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Mathematics and computers in the XXI° century archaeology: the renewal after the golden years (1970-1985) ?

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Abstract

From the sixties, the fascinating progress of computer technology in the field of scientific researches has amplified the quantitative movement in the whole Social and Human Sciences started after the Second World War. Then the success of a quantitative archaeology is associated with the Multidimensional data analysis revolution, which occurred with the computerisation and improvements of the algorithms, mainly multidimensional scaling, factor analysis, Principal component analysis, correspondence analysis and various cluster analysis. The conference of Mamaia (Romania) in 1970 (published in 1971) may be considered as the first most spectacular scientific event of this period of foundation, concretised also by the book "Mathematics and computers in Archaeology" by Doran and Hodson (1975). Between 1975 and 1985, the quantitative movement knows its best period with the transition from the research field to the application field, both for algorithms and software, seeing the diffusion of Correspondence analysis, Principal Component analysis associated with cluster analysis and their use by archaeologists themselves.

After 1985, the interest of archaeological research has been much more concerned by computerized applications : archaeological excavation data recording, archaeological data retrieval systems, Geographic Information Systems, Cultural Resource Management, Virtual Reality, while archaeologists discovered computerization via the PC and office packages.

The first generation of searchers, who have been both archaeologist and computer scientists is now retired : G. Cowgill, J. Cl. Gardin, P. Ihm, I Scollar, J. Doran, A. Vooriips, A. Bietti, etc. Few of them are always active. The second generation, fully archaeologists, has been trained during the eighties (for example in the European Course 1982 Valbonne –Montpellier) and are using computerized applications as an efficient tool for archaeological problem solving and rarely for new methodological research.

A new generation of archaeologists is coming in the XXI° century. They have discovered that the main theoretical problematics formalizing Archaeology, which have been discussed in the sixties and the seventies, are always up to date. But, the question of the scarcity of archaeological data has also changed : the methodological and scientific development of Archaeology is allowing now to record more accurate quantitative data in a more methodological process on which the use of computerized methods is also much more powerful.