusztai's excavation, photo by István Ecsedy
- Fig. 32. Excavation drawing of a kurgan burial. Kétegyháza, Late Copper Age (after ECSEDY 1981)

VI. THE BRONZE AGE

Frontispiece: Bronze hoard from Zalaszabar. Photo by Róbert Fenyvesi
Icon: Boot shaped vessel from the urn cemetery at Békásmegyer. Nándor Kalicz and Rózsa Schreiber's excavation
Map: Bronze Age sites and cultures in Hungary

- Fig. 1. Early Bronze Age footed bowl from Zamárdi. Photo by Róbert Fenyvesi
- Fig. 2. Harnessed horse (reconstruction) and bone harness. Tószeg–Laposhalom and Füzesabony–Öregdomb. Reconstruction by Pál Raczky and Ágoston Dékány
- Fig. 3. Debris of a burnt house and its reconstruction. Tiszaug–Kéménymetető, level 2, Nagyrév culture. Marietta Csányi's excavation, reconstruction by Ágoston Dékány and Márta Lacza (after MEIER-ARENDT 1992, Figs 75–76)
- Fig. 4. Pottery jugs from the Nagyrév period. Tiszaug–Kéménymetető, level 2. Photo by Károly Kozma
- Fig. 5. Fourteen vessels found in a scattered cremation burial. Nagyrév–Zsidóhalom, trench B, grave 8. Photo by Károly Kozma
- Fig. 6. Jászdózsa–Kápolnahalom: the tell settlement. Ilona Stanczik's excavation and photo (after MEIER-ARENDT 1992, 120)
- Fig. 7. Gold hoard. Jászdózsa–Kápolnahalom, level 11. Ilona Stanczik's excavation (after BÓNA–RACZKY 1994, 121)
- Fig. 8. Animal figurines. Jászdózsa–Kápolnahalom, Hatvan occupation level. Ilona Stanczik's excavation
- Fig. 9. Jászdózsa–Kápolnahalom. Drawing of level 6. Drawing by Ágoston Dékány and Márta Lacza (after MEIER-ARENDT 1992, 126)
- Fig. 10. Excavated section of the enclosure, showing the infill levels, and plan of the enclosure. Vörs–Tótok dombja. Viktória Kiss' excavation and photo
- Fig. 11. Cup with encrusted ornamentation. Jászdózsa–Kápolnahalom. Photo by Károly Kozma (after BÓNA–RACZKY 1994, 23)
- Fig. 12. Vörs–Papkert B, grave LXXXII. Szilvia Honti's excavation and photo
- Fig. 13. Bronze hoard. Zalaszabar. Photo by Róbert Fenyvesi
- Fig. 14. Storage jar of the Vatyá culture. Százhalombatta–Földvár. Photo by András Dabasi
- Fig. 15. Middle Bronze Age occupation level. Százhalombatta–Földvár. Ildikó Poroszlai's excavation
- Fig. 16. Százhalombatta–Földvár. View of the site. Photo by András Dabasi
- Fig. 17. Clay vessels with unusual decoration. Százhalombatta–Földvár, close of the Middle Bronze Age, Koszider period
- Fig. 18. Gridded oven. Százhalombatta–Földvár, Koszider period, layer II. Ildikó Poroszlai and Magdolna Vicze's excavation, reconstruction and drawing by Gabriella Lakatos
- Fig. 19. Dunaújváros–Kosziderpadlás, hoard III. Photo by Károly Kozma
- Fig. 20. Reconstruction of an urn burial of the Vatyá culture. Reconstruction by Ágoston Dékány and Márta Lacza (after MEIER-ARENDT 1992, 98)
- Fig. 21. Reconstruction of a Bronze Age settlement. Füzesabony–Öregdomb. Reconstruction by Ágoston Dékány and Márta Lacza (after MEIER-ARENDT 1992, 98)
- Fig. 22. Bird shaped vessel and rattle
- Fig. 23. Excavation drawing of grave B 54 of Tiszafüred–Majoroshalom and its finds. Tibor Kovács' excavation, drawing by Ágoston Dékány and Márta Lacza (after MEIER-ARENDT 1992, 98)
- Fig. 24. Section of the Túrkeve–Terehalom tell settlement. Marietta Csányi and Judit Tárnoki's excavation, photo by Károly Kozma
- Fig. 25. Remains and reconstruction of a Bronze Age house and a vessel from the floor. Túrkeve–Terehalom, level 2. Marietta Csányi and Judit Tárnoki's excavation, drawing by Ágoston Dékány and Márta Lacza, photo by Károly Kozma (after CSÁNYI & TÁRNOKI 1996, 61)
- Fig. 26. Inhumation burial with vessels. Jánoshida–Berek. Marietta Csányi's excavation
- Fig. 27. Grave 113, with the outline of the grave ditch and the discoloured patch of the robber pit. Jánoshida–Berek. Marietta Csányi's excavation
- Fig. 28. Mould for a socketed axe. Gőr–Kápolnadomb, Late Bronze Age, Urnfield culture
- Fig. 29. Vessels of the Gáva culture
- Fig. 30a. Late Bronze Age tumulus burials of grave group II. Némethánya–Felsőerdei-dűlő, Late Tumulus–early Urnfield culture. Gábor Ilon's excavation and photo
- Fig. 30b. Tumulus III/4, grave 2, and the east-west section of the tumulus. Némethánya–Felsőerdei-dűlő, Late Bronze Age, late Tumulus–early Urnfield culture. Gábor Ilon's excavation and photo
- Fig. 31. Postholes of Late Bronze Age buildings. Börös–Paphomlök-dűlő. András Figler's excavation and photo
- Fig. 32. Late Bronze Age inurned burial from the cemetery. Börös–Paphomlök-dűlő. András Figler's excavation and photo
- Fig. 33. Scattered cremation burial. Budapest–Békásmegyer, Late Bronze Age, Urnfield culture. Nándor Kalicz and Rózsa Schreiber's excavation and photo
- Fig. 34. Moulds, crucible and copper axe. Zók–Várhegy, Early Bronze Age. Photo by András Dabasi
- Fig. 35. Bronze axes. Szeghalom–Károlyderék, Middle Bronze Age. Photo by András Dabasi
- Fig. 36. Bronze hoard. Százhalombatta–Földvár, Middle Bronze Age. Photo by András Dabasi
- Fig. 37. Bronze axes and a spearhead. Ópályi, Late Bronze Age. Photo by András Dabasi
- Fig. 38. Bronze articles decorated with bird and wheel motifs
- Fig. 39. Bronze swords. Krasznokvajda, Late Bronze Age. Photo by András Dabasi
- Fig. 40. Bronze bucket. Hajdúböszörmény, Late Bronze Age. Photo by András Dabasi
- Fig. 41. Bronze axes, sickle, armrings and pins. Celldömölk–Sághegy, Late Bronze Age. Photo by András Dabasi
- Fig. 42. Gold hoard. Biharkeresztes, Late Bronze Age. Photo by András Dabasi
- Fig. 43. Gold diadem. Velem–Szentvid, Late Bronze Age. Photo by Gábor Papp

VII. THE IRON AGE

Frontispiece: Gőr–Kápolnadomb. The Celtic ditch and rampart on the southern side, 2nd–1st century B.C. Gábor Ilon and József Dénes' excavation, photo by Gábor Ilon

Icon: Carved stone head from Százhalombatta

Map: Iron Age sites and cultures in Hungary

- Fig. 1. Grave 35 of the pre-Scythian cemetery at Mezőcsát
- Fig. 2. Bronze bit, strap distributors, mace and dagger sheath from Biharugra. Photo by András Dabasi
- Fig. 3. Gold hoard from Besenyszög–Fokoru. Photo by András Dabasi
- Fig. 4. Golden stag from Mezőkeresztes–Zöldhalompusztá. Photo by András Dabasi
- Fig. 5. Bronze hydria from Ártánd. Photo by András Dabasi
- Fig. 6. Grave 16, a horse burial, from Szentés–Vekerzug
- Fig. 7. Excavated remains and reconstruction of a Scythian house. Nyíregyháza–Mandabokor (after RACZKY, KOVÁCS & ANDERS 1997)
- Fig. 8. Antler hafting plates from Nyíregyháza–Mandabokor (after RACZKY, KOVÁCS & ANDERS 1997)
- Fig. 9. Bronze rattle from Nagytarcsa. Photo by András Dabasi
- Fig. 10. Wheel-thrown jugs from Tiszavasvári. Photo by András Dabasi
- Fig. 11. Fortified settlements of the Iron Age in Transdanubia. Map by Erzsébet Jerem
- Fig. 12. The Regöly hillfort from the north, with the one-time meanders of the Kapos and Koppány rivers. Aerial photo by Gábor Bertók
- Fig. 13. Section of the rampart protecting the fortified settlement at Tihany–Óvár. Photo by Gábor Ilon
- Fig. 14. The hillfort and the tumulus burials at Sopron–Burgstall (after PATEK 1982a)
- Fig. 15. The hillfort at Sághegy, viewed from Mesteri. Photo by Gábor Ilon
- Fig. 16. Sopron–Burgstall. Detail of grave 131 during clearing and the drawing of the grave. Erzsébet Patek's excavation, photo by Erzsébet Jerem
- Fig. 17. Tumulus burial and the reconstructed grave chamber at Százhalombatta. Ágnes Holport's excavation, reconstruction by Ágnes Holport, András Gelesz and Ágnes Lenzsér
- Fig. 18. Bronze helmet with riveted iron band from Csőnge. Photo by András Dabasi
- Fig. 19. Boar tusk bit from tumulus 114 at Százhalombatta. Ágnes Holport's excavation, photo by András Dabasi
- Fig. 20. Velem type fibula from Sopron–Krautacker. Photo by Tibor Kádas
- Fig. 21. Eastern Alpine animal headed Certosa crossbow fibula from Balf. Photo by Róbert Fenyvesi
- Fig. 22. Breast ornament decorated with human figures from Balf. Photo by Róbert Fenyvesi
- Fig. 23. Decoration of the urn from grave 27 of Sopron–Burgstall (after JEREM 1986, 307)
- Fig. 24. Urn with relief decoration from Süttő. Photo by András Dabasi
- Fig. 25. Decorated urn from a Hallstatt period tumulus at Nagyberki–Szalacska. Tibor Kemenczei's excavation, photo by András Dabasi
- Fig. 26. Small kantharos shaped vessel from Szentlőrinc. Photo by Lajos Sugár
- Fig. 27. Excavation and reconstruction of an Iron Age house. Sopron–Krautacker, house 270. Erzsébet Jerem's excavation and photo, reconstruction by Zsolt Vasáros
- Fig. 28. Distribution of early La Tène sites in Transdanubia. Map by Erzsébet Jerem
- Fig. 29. Amphora shaped glass beads from an early Celtic inhumation grave. Pilismarót–Basaharc, 4th century B.C. Photo by Lajos Sugár (after BOGNÁR–KUTZIAN 1983, 37)
- Fig. 30. Iron sword with its scabbard, decorated with a pair of dragons (zoomorphic lyre). Kosd, grave 15, earlier 3rd century B.C. (after MOSCATI et al. 1991)
- Fig. 31. Pair of linked, animal headed bronze fibulae from Sopron–Bécsidomb. Photo by Róbert Fenyvesi

- Fig. 32. Situla shaped vessel, with a Waldalgesheim style incised pattern on the shoulder. Alsópél, later 4th century B.C. (after MOSCATI et al. 1991)
- Fig. 33. Masked bead. Vác, grave 29, later 3rd century B.C. (after MOSCATI et al. 1991)
- Fig. 34. Celtic pottery kiln and its products. Sopron–Krautacker, earlier 3rd century B.C. Erzsébet Jerem's excavation and photo, drawing by Ágoston Dékány
- Fig. 35. Late Hallstatt and La Tène period settlement. Sopron–Krautacker, 6th–1st centuries B.C. Erzsébet Jerem's excavation and photo
- Fig. 36. Remains of an L shaped Celtic house with the floor level. Sopron–Krautacker, 4th century B.C. Erzsébet Jerem's excavation and photo
- Fig. 37. Remains of a pig and cattle sacrifice on the floor of a Celtic house. Sé–Doberdó, house 2. Gábor Ilon and Ottó Sosztarics' excavation, photo by Gábor Ilon
- Fig. 38. Crucible from a bronze workshop. Sopron–Krautacker, 4th century B.C. Erzsébet Jerem's excavation, photo by Tibor Kádas
- Fig. 39. Flask with stamped decoration from an early Celtic male burial. Sopron–Bécsidomb, early 4th century B.C. Photo by Lajos Sugár
- Fig. 40. Kantharos shaped vessel with ram head terminalled handles. Csobaj, grave 1, 3rd century B.C. (after HELLEBRANDT 1989)
- Fig. 41. Northwestern section of the rampart at Sopron–Burgstall (after PATEK 1982a)
- Fig. 42. Audoleon type silver coins hidden in a vessel with stamped decoration. Egyházasdengeleg, earlier 3rd century B.C. (after RACZKY & KOVÁCS 1999)
- Fig. 43. Vessel with painted decoration. Budapest–Gellért Hill, Tabán, 1st century B.C. (after MOSCATI et al. 1991)
- Fig. 44. Gold hoard. Százard–Regöly, earlier 2nd century B.C. (after RACZKY & KOVÁCS 1999)
- Fig. 45. Double burial in the early Celtic cemetery at Ménfőcsanak. Andrea Vaday's excavation, drawing by Krisztián Nyikus
- Fig. 46. Spear types from the Celtic cemetery at Ménfőcsanak. Andrea Vaday's excavation and drawing
- Fig. 47. Groundplan and reconstruction of a Celtic house. Andrea Vaday's excavation, reconstruction and drawing by Károly Tankó

VIII. THE ROMAN PERIOD

Frontispiece: Detail of the *Tabula Peutingeriana* (after VISY 2000)

Icon: Bronze statue of the winged Victoria from Akasztó–Dőbrőgepuszta (after VISY 2000)

Map: Major towns, roads and military towns of Pannonia

- Fig. 1. Legionary camps. Drawing by Ágnes Vári
- Fig. 2. Aquincum, the southern gate of the legionary fort, from the west. Photo by Zsolt Visy
- Fig. 3. Auxiliary camps. Drawing by Ágnes Vári
- Fig. 4. Brigetio, marching camp. Photo by Otto Braasch
- Fig. 5. Intercisa, the southern gate of the auxiliary camp, during the excavation in 1975. Photo by Zsolt Visy
- Fig. 6. Late Roman small forts. Drawing by Ágnes Vári
- Fig. 7. Watchtowers. Drawing by Ágnes Vári
- Fig. 8. The forts under the control of the military commander (*dux*) of Valeria and the buildings symbolizing them. Detail from the *Notitia Dignitatum*, 4th century A.D.
- Fig. 9. The second period of the Alsóhetény fort. Endre Tóth's excavation
- Fig. 10. The round bastions of the Alsóhetény fort. Endre Tóth's excavation
- Fig. 11. Reconstruction of the watchtower at Ságvár. Endre Tóth's excavation
- Fig. 12. Fragment of an emperor statue from the Alsóhetény fort. Endre Tóth's excavation
- Fig. 13. The milestone fragment from Savaria and its inscription

- Fig. 14. Road station on the Amber Road at Sorokpolány
- Fig. 15. Detail of a north–south street in Brigetio. Excavation and photo by Emese Számadó
- Fig. 16. Depiction of a wagon and rider on a tombstone from Intercisa
- Fig. 17. The tribes living on the territory of Pannonia, up to the mid-1st century A.D. Map by Mihály Nagy
- Fig. 18. White marble statues of Jupiter, Juno and Minerva from the Capitoline temple of Scarbantia. Sopron, mid-2nd century A.D. Photo by Attila Adorján
- Fig. 19. Bronze statue of the Apis bull from Gorsium. Courtesy of Jenő Fitz
- Fig. 20. The southwestern town quarter of Savaria with the sanctuary of Isis
- Fig. 21. The Roman palace building from the 4th century A.D. and the Carolingian round fort in Savaria. Photo by Otto Braasch
- Fig. 22. Excavation plan of the *forum* of Scarbantia. János Gömöri's excavation, survey and photo
- Fig. 23. The town and the walls of Scarbantia from the north. Photo by Otto Braasch
- Fig. 24. Plan of the civilian settlement at Aquincum. Drawing by Éva Málík
- Fig. 25. Aerial photo of the reconstructed remains of the civilian town at Aquincum
- Fig. 26. Capital with an Amon head from the *forum* of the civilian town at Aquincum. Photo by Péter Komjáthy
- Fig. 27. Construction inscription dedicated to *Dea Syria* from the civilian town at Aquincum. Photo by Péter Komjáthy
- Fig. 28. Tombstone with a wreath. Photo by Péter Komjáthy
- Fig. 29. The remains of the so-called fresco house from the excavations at Szőny. László Borhy and Emese Számadó's excavation, photo by Emese Számadó
- Fig. 30. The central element of the ceiling fresco from the so-called fresco house at Szőny–Vásártér. Emese Számadó's excavation, photo by Zsófia Kurovsky and Eszter Harsányi
- Fig. 31. The town and cemetery of Sopianae on the territory of present-day Pécs on an aerial photo, from the south. Photo by Otto Braasch
- Fig. 32. Reclining water god in the eastern *nymphaeum* of the *forum* in the sacred precinct of Gorsium. Courtesy of Jenő Fitz
- Fig. 33. Aquincum. The wells of the aqueduct at Budapest–Római-part. Drawing by Gyula Hajnóczy
- Fig. 34. Street drain, Aquincum
- Fig. 35. Drain with the repair shaft under the pavement of the street. Aquincum
- Fig. 36. Fountain with dolphins, after restoration. Aquincum
- Fig. 37. Ménfőcsanak–Shopping mall. View and cross-section of well 205. Andrea Vaday's excavation, drawing by Andrea Nagy
- Fig. 38. Groundplan of a portico villa, Budapest–Csúcshegy. Drawing by Gyula Hajnóczy
- Fig. 39. Corridor villa. Békásmegyer, 3rd century A.D. Drawing by Gyula Hajnóczy
- Fig. 40. Courtyard villa. Alsórajk. Drawing by Gyula Hajnóczy
- Fig. 41. Central buildings of the Roman villa farm at Balácsa. Sylvia Palágyi's excavation, drawing by Sylvia Palágyi and Judit Trexler Szlezák
- Fig. 42. Remains of the Roman villa farm at Balácsa, with the covered main building. Sylvia Palágyi's excavation, photo by József Kaposvári
- Fig. 43. Outbuildings of the Balácsa villa in the freshly ploughed field in 1986. Sylvia Palágyi's excavation, photo by Sándor Simon
- Fig. 44. Mosaic floor in the main building of the Balácsa villa. Sylvia Palágyi's excavation, photo by Ildikó Nagyvárad
- Fig. 45. Groundplan and reconstruction of a sunken house. Ménfőcsanak–Shopping mall, feature 225. Andrea Vaday's excavation, drawing by Andrea Nagy
- Fig. 46. Roman barrel used for lining a well, after restoration, from a settlement of the native population, Ménfőcsanak–Road 83. Andrea Vaday's excavation, photo by Tibor Kádas
- Fig. 47. Timber lining of a well, Ménfőcsanak–Shopping mall. Andrea Vaday's excavation and photo
- Fig. 48. Groundplans of timber structures and sunken houses from the settlement of the native population at Szakály. Dénes Gabler's excavation, drawing by Andrea Nagy
- Fig. 49. a. The most significant workshops and mines in Pannonia, b. products of the Pannonian craft industry, according to branches. Drawing by Andrea Vaday, based on data provided by János Gömöri
- Fig. 50. The stoke hole of the heating ducts and detail of the grate of brick kiln 1. Dömös, turn of the 2nd–3rd centuries A.D. Márta H. Kelemen's excavation (after H. KELEMEN 1994–95)
- Fig. 51. Pottery kiln from the Flavian period with the bowls from the last firing. Scarbantia. Petőháza. János Gömöri's excavation and photo
- Fig. 52. Roman smithy and its tools. János Gömöri's excavation and photo
- Fig. 53. Hearth for metal smelting inside a bronze workshop. Scarbantia, 2nd century A.D. János Gömöri's excavation and photo
- Fig. 54. Reconstruction of the temple of Mercurius in Savaria. Drawing by Gyula Hajnóczy
- Fig. 55. Fragment of a Jupiter statue from Intercisa. Photo by Zsolt Visy
- Fig. 56. Statues adorning the *nymphaeum* in Gorsium. Courtesy of Jenő Fitz
- Fig. 57. The Mithras shrine in the legionary fort of Aquincum. László Kocsis' excavation and photo
- Fig. 58. Marble cult image from the Mithras shrine in Intercisa. Photo by Zsolt Visy
- Fig. 59. Votive lead plaque depicting the Sun God and the Dioscuri from Intercisa. Photo by Zsolt Visy
- Fig. 60. Early Christian *cella trichora*. Aquincum (Raktár Street) Photo by Péter Komjáthy
- Fig. 61. Early Christian screen with the Christ monogram, Gorsium. Courtesy of Jenő Fitz
- Fig. 62. Adam and Eve. The Fall, painting on the wall of the early Christian mausoleum in Pécs. Photo by István Füzi
- Fig. 63. The finds from the Roman sarcophagus found at Óbuda in 1752, after Ferdinánd Miller's description, published in 1761
- Fig. 64. The grave goods of a cremation burial. Aquincum, turn of the 1st–2nd centuries A.D. Photo by Péter Komjáthy
- Fig. 65. Detail of the tombstone of a native family. Dunapentele, mid-2nd century A.D. Photo by András Dabasi
- Fig. 66. Cemetery with the remains of roadside sepulchral monuments, Aquincum, military town, western cemetery. Paula Zsidi's excavation, photo by Péter Komjáthy
- Fig. 67. Reconstruction of a wagon unearthed in a burial, Budakeszi. Zsolt Mráv's excavation, reconstruction and drawing
- Fig. 68. Sarcophagus with an inhumation burial. Brigetio, early 4th century A.D. László Borhy and Emese Számadó's excavation, photo by Emese Számadó
- Fig. 69. Mummy grave. Aquincum, earlier 4th century A.D. Photo by Péter Komjáthy
- Fig. 70. Flavia Usai's tomb stele from Gorsium. Photo by Ferenc Gelenčsér
- Fig. 71. Depiction of Heracles and Hesione from Dunapentele or Adony. Painted limestone, earlier 3rd century A.D. Photo by András Dabasi
- Fig. 72. Relief ornamented sarcophagus from Aquincum. Photo by Péter Komjáthy
- Fig. 73. Eastern wall of burial chamber V, during excavation, in Pécs. Photo by Mrs József Tari
- Fig. 74. Burial chamber. Pécs. Photo by István Füzi
- Fig. 75. Tumuli and wagon burials in Pannonia. Drawing by László Sebők, based on data provided by Sylvia Palágyi
- Fig. 76. The stone wall enclosing tumulus 2 at Inota, during excavation. Sylvia Palágyi's excavation and photo
- Fig. 77. The enclosure wall, *dromos* and burial chamber of the burial mound, during excavation. Balácsa–Likas Hill. Sylvia Palágyi's excavation, photo by József Kaposvári
- Fig. 78. The grave pit of tumulus 1 of Inota. Sylvia Palágyi's excavation and photo
- Fig. 79. Glass urn from tumulus 1 of Inota. Sylvia Palágyi's excavation, photo by Levente Szepsi Szűcs
- Fig. 80. Tumulus 1 of Inota, before excavation. Sylvia Palágyi's excavation and photo

- Fig. 81. Leaded bronze shield boss from tumulus 2 of Inota. Sylvia Palágyi's excavation, photo by Levente Szepesi Szűcs
- Fig. 82. Reconstruction of the tumulus of Inota. Sylvia Palágyi's excavation, photo by Mihály Nagy

IX. THE BARBARICUM IN THE ROMAN PERIOD

Frontispiece: Excavation of a Sarmatian settlement. Polgár–Kengyel–Érpart, site M3/7. Photo by Károly Kozma

Icon: Sarmatian jug from Tiszaföldvár–Téglagyár. Andrea Vaday's excavation, photo by Tibor Kádas

Map: The Barbaricum in the Roman Age

- Fig. 1. Coffin burial of a warrior from Mezőszemere. László Domboróczki's excavation, drawing by Krisztián Nyikus
- Fig. 2. Sarmatian belt with late Roman military mounts. Mezőszemere–Kismari-fenek, grave 30. László Domboróczki's excavation, reconstruction by Andrea Vaday, drawing by Andrea Nagy
- Fig. 3. Reconstruction of a Roman rampart at Fancsika. Photo by Eszter Istvánovits
- Fig. 4. Number of excavations and publications. Compiled by Andrea Vaday
- Fig. 5. Site distribution of the Microregion Research Project of the Great Hungarian Plain. Compiled by Andrea Vaday
- Fig. 6. Archaeomagnetic survey of a Sarmatian workshop at Gyoma. Andrea Vaday's excavation, drawing by Krisztián Nyikus
- Fig. 7. Dacian and Sarmatian finds from Gyoma. End of the 2nd century. Photo by Tibor Kádas
- Fig. 8. Germanic finds from Sarmatian settlement features at Kompolt–Kisté. Andrea Vaday's excavation, drawing by Krisztián Nyikus
- Fig. 9. Sword with ringed hilt from Újszilvás. Edit Tari's excavation, photo by György Boros
- Fig. 10. Golden strap end from Dunaharaszti. Photo by György Boros
- Fig. 11. Sarmatian tumuli at Vácszentlászló–Harmincadhányás. Photo by Valéria Kulcsár
- Fig. 12. Female burial, with the reconstruction of the belt. Endrőd–Szujojéreszt. János Makkay and Béla Miklós Szőke's excavation, reconstruction by Andrea Vaday, drawing by Krisztián Nyikus
- Fig. 13. Straps of a buckled boot. Reconstruction and drawing by Andrea Vaday
- Fig. 14. Detail of a female burial with jewellery. Tiszaföldvár–Téglagyár. Andrea Vaday's excavation, drawing by Krisztián Nyikus
- Fig. 15. Section of a Sarmatian settlement with the animal pens. Northern junction of the M5 motorway at Kiskunfélegyháza. Erika Wicker's excavation and photo
- Fig. 16. Sarmatian well. Kompolt–Kistéri-tanya. Andrea Vaday's excavation, drawing by Krisztián Nyikus
- Fig. 17. Human remains thrown into a refuse pit. Kompolt–Kistéri-tanya. Andrea Vaday's excavation, drawing by Krisztián Nyikus
- Fig. 18. Charcoal kiln (?). Csengersima. Katalin Almássy and Eszter Istvánovits' excavation and photo
- Fig. 19. Timber-framed sunken house. Beregsurány. Katalin Almássy and Eszter Istvánovits' excavation and photo
- Fig. 20. Pottery kiln. Csengersima. Katalin Almássy and Eszter Istvánovits' excavation and photo
- Fig. 21. Distribution of Sarmatian sites excavated between 1971 and 1995
- Fig. 22. Sarmatian–Quadic settlement. Vác–Csörögi-rét. Valéria Kulcsár's excavation

X. THE MIGRATION PERIOD

Frontispiece: Excavation of an Avar cemetery on the outskirts of Zamárdi. Edith Bárdos' excavation and photo

Icon: Gold jug from the khagan's burial at Kunbáony. Elvira H. Tóth's excavation, 1971

Map: Sites and peoples of the Migration period

- Fig. 1. Fragment of the Lord's prayer written with Gothic uncial letters

- on a lead plaque; the currently known earliest relic of Wulfila's translation of the New Testament, found in a burial. Hács–Béndekpuszta, 5th century. Rezső Pusztai's excavation, photo by László Susits
- Fig. 2. Byzantine Greek text on a cross, "Holy, holy, holy, is the Lord of Hosts". Závod, 7th century. Mór Wosinszky's excavation, drawing by Gábor Kiss
- Fig. 3. The name BONOSA written with Latin letters on a gold pin. Keszthely–Fenekpuszta, *borreum* cemetery, 7th century. László Barkóczi's excavation, photo by Róbert Müller
- Fig. 4. Langobard fibula inscribed with female names written with Germanic runes. Bezenye, 6th century. Ágost Sótér's excavation, drawing by József Hampel
- Fig. 5. Magical text written with Avar runes of the Eurasian Turkic type on a bone needle-case from a burial. Szarvas, 8th century. Irén Juhász's excavation and photo
- Fig. 6. Sword of a Hun dignitary from Pannonhalma. Péter Tomka's excavation and photo
- Fig. 7. Gold mounts of a bow, buckle and strap end from a sacrificial assemblage found at Báticasék. Gyula Mészáros' excavation, photo by Attila Gaál
- Fig. 8. Fibulae with precious stone inlay and gold dress ornaments from a woman's burial at Regöly. Gyula Mészáros' excavation, photo by Attila Gaál
- Fig. 9. Cicada fibula from Tiszavasvári. Eszter Istvánovits' excavation, photo by György Boros
- Fig. 10. Eastern gold fibula from a Sarmatian female burial uncovered at Gyoma–Ózed. Júlia Szénászkzy's excavation, photo by Tibor Kádas
- Fig. 11. Sarmatian pottery of the Hun period from the Sarmatian settlement at Tiszaföldvár–Téglagyár. Andrea Vaday's excavation, photo by Tibor Kádas
- Fig. 12. Bone comb with an incised bird figure from Csákvár. Jenő Fitz's excavation, photo by Gábor Deme
- Fig. 13. Green glazed jug from Csákvár. Jenő Fitz's excavation, photo by Gábor Deme
- Fig. 14. Silver bowl (patena) decorated with early Christian symbols from Kismákfa. Photo by József Karáth
- Fig. 15. Brick grave containing a burial with the deceased's arms laid across the chest, without grave goods, from the 4th–5th century cemetery at Keszthely–Fenekpuszta. Róbert Müller's excavation and photo
- Fig. 16. Ornamental pins in the Pontic tradition from Kilimán. Béla Miklós Szőke's excavation, photo by Tibor Kádas
- Fig. 17. Male burial from the eastern Germanic cemetery at Mözs–Icseidűlő. János Gábor Ódor's excavation and photo
- Fig. 18. Artificially deformed skull from the Ostrogothic cemetery at Keszthely–Fenekpuszta. István Erdélyi's excavation, photo by Róbert Müller
- Fig. 19. Ostrogothic fibula from Balatonszemes. Szilvia Honti's excavation, photo by Tibor Kádas
- Fig. 20. Finds from a goldsmith's burial. Dabronc–Ötvöspuszta. Károly Sági's excavation, photo by Róbert Müller
- Fig. 21. Fibulae and beads from Tiszakarád–Inasa. Emese Lovász's excavation, photo by Géza Kulcsár
- Fig. 22. Plate fibulae from Mezőkövesd–Mocsolyás. Emese Lovász's excavation, photo by Géza Kulcsár
- Fig. 23. Silver gilt buckle from Biharkeresztes–Ártánd–Nagyfarkasdomb. Ibolya Nepper and Károly Mesterházy's excavation
- Fig. 24. Burial of a Gepidic woman in a coffin hollowed from a tree trunk. Hódmezővásárhely–Kishomok. István Bóna and Margit Nagy's excavation, photo by István Kiszely
- Fig. 25. Fibulae from a Gepidic woman's burial. Mezőkeresztes–Cethalom. Mária Wolf's excavation, photo by Géza Kulcsár
- Fig. 26. Burial of a Gepidic warrior. Szolnok–Zagyvapart. János Cseh's excavation, drawing by Krisztián Nyikus
- Fig. 27. Iron shield boss with gilt knobs from Hódmezővásárhely–Kishomok. Ferenc Móra's excavation, photo by Imre Nagy
- Fig. 28. Groundplan of a Gepidic house. Szolnok–Zagyvapart. János Cseh's excavation, drawing by Krisztián Nyikus

- Fig. 29. Gepidic pottery from Tiszafüred and Törökszentmiklós. János Cseh's excavation, photo by Imre Nagy
- Fig. 30. Bird and S shaped fibulae inlaid with semi-precious stones from Vörs. Károly Sági's excavation, photo by Róbert Müller
- Fig. 31. Langobard burials: man with his weapons (Kajdacs) and richly bejewelled Langobard woman (Szentendre). István Bóna's excavations, drawing by Krisztián Nyikus
- Fig. 32. Fibulae from the Fertőszentmiklós cemetery. Péter Tomka's excavation and photo
- Fig. 33. Small container carved from antler. Keszthely–Fenéki Road. Károly Sági and Róbert Müller's excavation, photo by Róbert Müller
- Fig. 34. Avar lances from the Budakalász cemetery. Adrienn Pásztor and Tivadar Vida's excavation, photo by Tibor Kádas
- Fig. 35. Richly furnished Avar female burial from Zamárdi–Réti földek. Edith Bárdos' excavation
- Fig. 36. Early Byzantine jug inlaid with silver and copper, decorated with a hunting scene, from the Budakalász cemetery. Adrienn Pásztor and Tivadar Vida's excavation, photo by Tibor Kádas
- Fig. 37. Grave pit with a side-niche. Szegvár–Oromdűlő. Gábor Lőrinczy's excavation and photo
- Fig. 38. Ceremonial belt from the khagan's burial at Kunbábony. Elvira H. Tóth's excavation, photo by Béla Kiss
- Fig. 39. Stirrups and girth buckles from Kehida. Béla Miklós Szőke's excavation, photo by Lajos Sugár
- Fig. 40. Iron folding chair inlaid with silver from the Zamárdi cemetery, Edith Bárdos' excavation, photo by Mrs. Gábor Gözsy
- Fig. 41. Disc fibula with a portrayal of Christ from Keszthely–Fenékpuszt. László Barkóczy's excavation, photo by Róbert Müller
- Fig. 42. Three-nave church in the late Roman fort at Keszthely–Fenékpuszt, 6th–7th century. Károly Sági's excavation and drawing
- Fig. 43. Warrior buried with his horse and sabre from Gyenesdiás. Drawing by Krisztián Nyikus
- Fig. 44. Ornate belt ornaments from a female burial of the Avar cemetery at Budakalász. Adrienn Pásztor and Tivadar Vida's excavation, photo by Tibor Kádas
- Fig. 45. Wheel-turned vessels from the Avar cemetery at Budakalász. Adrienn Pásztor and Tivadar Vida's excavation, photo by Tibor Kádas
- Fig. 46. Wooden bucket with iron hoops. Söjtör. Béla Miklós Szőke's excavation, photo by Lajos Sugár
- Fig. 47. Strap end decorated with an animal combat scene and a woman riding a griffin from a late Avar belt set. Budakalász. Adrienn Pásztor and Tivadar Vida's excavation, photo by Tibor Kádas
- Fig. 48. Gilt bronze earring with bead pendant from Gyenesdiás. Róbert Müller's excavation and photo
- Fig. 49. Man buried with his belt. Jászapáti. László Madaras' excavation and photo
- Fig. 50. *In situ* position of clasps in the grave and the ornaments after restoration. Gyenesdiás. Róbert Müller's excavation and photo
- Fig. 51. Mosaic bead. Zalakomár. Béla Miklós Szőke's excavation, photo by Tibor Kádas
- Fig. 52. Late Avar bronze belt set ornamented in the griffin and tendril style, a knife and a bone disentangler from Zalakomár. Béla Miklós Szőke's excavation, photo by Tibor Kádas
- Fig. 53. Late Avar house with a stone stove. Lébény–Bille-domb. Gabriella T. Németh, Miklós Takács and Péter Tomka's excavation, photo by Miklós Takács
- Fig. 54. Baking lid for baking bread and meat or an ember cover from Hunya. Béla Miklós Szőke's excavation, photo by Lajos Sugár
- Fig. 55. Short scythe and sickle from the Avar cemetery at Budakalász. Adrienn Pásztor and Tivadar Vida's excavation, photo by Krisztina Pálfay
- Fig. 56. Man buried with his sword and the restored sword. Garabonc–Ófalu. Béla Miklós Szőke's excavation and photo
- Fig. 57. Finds from a male burial of the Carolingian period: spurs, flint, strike-a-light, knife, buckle. Alsórajk. Béla Miklós Szőke's excavation, photo by Tibor Kádas
- Fig. 58. Jewellery from a girl's grave. Zalavár–Vársziget, cemetery by St.

Mary's Church. Béla Miklós Szőke's excavation, photo by Tibor Kádas

- Fig. 59. Well lined with wood. Zalavár–Vársziget. Béla Miklós Szőke's excavation and photo
- Fig. 60. Antler salt-box decorated with a cross and animal figures from Zalavár–Vársziget. Béla Miklós Szőke's excavation, photo by Tibor Kádas
- Fig. 61. Aerial photo of St. Adorján's Church. Zalavár–Vársziget, Béla Miklós Szőke's excavation, photo by Zsuzsa Miklós
- Fig. 62. Finds from the cemetery by St. Adorján's Church. Zalavár–Vársziget. Béla Miklós Szőke's excavation, photo by Tibor Kádas
- Fig. 63. Capital from Zalavár–Vársziget. Béla Miklós Szőke's excavation, photo by Tibor Kádas
- Fig. 64. Carolingian manor house and church. Zalasabar–Borjúállás-sziget. Róbert Müller's excavation and drawing

XI. THE CONQUEST PERIOD

Frontispiece: Burial of a high-ranking dignitary with his weapons, insignia and horse from Karos. László Révész's excavation and photo

Map: 10th–11th century burials in the Carpathian Basin

- Fig. 1. Miklós Jankovich (1772–1846). Hungarian National Museum, Archaeological Archives
- Fig. 2. Flóris Rómer (1815–1889). Hungarian National Museum, Archaeological Archives
- Fig. 3. József Hampel (1849–1913). Hungarian National Museum, Archaeological Archives
- Fig. 4. Nándor Fettich (1900–1971). Hungarian National Museum, Archaeological Archives
- Fig. 5. Gyula László (1910–1997). Hungarian National Museum, Archaeological Archives
- Fig. 6. Béla Szőke (1913–1961). Hungarian National Museum, Archaeological Archives
- Fig. 7. Anton Točík (1918–1994). Hungarian National Museum, Archaeological Archives
- Fig. 8. István Dienes (1929–1995). Hungarian National Museum, Archaeological Archives
- Fig. 9. Log cabin in the earthen fort at Edelény–Borsod during excavation. Mária Wolf's excavation and photo
- Fig. 10. Reconstruction of a log cabin from the earthen fort at Edelény–Borsod. Mária Wolf's excavation, photo by Tibor Sabján
- Fig. 11. 10th century settlement at the earthen fort of Edelény–Borsod. Mária Wolf's excavation, drawing by Tibor Sabján
- Fig. 12. Open-air oven. Karos–Tobolyka. Mária Wolf's excavation and photo
- Fig. 13. The earthen fort at Szabolcs. Géza Kulcsár's photo
- Fig. 14. Wooden structure of the rampart and the excavation of the rampart. Edelény–Borsod. Gyula Nováki and Mária Wolf's excavation, photo by Mária Wolf
- Fig. 15. Reconstruction of the earthen fort at Borsod. Mária Wolf's excavation, drawing by Tibor Sabján
- Fig. 16. Sunken smelting furnace. Trizs–Vörössár. Mária Wolf's excavation and photo
- Fig. 17. Sunken workshop with smelting furnace. Trizs–Vörössár. Mária Wolf's excavation and photo
- Fig. 18. Sabretache plate from Tiszabezdéd. Hungarian National Museum, drawing by István Ö. Dienes
- Fig. 19. Braid ornament from Anarcs. Photo by József Hapák (after FODOR 1996)
- Fig. 20. Disc with the Tree of Life and a bird. Hungarian National Museum, drawing by István Ö. Dienes
- Fig. 21. Braid ornament from Rakamaz. Hungarian National Museum, drawing by István Ö. Dienes
- Fig. 22. Braid ornaments from Tiszasüly and Sárrétudvari. Hungarian National Museum, drawing by István Ö. Dienes
- Fig. 23. Braid ornament from Biharkeresztes. Hungarian National Museum, Archaeological Archives

- Fig. 24. Braid ornament from Zemplén. Hungarian National Museum, Archaeological Archives
- Fig. 25. Skull from grave 10 of the Bashalom II cemetery. Hungarian National Museum, drawing by István Ö. Dienes
- Fig. 26. Carved staff end from Szeghalom. Hungarian National Museum, Archaeological Archives
- Fig. 27. Mount from Kiszombor. Hungarian National Museum, Archaeological Archives
- Fig. 28. Bronze cross from Hajdúdorog. Photo by József Hapák (after FODOR 1996)
- Fig. 29. Reliquary from Tiszaeszlár–Sinkahegy. Photo by József Hapák (after FODOR 1996)
- Fig. 30. The Zemplén cup (after RUTTKAY 1979)
- Fig. 31. Sabretache plate from Szolyva. Photo by József Hapák
- Fig. 32. Burial ground of a family of the tribal-clan aristocracy at Szakony. Drawing by István Dienes
- Fig. 33. Richly furnished female grave from Tiszaeszlár–Bashalom. Photo by István Dienes
- Fig. 34. Reconstruction of the costume, weapons and insignia of a high-ranking dignitary, based on the finds from the Karos cemeteries. Drawing by Zsuzsa Branczeisz
- Fig. 35. Lockrings and bracelets in a burial in the commoners' cemetery at Hódmezővásárhely–Nagysziget. Photo by László Révész
- Fig. 36. Reconstruction of a horse harness ornamented with silver gilt mounts, based on the finds from a male burial at Szakony. Drawing by István Ö. Dienes

XII. THE MIDDLE AGES AND THE POST-MEDIEVAL PERIOD

Frontispiece: The citadel at Visegrád. Photo by Csaba Gedai

Map: The Hungarian Kingdom in the Middle Ages; Ethnic groups and privileged territories in the medieval Kingdom of Hungary

- Fig. 1. A bird's eye view of Visegrád. Zsolt Visy's photo
- Fig. 2. Excavation drawing of the Székesfehérvár Basilica from the 19th century (after HENSZLMANN & REISENBERGER 1883)
- Fig. 3. The building periods of the Székesfehérvár Basilica. Reconstruction by Gergely Buzás, based on research by János Érdy, Imre Henszlmann, A. Dormuth, Kálmán Lux, Alán Kralovánszky, Zoltán Szabó, Gyula Siklósi and Piroska Biczó
- Fig. 4. Esztergom Castle. Photo by Gergely Buzás
- Fig. 5. The chapel of Esztergom Castle. Photo by Gergely Buzás
- Fig. 6. Capital in the hall of Esztergom Palace. Photo by Gergely Buzás
- Fig. 7. The hall of Esztergom Castle during the investigation. Photo by Gergely Buzás
- Fig. 8. The building periods of Esztergom Palace (after HORVÁTH et al. 1979)
- Fig. 9. Esztergom Palace in the 15th century. Reconstruction by István Horváth
- Fig. 10. Groundplan of Óbuda Castle (after ALTMANN & BERTALAN 1991)
- Fig. 11. Reconstruction of Óbuda Castle. Drawing by György Szekér
- Fig. 12. The chapel of Buda Castle. Photo by Gergely Buzás
- Fig. 13. Medieval gate in Buda Castle. Photo by Gergely Buzás
- Fig. 14. Gothic window in Buda Castle. Photo by Gergely Buzás
- Fig. 15. The lower castle at Visegrád (the Salamon Tower). Photo by Gergely Buzás
- Fig. 16. Groundplan of Visegrád Palace and the Franciscan friary. Drawing by Gergely Buzás
- Fig. 17. Ornate fountain from the Sigismund period in Visegrád Palace. Photo by Gergely Buzás
- Fig. 18. The Visegrád Madonna (red marble relief). Photo by Gergely Buzás
- Fig. 19. Excavations in the ceremonial courtyard of Visegrád Palace during the 1930s.
- Fig. 20. 1. Groundplan of Sopron in the 11th–13th centuries (after HOLL 1979), 2. Sopron on an engraving from the postmedieval period. Zakariás Michel, 1700, Sopron Museum
- Fig. 21. Urban rescue excavation at Budapest–Corvin square. Photo by András Végh
- Fig. 22. 1. Aerial photo of the medieval market town at Decs–Ete. Photo by Zsuzsa Miklós, 2. Survey of the medieval market town, showing the information gained from the aerial photos and the field surveys. Drawing by Endre Egyed (after VIZI & MIKLÓS 1999)
- Fig. 23. Excavated sections of the medieval Gothic church at Decs–Ete. Photo by Zsuzsa Miklós
- Fig. 24. The main street of medieval Muhi, with wheel ruts. Photo by József Laszlovsky
- Fig. 25. Árpadian Age cemetery and later timber-framed houses at Muhi. Photo by József Laszlovsky
- Fig. 26. Oven plastered with sherds, uncovered in one of the medieval houses at Muhi. Photo by József Laszlovsky
- Fig. 27. Excavated sections of the Cistercian abbey at Pásztó. Ilona Valter's excavation, reconstruction by Ágnes H. Vladár (after VALTER 1982)
- Fig. 28. Reconstruction of the Cistercian abbey at Pásztó
- Fig. 29. Remains of the Cistercian abbey at Szentgotthárd. Photo by József Laszlovsky
- Fig. 30. Ornamented floor tile from the Cistercian abbey at Pilis (after HOLL 2000)
- Fig. 31. Ruins of the Paulite monastery at Gönc. Photo by József Laszlovsky
- Fig. 32. Hall of the chapter house in the Franciscan friary at Visegrád, with the remains of the Gothic vaulting from the collapsed ceiling. Photo by József Laszlovsky
- Fig. 33. Remains of the altar in the chapter house of the Franciscan friary at Visegrád. Photo by József Laszlovsky
- Fig. 34. The well of the Franciscan friary at Visegrád. Photo by József Laszlovsky
- Fig. 35. Earthen fort at Bikács–Belső-sziget. Photo by Zsuzsa Miklós
- Fig. 36. Courtyard of Tata Castle. Photo by Gergely Buzás
- Fig. 37. Diósgyőr Castle. Photo by Gergely Buzás
- Fig. 38. Reconstruction of Diósgyőr Castle (after CZEGLÉDY 1988)
- Fig. 39. The Karakas Pasha Bastion in Buda Castle. Photo by Tamás Mihalik
- Fig. 40. Szigetvár Castle. National Office of Cultural Heritage, Photo Archives
- Fig. 41. Pál Esterházy's drawing of the Barcs fort (1664). Hungarian National Archives
- Fig. 42. Hoefnagel's engraving of Szolnok Castle (1617). Hungarian National Museum, Historical Gallery
- Fig. 43. Ditch system and Árpadian Age settlement features at Lébény–Bille-domb. Photo by Miklós Takács
- Fig. 44. Settlement features from the Árpadian Age at Hegyeshalom–Holdas szántók. Photo by Miklós Takács
- Fig. 45. The roof structure of a reconstructed Árpadian Age dwelling at Szarvasgede. Photo by Miklós Takács
- Fig. 46. The walls of a reconstructed Árpadian Age dwelling at Szarvasgede. Photo by Miklós Takács
- Fig. 47. Fully reconstructed dwelling of the Árpadian Age at Szarvasgede. Photo by József Laszlovsky
- Fig. 48. Groundplan of the reconstructed Árpadian Age dwelling at Szarvasgede. Reconstruction by Tibor Sabján
- Fig. 49. Interior of the reconstructed Árpadian Age dwelling with an oven at Szarvasgede. Photo by József Laszlovsky
- Fig. 50. Reconstruction of a late medieval house at Sarvaly. Reconstruction by Tibor Sabján
- Fig. 51. Pecheneg bit with silver inlay from Sárbogárd–Tinódpusztá. Photo by Bence Képesy
- Fig. 52. Chinese bronze mirror from the burial of a wealthy Cumanian woman. Nagykarász–Bánkút–Rózsamajor. Photo by Bence Képesy
- Fig. 53. Grave of a Cumanian warrior buried with his horse. Szeged–Csengele. Drawing by Ferenc Horváth (after HORVÁTH 2001)
- Fig. 54. Helmet from the warrior's grave at Csólyospálos–Csólyospusztá. Photo by Bence Képesy
- Fig. 55. Gothic belt buckle from the Cumanian warrior's grave at Kiskunmajsza–Kígyópusztá. Photo by Bence Képesy
- Fig. 56. Pair of stirrups from the Cumanian warrior's grave at Csólyospálos–Csólyospusztá. Photo by Bence Képesy

- Fig. 57. Torc from a wealthy Cumanian woman's grave at Balotaszállás–Balotapuszta. Photo by Bence Képesy
- Fig. 58. Reconstructed model of a 15th century Cumanian house excavated at Szentkirály. Reconstruction by András Pálóczi Horváth and Tibor Sabján, photo by András Pálóczi Horváth
- Fig. 59. Remains of house 9 of the Cumanian settlement at Szentkirály, with the bedding trench of the wattle-and-daub walls and the postholes of the timber framework. András Pálóczi Horváth's excavation and photo
- Fig. 60. Cumanian jewellery from the Cumanian cemetery at Perkáta–Kőhalmi-dűlő. Gábor Hatházi's excavation, photo by Ferenc Gelencsér
- Fig. 61. Pair of clasps from the Cumanian cemetery at Sárosd. Photo by Ferenc Gelencsér
- Fig. 62. Beads, cast bronze pendant and bone amulets ornamenting the pouch from grave 140 of the Cumanian cemetery at Perkáta–Kőhalmi-dűlő. Gábor Hatházi's excavation, photo by Ferenc Gelencsér
- Fig. 63. Jewish communities in medieval Hungary. Drawing by Ilona Oláh Seres, based on data provided by András Kubinyi
- Fig. 64. Prayer hall of the old synagogue with the ark of the Torah in Sopron. Reconstruction by János Sedlmayer, photo by Attila Adorján
- Fig. 65. Groundplan of the old synagogue in Sopron. Survey by János Gömöri (after GÖMÖRI 1979)
- Fig. 66. Toy horse. Drawing by Bea Puskás (after PETÉNYI 1993)
- Fig. 67. Tiled stove decorated with knight figures from Buda. Drawing by Tibor Sabján
- Fig. 68. Tile fragment with a depiction of a pelican feeding its young with its own blood from the Angevin period tiled stove at Visegrád
- Fig. 69. Reconstruction of a late 15th century tiled stove, based on the finds from Külsővat. Drawing by Tibor Sabján
- Fig. 70. Reconstruction of a 15th century stove, based on finds from Szentkirály. Drawing by Tibor Sabján
- Fig. 71. Reconstruction of the Matthias period tiled stove at Visegrád. Drawing by Tibor Sabján
- Fig. 72. Well of the Franciscan friary at Visegrád. Photo by József Laszlovsky
- Fig. 73. Wooden lining of the well at Muhi. Photo by József Laszlovsky
- Fig. 74. Finds from a well at Muhi. Photo by József Laszlovsky
- Fig. 75. The Turkish occupied area of medieval Hungary in 1568. Drawing by Rita Magony and Sándor Ősi
- Fig. 76. *Mibrab* in the parish church of Pest. Photo by Tibor Kádas
- Fig. 77. The Malkoç Bey Mosque in Siklós. National Office of Cultural Heritage, Photo Archives
- Fig. 78. Interior of the Yakovali Hasan Mosque in Pécs. National Office of Cultural Heritage, Photo Archives
- Fig. 79. The Király Baths in Buda. Photo by Tibor Kádas
- Fig. 80. Glazed Turkish pottery from Szolnok Castle. Photo by Károly Kozma

- Fig. 81. Faience vessels from Iznik. Photo by József Hapák
- Fig. 82. Balkanic pottery wares. Photo by Tibor Kádas
- Fig. 83. Copper vessels from Szolnok Castle. Photo by Károly Kozma
- Fig. 84. Turkish pipes from Kanizsa Castle. Drawing by Péter Posztobány

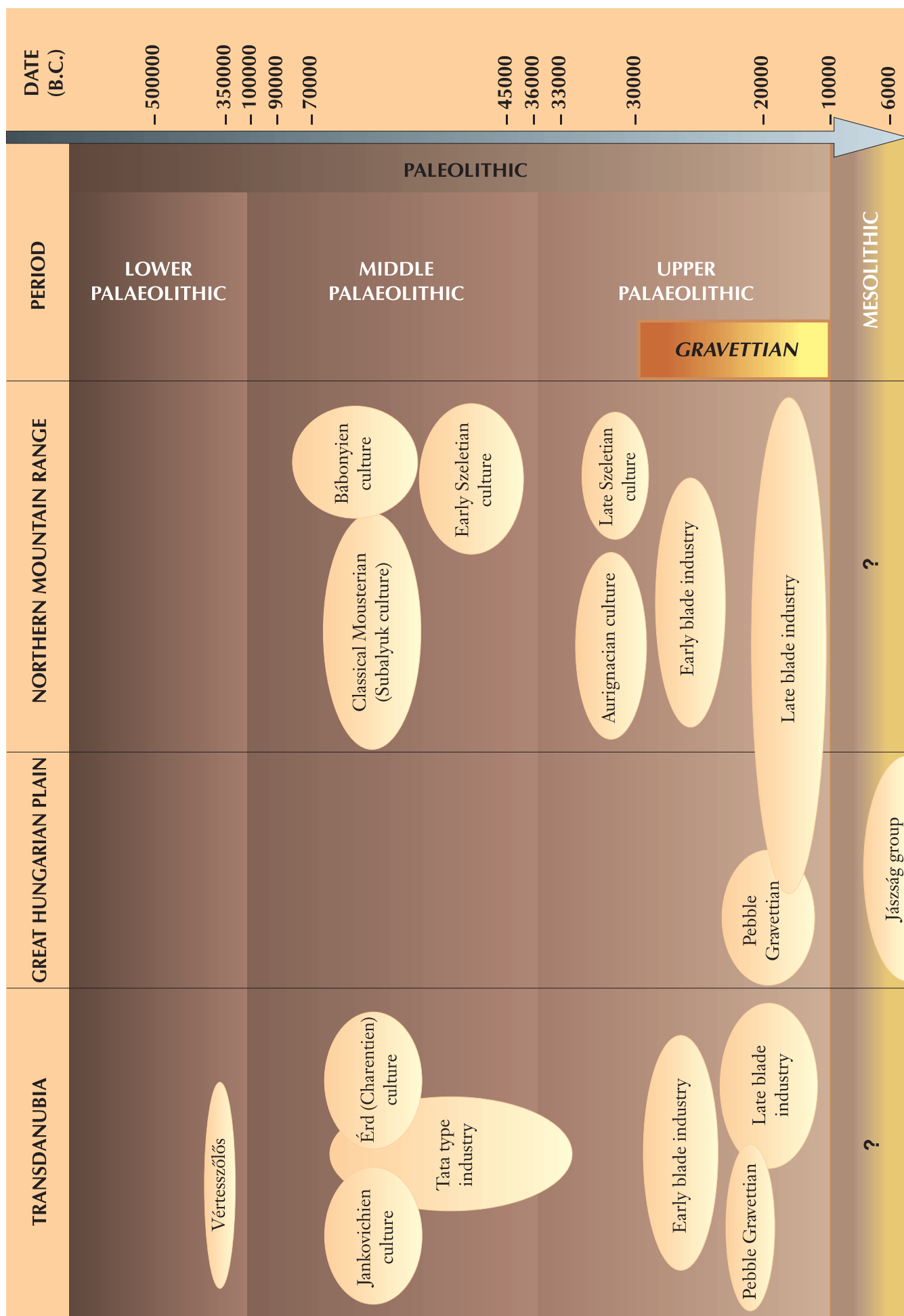
XIII. ARCHAEOLOGICAL INSTITUTIONS

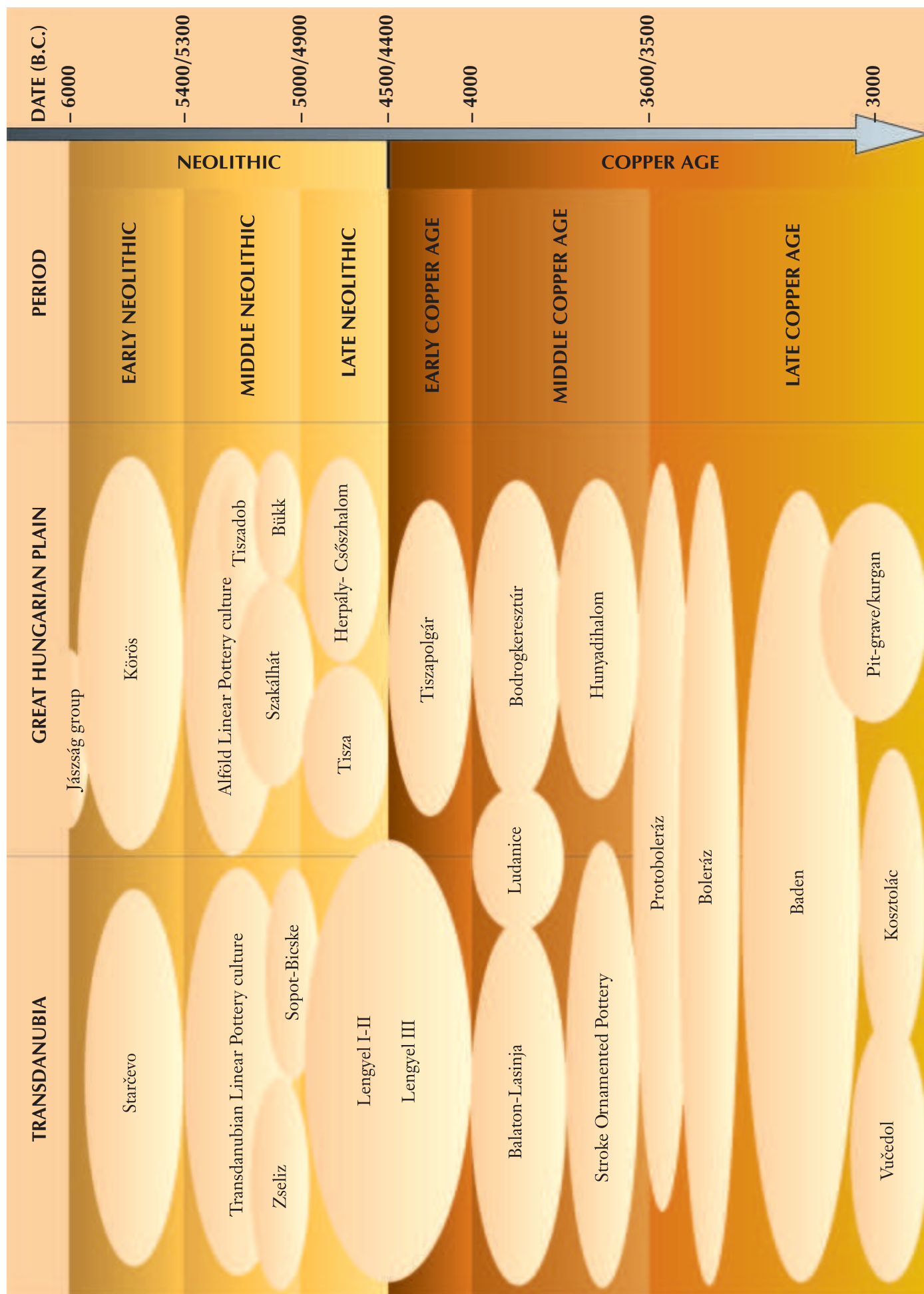
Frontispiece: The building of the Hungarian Academy of Sciences building. National Office of Cultural Heritage, Documents Archive; List of academicians who were archaeologists. Compiled by Csanád Bálint

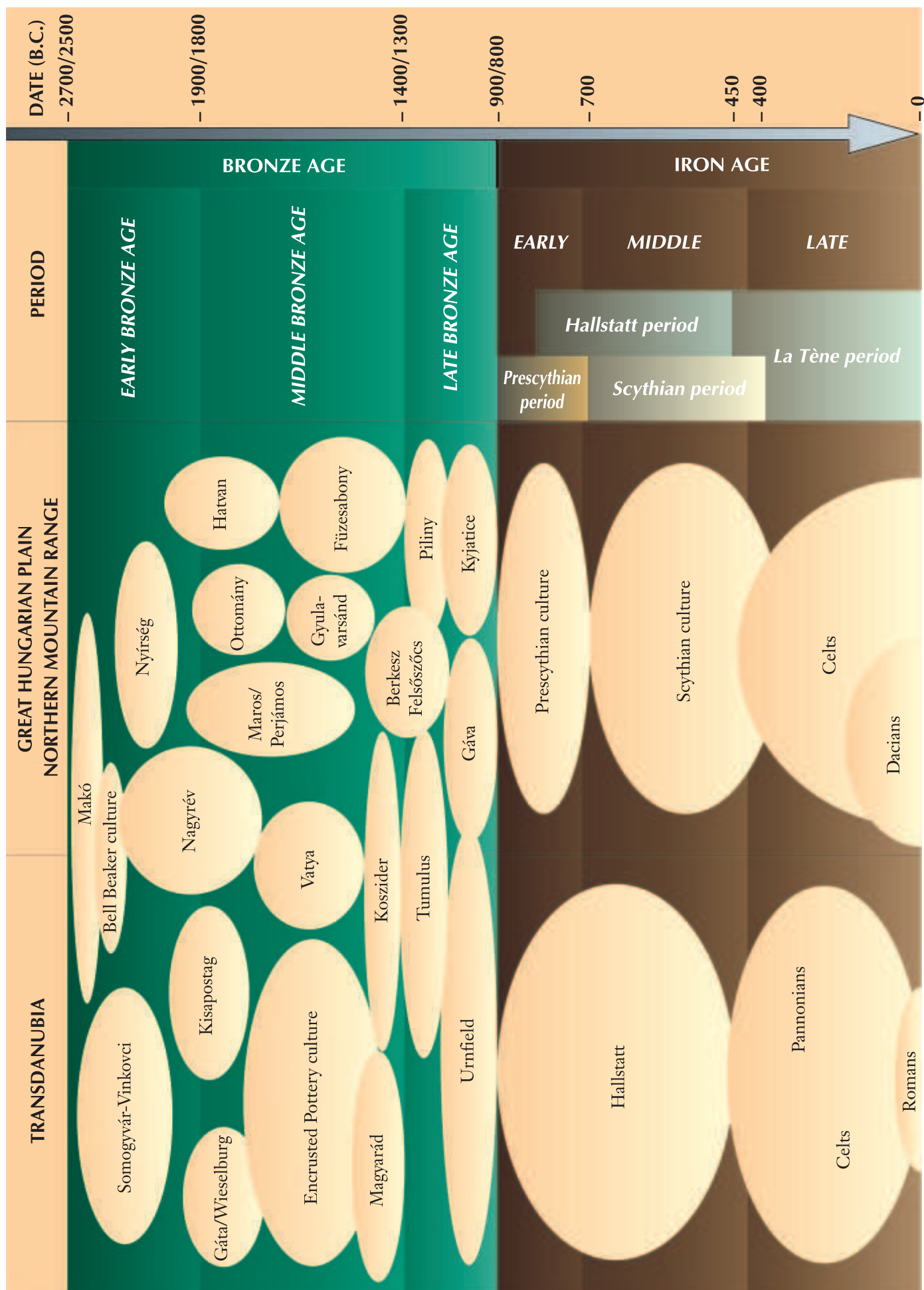
Map: Museums with an archaeological collection, based on data provided by János Juhász

- Fig. 1. The building of the Hungarian National Museum, opened in 1848
- Fig. 2. The building of the Aquincum Museum, inaugurated in 1894, among the restored ruins of the Roman town
- Fig. 3. Rescue excavation on the planned course of the M3 motorway
- Fig. 4. Distribution of archaeological excavations in 2000 according to category
- Fig. 5. Distribution of preliminary excavations in 2000
- Fig. 6. János Banner (1888–1971). Courtesy of Imre Szatmári
- Fig. 7. András Mócsy (1929–1987). Courtesy of Mária Bíró
- Fig. 8. István Bóna (1930–2001). Courtesy of Jolán B. Horváth
- Fig. 9. The Móra Ferenc Museum in Szeged. Courtesy of Gabriella Vörös
- Fig. 10. The areas covered by the volumes of the Archaeological Topography of Hungary series. Drawing by Ágnes Vári
- Fig. 11. Distribution of listed archaeological sites according to county
- Fig. 12. View of the Roman ruins at TÁC–Gorsium
- Fig. 13. Depiction of archaeological sites using GIS methods: digital map of the Danube Bend at 1:100,000 scale (by InfoGraph Co.), showing the archaeological sites from the Migration and the Hungarian Conquest period at Nagymaros, Zebegény, Szob and Börzsönyliget
- Fig. 14. Reconstruction of a Bronze Age house from Túrkeve–Terehalom, layer 4. Drawing by Ágoston Dékány and Márta Lacza, photo by Károly Kozma
- Fig. 15. Detail of the archaeological park at Százhalombatta. Photo by Ildikó Poroszlai
- Fig. 16. The interior of tumulus 115 at Százhalombatta, with the original and reconstructed sections. Photo by András Dabasi
- Fig. 17. The World Heritage site in Pécs. Photo by Otto Braasch
- Fig. 18. Views of the Visegrád palace at the beginning of the millennial restoration project and its current state. Photo by Gergely Buzás
- Fig. 19. Bátaszék, the Cistercian Monastery after restoration. Ilona Valter's excavation, photo by Zsuzsa Miklós

CHRONOLOGICAL CHARTS







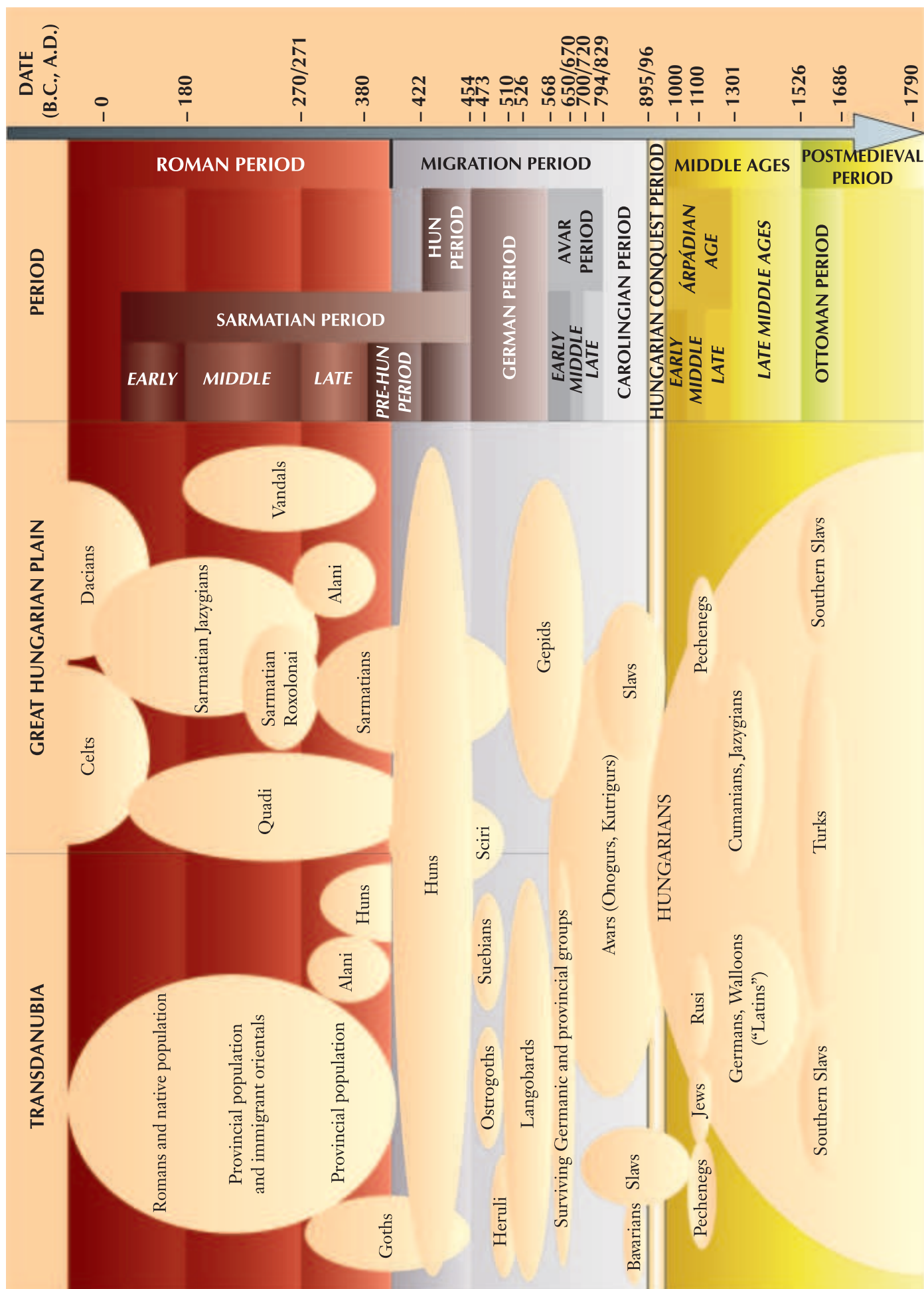


TABLE OF CONTENTS

Commendation	5
Editors' foreword	7
Lectori Salutem	9

I. ARCHAEOLOGICAL RESEARCH IN HUNGARY

Edited by MIHÁLY NAGY

The history of archaeological fieldwork in Hungary	15
Underwater archaeology	22
The emergence of underwater archaeology in Hungary	22
The conditions of underwater archaeology in Hungary.	22
Underwater finds, underwater sites	22
Underwater excavations in Hungary	23
Opinions and counter-opinions	24
The future of underwater research.	25
Aerial archaeology in Hungary	25
Urban archaeology: a special field of heritage protection	28
The nature of urban archaeology	29
Urban excavations and urban planning.	30
The protection of the archaeological heritage in Hungary	30
Beginnings	31
The importance of the foundation of the Hungarian National Museum.	31
The role of the Hungarian Academy of Sciences	32
Legislation	33
The protection of the immovable heritage at present	35
International practice	35

II. MAN AND HIS ENVIRONMENT

Edited by LÁSZLÓ BARTOSIEWICZ & ERZSÉBET JEREM

Environmental archaeology: the birth of a new discipline	39
Methods of environmental archaeology	39
Environmental archaeology in Hungary.	42
The future of environmental archaeology – reconstructing and protecting the landscape.	44
Dating methods	44
Relative chronology	44
Radiocarbon dating	46
Other dating methods	48
Dendrochronology and ancient forest cover	48
The principles of dating	48
Dating in practice.	49
Archaeological examples.	50
Forestry: a historical perspective	51
Future research directions	51

Palaeoenvironmental history of Hungary	51
The mosaic patterning of the environment	51
Reindeer hunters of the late Ice Age	52
Mesolithic hunter-gatherers	53
Early food producing communities in the Neolithic	54
Consequences of the mosaic patterning of the environment	56
Hunted animals	56
The archaeological significance of hunting	56
Holocene mammals in Hungary	57
Hunted animals	57
Hunting booty as archaeological finds	59
Hunting in the post-medieval period	60
The archaeology of domestic animals	60
Why study the remains of domestic animals?	60
The first domestic animals	60
The beginnings of animal keeping in the Carpathian Basin	60
What can we learn from animal bones?	61
Equestrian burials	61
Bone working	62
Reconstructing nutritional history	62
Animal breeds	63
Remains of an exotic animal	63
New perspectives in the archaeological research of domestic animals	64
The archaeology of cultivated plants	64
The human population	67
Historical anthropology	67
Burials – Excavations	67
How does historical anthropology contribute to historical studies?	67
Historical demography	68
Health and disease in the past	68
Modifications caused by cultural tradition	70
What did they look like? – The reconstruction of facial features	70
Anthropological collections	71
Modern Age mummies	71
Exhumation and identification	71
Perspectives in historical anthropology	72
Appendix: the mammals of Hungary	73

III. THE PALAEOLITHIC AND MESOLITHIC

Edited by KATALIN T. BIRÓ

Introduction	77
Vértesszőlős: the first people in Hungary	78
The evolution and culture of modern man	81
The Middle Palaeolithic	81
The transition from the Middle to the Upper Palaeolithic	84
The early Upper Palaeolithic	84
Late glacial hunters	85
The Mesolithic: towards a production economy	91

IV. THE NEOLITHIC

Edited by KATALIN T. BIRÓ

Introduction: the beginnings of a production economy in Hungary	99
The history of the Neolithic	100
The Neolithic in the southern part of the Great Hungarian Plain	100
The Neolithic in the northern part of the Great Hungarian Plain and the Northern Mountain Range	101
The Neolithic in Transdanubia up to the appearance of the Lengyel culture	102
The Late Neolithic in Transdanubia	102
Neolithic settlements	103
Füzesabony–Gubakút: a Neolithic settlement in the Great Hungarian Plain	103
Mosonszentmiklós–Egyéni földek: a Neolithic village in Transdanubia	104
Hódmezővásárhely–Gorzsa: a Late Neolithic settlement in the Tisza region	106
Burial rites of the Neolithic	107
Neolithic burials in the Tisza region	108
Neolithic burial customs and burial rites in Transdanubia	110
Neolithic beliefs	112
Raw materials, mining and trade	117

V. THE COPPER AGE

Edited By ZSUZSNA M. VIRÁG

History of the Copper Age	125
Settlements	127
Early metallurgy in the Carpathian Basin	129
Copper Age religion and beliefs	132

VI. THE BRONZE AGE

Edited by ERZSÉBET JEREM

Changes in the 3rd millennium B.C.: the dawn of a new period	141
The Early Bronze Age	141
Tell cultures of the Early and Middle Bronze Age	142
Tiszaug–Kéménység: a Bronze Age settlement in the Tisza region	143
Burials around Nagyrév–Zsidóhalom	144
The expansion of the Hatvan culture	145
Jászdózsa–Kápolnahalom: a tell settlement in the Great Hungarian Plain	146
Cemeteries of the Hatvan culture	147
Central European economies: agriculturalists in Transdanubia	148
Potters in Transdanubia	150
Burials of the Encrusted Pottery culture	150
Fortified centres along the Danube	151
Dunaújváros–Dunadűlő: burials of the Váti culture	155
The florescence of the Middle Bronze Age in the Tisza region: the Füzesabony culture	156
Cemeteries of the Füzesabony culture	157
The Middle Bronze Age population of the Berettyó–Körös region: the Gyulavarsánd culture	158
Túrkeve–Terehalom: a tell settlement in the Berettyó valley	158
Tell settlements in the Maros region	160

The Koszider period	161
The advent of a new period: the Late Bronze Age in the Carpathian Basin	161
The Tumulus culture: invaders from the west	161
The expanding world: masters of bronzeworking in the Carpathian Basin	163
Bronze Age metallurgy	167
The emergence of Bronze Age metallurgy	167
Bronzeworking in the Middle Bronze Age	168
Gold metallurgy	169
The bronze industry of the Late Bronze Age	170
Late Bronze Age gold metallurgy	173

VII. THE IRON AGE

Edited by ERZSÉBET JEREM

The beginning of the Iron Age: the pre-Scythians	177
The Middle Iron Age: Scythians in the Tisza region	179
Burials	179
Settlement and economy	180
Horse harness and weapons	181
Animal style art	182
Pottery	182
The Early Iron Age in Transdanubia: the Hallstatt culture	183
New research results	183
Hillforts and fortified settlements	184
Burial mounds and religious beliefs	185
Inurned burials	187
Weapons, horse harness, costume: the finds from male burials	187
Female costume and jewellery	187
Masterpieces of the potter's craft	188
Rural settlements	190
Crafts and industry	191
The Late Iron Age: the Celts of the La Tène period	192
New advances in the research of the Celts	192
History of the Celts	192
Celtic cemeteries and burial customs	193
Grave goods and costume	195
Settlement history	197
Masterpieces of Celtic craftsmanship	198
Religion	200
The Celtic site at Ménfőcsanak	200

VIII. THE ROMAN PERIOD

Edited by ZSOLT VISY

Historical outline of the Roman period	205
The nature of research	205
Pannonia	205
Roman administration in Pannonia	205
The change in lifeways	206
Pannonia's role in the Roman Empire	207

Pannonia in Antiquity	207
Changes in the 4th century	208
Questions of survival	208
The border defence of Pannonia	208
Fortifications	209
Watchtowers	213
The limes road	215
Late Roman forts in Pannonia	215
Roman roads in Transdanubia	218
The towns of Pannonia	221
The early development of Pannonian towns	221
Religious life in Pannonian towns	223
Savaria	224
Scarbantia	226
Aquincum: the civilian town	227
Brigetio	229
Sopianae	230
Aqueducts and public utilities	231
Licence, design, execution	232
Operation and maintenance	234
Regional establishments linked to water	234
Recent research results	234
The subsequent fate of Roman aqueducts	234
Rural settlements in Pannonia	235
Villas	235
Roman villas north of Lake Balaton	238
Rural settlements in Pannonia	241
Crafts and industry	243
Quarries	244
Brick kilns	244
Lime kilns	245
Pottery kilns	245
Glass	246
Ironworking	246
Bronzeworking	247
Cult centres in Pannonia	247
Burials	251
Burial rites in the Roman period	252
Burials and settlement layout	255
Funerary memorials and monuments	256
Roman period tumuli in Transdanubia	257

IX. THE BARBARICUM IN THE ROMAN PERIOD

Edited by ANDREA VADAY

Historical overview	265
The peoples of the Barbaricum during the Roman period	267
The Sarmatians	267
The Celts	269
The Dacians	269
The Quadi	270
The Vandals	271

The archaeology of the Sarmatian territories.	271
Burials.	271
Settlements.	275
The archaeology of the northern and northeastern fringes of the Sarmatian settlement territory	278
Research perspectives.	280

X. THE MIGRATION PERIOD

Edited by TIVADAR VIDA

Cross-roads of peoples and cultures	283
The Huns	284
History of the Huns	284
History of research.	285
Burials and society	286
The Sarmatians in the Hun period.	287
The Romanized population in the 5th–6th centuries	289
Germans and Alans in Transdanubia in the 5th century	291
The Ostrogoths	291
The Suebians	293
Germanic peoples in the Great Hungarian Plain during the 5th century	293
The Gepids.	294
History	294
History of research.	295
Cemeteries and society.	296
Settlements.	297
The Langobards	298
History	298
History of research.	299
Cemeteries and society.	300
Settlements and subsistence	301
The early and middle Avar period.	302
History	302
History of research.	302
Cemeteries and society.	304
The middle Avar period	306
Crafts, costume and implements.	306
Settlements and subsistence	307
The Late Avar period	308
History	308
History of research.	308
Cemeteries and society.	309
Crafts	310
Settlements.	311
The Carolingian period.	312
History	312
History of research.	313
Cemeteries	314
Settlements.	314
Mosaburg/Zalavár.	315

XI. THE CONQUEST PERIOD

Edited by LÁSZLÓ RÉVÉSZ

The archaeological research of the Conquest period	321
10th–11th century settlements	326
Earthen forts	328
Crafts	331
The art and religion of the ancient Hungarians	333
The cemeteries of the Conquest period	338

XII. THE MIDDLE AGES AND THE POST-MEDIEVAL PERIOD

Edited by JÓZSEF LASZLOVSKY

Medieval archaeology in Hungary	347
Medieval royal centres	348
Székesfehérvár	350
Esztergom	352
13th century royal castles	353
The royal palace of Buda	355
The Gothic sculptures of Buda Castle	358
Buda Palace at the end of the Middle Ages	358
Visegrád	359
The re-creation of the Renaissance in Visegrád	362
The archaeology of Hungary's medieval towns	364
The archaeological investigation of medieval urban structure	365
Medieval urban parish churches and hospitals	367
Urban archaeology and written sources	367
Medieval market towns	368
Cathedrals, monasteries and churches: the archaeology of ecclesiastic monuments	372
Medieval monasteries	372
The Franciscan friary in Visegrád	375
Castles, forts and stockades – medieval and Ottoman period military architecture	377
Minor castles	377
Royal castles in the later Middle Ages	378
Military architecture in Hungary during the Ottoman period	380
Palisaded forts in Hungary during the Ottoman period	381
Medieval villages and their fields	383
The structure of Árpáadian Age rural settlements	384
A 'buried landscape': Árpáadian Age settlement history in the Danube–Tisza interfluvium	385
Village parish churches	385
The reconstruction of a medieval dwelling	386
Ethnic groups and cultures in medieval Hungary	388
Eastern ethnic groups in medieval Hungary	388
The archaeological legacy of the Pecheneg and Cumanian aristocracy	389
From aul to village: Cumanian and Jazygian settlements	391
Cumanian and Jazygian cemeteries	393
Ethnic groups in the towns of medieval Hungary	394
Jews and urbanization	395
Medieval material culture – medieval archaeology	397
Stoves with a story and artistic cups: late medieval pottery	398
The stove from the era of King Louis the Great in Visegrád	399

Gothic stoves and their influence on folk stoves	400
The Matthias period tiled stove from Visegrád Palace.	401
“The more often a pitcher goes to the well...”	403
Ottoman period archaeology – post-medieval archaeology	405
The archaeology of the Ottoman period	405
Turkish material culture.	409
The florescence and decline of villages	411
Hungarian material culture in the Ottoman period	412
An enigmatic settlement type: hamlets and farmsteads	413

XIII. ARCHAEOLOGICAL INSTITUTIONS

Edited by KATALIN VOLLÁK

Academicians in archaeology	415
Archaeological collections and museums	417
From King Matthias’s collection of antiquities to the Hungarian National Museum and specialized collections	417
The changing tasks of archaeological museums from their emergence in the late 19th century until today . . .	419
Excavations: from treasure hunting to motorway archaeology	419
Archaeological education and research at the universities	421
Institute of Archaeological Sciences, Eötvös Loránd University, Budapest	421
Department of Archaeology, József Attila University, Szeged	423
Department of Ancient History and Archaeology, Janus Pannonius University, Pécs	425
Department of Prehistory and Ancient History, Miskolc University	425
Department of History, Berzsenyi Dániel College, Szombathely	425
Archaeology and the Hungarian Academy of Sciences	426
Research policy and publications	426
Academic classification	426
Membership in the Academy	426
Public body.	427
The Archaeological Institute of the Hungarian Academy of Sciences	427
Listed archaeological sites – volunteers and amateurs in archaeology	428
Registration and databases	430
The conservation and exhibition of archaeological remains: archaeological parks and experimental archaeology	432
Hungarian archaeological sites on the World Heritage List	435
The integration of historic monument preservation into heritage projects	437
Index of sites	441
Select bibliography	451
List of illustrations	473
Chronological charts	483

