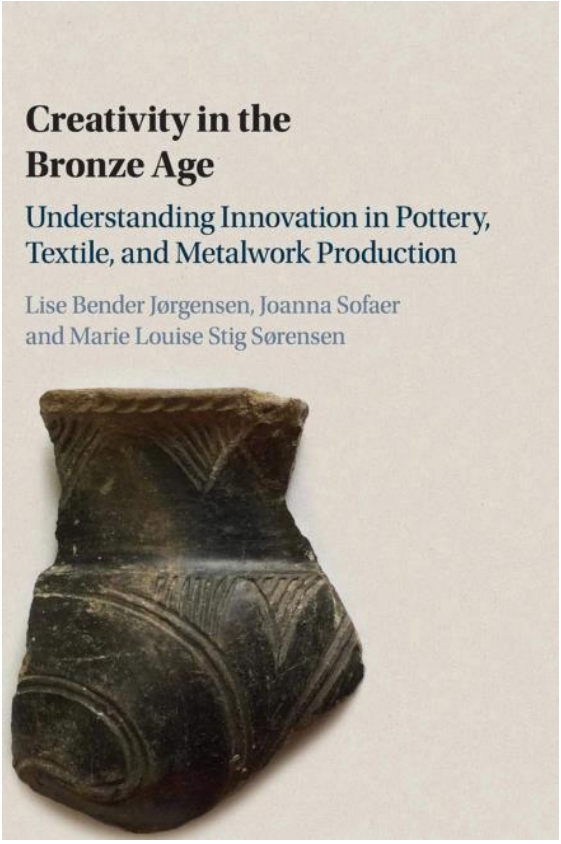

Lise Bender Jørgensen – Joanna Sofaer – Marie Louise Stig Sørensen: Creativity in the Bronze Age. Understanding Innovation in Pottery, Textile, and Metalwork Production. Cambridge, 2018, p. 342. •

'The real voyage of discovery consists not in seeking new landscapes but in having new eyes.'
(Marcel Proust)

An international group of scholars has been formed to research creativity in three crafts during the European Bronze Age (2500–500 BC) and the results have been edited for this volume by Lise Bender Jørgensen (Norwegian University of Science and Technology, Trondheim), Joanna Sofaer (University of Southampton), Marie Louise Stig Sørensen (University of Cambridge).

During the Bronze Age, there were significant changes in material culture, which could be attributed to the technical skills development. Since archaeology sets out from the study of objects, it was attempted to trace the creativity that led to innovation, through the chain of making processes, the '*chaîne operatoire'*. It focuses on the now commonplace but key raw materials that mankind became familiar with in prehistory: from the methods of using textiles, bronze and clay to the design and effects of finished objects.

The book's approach is that technological developments are the result of *collective achievement* in manufacturing practice, because the individual inventor of the idea cannot be identified and the innovation immediately becomes a benefit to the community. It discusses the interaction of all three technologies, pottery, textiles and metalwork with social (economic, power) and spiritual life (cosmology).

From his theories of creativity listed in the introductory section, the authors follow the aspects of those that link the phenomenon to object-making, practical activity. These include learning, problem-solving, attention, rules, mimesis, risk-taking, the maturation (incubation) of an idea, the timing of activity phases, combination, touch, the role of gestures and experimentation.

The book is divided into three main parts:

I. Raw materials: creativity and the properties of materials: examines the process of transforming materials from their natural state into a ready-to-use raw material, and how their properties have influenced the way they are handled.

II. Production practices: describes the critical points at which decision to create changes can be made. It considers the tools needed, the time factor, and the manufacturing community.

III: Effects: shape, motifs, pattern, colour and texture: It looks for creative solutions from an aesthetic point of view and refers to the role of the intellectual life.

Parts II-III will be discussed through case studies. The case studies often include well-known finds from archaeology, but in a new light. The quote, which can also be interpreted as a motto, refers to this.

As I myself have been working in the field of textile crafts, I am going to focus only on this area in detail.

I. The role of material properties:

Lise Bender Jørgensen and **Antoinette Rast-Eicher** dealt with wool, which became dominant in Bronze Age weaving alongside flax, hemp and nettle, and which spread to Europe from ca. 2000 BC onwards, causing changes in the way textiles were produced and used. It also influenced animal husbandry and land use. It had the great advantage of being faster and simpler to produce than flax, which had been commonly used in the past. The colour shades of the elementary fibres included white, which could be dyed well, led to the development of dyed threads.

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II. Production practices**:**

Sophie Bergebrandt has classified the spindle weights from the tell settlement of Százhalombatta (2300–1500/1400 BC). Gradually biconical, lightweight versions became dominant, confirming the use of wool. Edge damages of Type I indicate the use of low-whorl dropped spindle is also common with wool. The method is depicted on a famous urn from an early Iron Age burial in Sopron, showing a woman with this type of spindle. The standardisation of the weights can be demonstrated. With a spindle of a given size and weight, a thread of the desired thickness could be spun. This created a wide range of textile qualities and applications. The zooarchaeological record shows an increase in sheep-farming practices from ca. 2000 BC to the Middle Bronze Age. A third of the animals were male, the only possible reason for keeping them was to produce more wool.

Sølvi Helene Fossøy links Greenfield's learning theory, presented in the introductory part of the volume, to variations in the quality of the Scandinavian Bronze Age textiles. In the context of the textile remains of the Danish oak-coffin tombs (Montelius II-III), she associates the traditionalist cultural conservative learning method with the coarse, so-called *'general textiles'*. These are made of coarse threads with the simplest tabby weave and sometimes using spin pattern (based on different twist-direction of the threads). The way they are made can be learnt by anyone, they contain no innovation but preserve the simplest tradition. The innovation-friendly learning method is attached to fine quality *'special textiles'*, woven from finer and a more evenly arranged group of yarns. They are characterised by more complex textile structures, such as half-panama, sprang, braiding and embroidery. Among the garments, there are corded skirt combined with metallic tubes, belts, hairnets and woven ribbons. In both the *'general and special textile'* groups, the use of varies coloured threads for decorative purposes was found.

Lise Bender Jorgensen traced the changing twist-directions in oak-coffin tombs from different periods of the Scandinavian Bronze Age, and then showed examples of the inspirational influence of technology on bronze objects imitating twisted threads.

In the Montelius II phase (c. 1500–1300 BC), ’S’-warp and ’Z’-weft yarn, i.e. ’S’/’Z’, were common. The fabrics of the Montelius III phase (1300–1100 BC) were made exclusively of S-twisted threads and this trend continued in the Montelius IV-VI phases (1100–500 BC). The bows of bronze fibulae, some arm and neck rings also appear to be twisted, as if they were threads of twisted gold cord, while another group of arm, finger, ear or hair rings are spiral shaped; these are three-dimensional forms that appeared twisted around the wearer's body part. Examination of these 'twisted' finds shows that fibula bows are almost always twisted, whether they come from male or female graves. Twisted neck rings are found mainly in female graves. The twist direction is usually ’S’, but by Montelius III a third of them had changed to ’Z’. The twist of the arm rings is also mainly ’S’ directed. Among the rings, spiral ones twisted in the ’Z’ direction are more common.

Jorgensen links the twist directions to the cosmological worldview. Since the Scandinavian Bronze Age lacks spindle whorls, she assumes that the threads were spun with the spindle staff held horizontally in the ’Z’ direction, but the end result would be in the ’S’ direction, so that the movements of the work process followed the movement of the sun in the sky.

III. Effects:

Helga Rösel-Mautendorfer discusses the patterning of dress forms as a way of making two-dimensional objects three-dimensional, based on blouses found in Scandinavian oak-log-coffin tombs. The textiles were cut from a single piece of fabric and tailored to specific individuals. Pleating was one way of shaping the form. The blouses can be seen as a new variation on an elemental pattern dating back to the Neolithic.

Karina Grömer analyzed the different decoration possibilities of textiles, which offer a rich and creative range of visual and sensory, i.e. haptic, experiences. She lists different weaving structures, methods for shadow/spin effects and facture modification, thread dyeing, metallic additions for shine, and the use of gold threads and embroidery integrated into the fabric, dating from 2000–500 BC.

Furthermore, she collaborates on another case study with **Sanjin Mihelić, Joanna Sofaer, and Sarah Coxon,** where all three technologies are present in the impressed decoration of Litzenkeramia's corded vessel**s**. The cords pressed on the surfaces of the urn**s** in the Surcin cemetery imitate woven textiles. Experiments have shown that they are made from raw materials such as lime bast, grass and sometimes metal threads. The impression of a three-pronged comb gives the sight of threads. The smooth surface of the vessels and the rustic three-dimensionality of the impressions visually highlight each other by textual contrast effect.

As the title suggests, the book deals with the textile technology, metalwork and pottery by nearly two dozen authors. From the material properties to the production process to the interpretation of symbolism.

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The book is complemented by high-quality and well accessible pictures and the index at the end of the book is a very useful aid.

I heartily recommend it to Bronze Age scholars.

Éva Richter

archaeologist, PhD student, Pázmány Péter Catholic University

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