The second Experimental Archaeology Workshop in Warsaw took place again in the Institute of Archaeology, University of Warsaw this June.

For the second time the Workshop gathered excellent, skilled and eager participants, such as: Marie-Louise Nosch, Dominika Kossowska, Giulia Muti, Esther Shannon, Joanna Słomska and Jennifer Swalec. The Workshop was conducted by Agata Ulanowska from the Institute of Archaeology and Anna Grossman from the Biskupin Archaeological Museum. Katarzyna Żebrowska was once again our talented photo-reporter, whereas Aleksandra Laszczka became our assistant helper.

Textile production techniques and raw materials used in Bronze Age Aegean cultures constituted the main reference area for all our hands-on activities. We used clay copies of actual artefacts from BA Greece, such as spindle whorls replicated by Maria Ślęzak in the Biskupin Archaeological Museum and several sets of loom weights from Tiryns and archaeological sites on Crete, modelled by students of the Institute of Archaeology. We had to our disposal two warp-weighted looms of Scandinavian type but we also discussed potential differences in the construction of a warp-weighted loom and a possible presence of other types of looms in the BA Aegean.

The experience approach to textile archaeology was discussed (less) and zealously practiced (more), and the importance of the personal ‘body knowledge’ in basic textile techniques was argued. The functional parameters of textile tools, namely spindle whorls and loom weights, were also deliberated.
We started our hands-on experience with two main classes of fibres: wool and flax. The unique natural properties of both fibres were described. We had an opportunity to see the difference between unwashed, washed, combed and carded wool from the Wrzosówka sheep, bred on the premises of the Biskupin Archeological Museum, and flax fibres of various quality, generously offered us by the Institute of Natural Fibres and Medicinal Plants in Poznań. Since there were quite experienced spinners between the participants (Marie Louise Nosch and Esther Shannon were the best!), evaluation of tested raw materials: flax and wool was possible. According to the prevailing opinion, wool was the easier fibre to deal with.

We initiated our weaving experience using small band looms with rigid heddles. Although the ancestry of a rigid heddle is debated and there is no any direct evidence for this implement in BA Greece, we may assume that bands and starting borders have been woven and, therefore, a kind of a band loom must have been already known and used.

The rigid heddles, with ‘Minoanising’ decoration and an incised date, were specially designed for this Warsaw Workshop by Emilia Mińko, a student of the Institute of Archaeology. The rigid heddle seems to be one of the simplest implements for weaving and all participants became quite skilled very quickly. Therefore, we were able to try even more
complicated techniques of pattern weaving such as warp floats. All bands were finished with various kinds of fringes. The first weaving experiences and the basic parameters of the bands were registered on documentation cards which form part of a complex documentation system used for weaving experiments in the Institute of Archaeology, University of Warsaw.

The hands-on experience in weaving on the warp-weighed loom began with weaving the starting borders on the rigid heddles again. Then, the participants performed all the operational sequences of setting up the loom themselves: from sewing the starting border to the cloth beam and choosing and suspending loom weights to chaining the warp and knitting the heddles. In order to visualize a broader range of potential loom set up systems, we argued that almost all of these activities may have be performed in many ways. Possible differences between operating the modern warp-weighted loom and the Bronze Age one were also discussed.
Finally, all the participants wove a piece of a textile by themselves. We analysed all weaving errors which obviously occurred and we tried to connect them with the tension applied and the care with which we were weaving. We also tried to correct some of these errors by inserting gores into the fabric. The woven textiles were divided into pieces for all of the weavers, finished and described again on the documentation cards. Since all the fabrics were coarse and tutorial in quality, we made one attempt to weave a small piece of a woollen textile from fine, though mechanically spun yarns, in order to experience the difference in working on a piece with more Bronze Age-like quality and the visibly higher thread count (34 threads in cm).

After these first attempts with weaving on the warp-weighted loom we came back to trials with band looms, this time with tablet weaving. The participants tested some basic patterns with two-coloured threading. The general manner in which we proceeded was suggested by Lise Ræder Knudsen for tablet weaving in Prehistoric Italy\(^1\). The tablets were set up in a vertical position and tensioned by small and light spools, copies of Early Helladic implements from Tiryns and Late Minoan small pyramidal weights from Palaikastro. Warp threads of each tablet were additionally separated by wooden spacers. After this trial, the participants continued to weave (however less easily) with horizontal set up for tablets. Warp threads were

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stretched between two fixed points or between a weaver and a fixed point.

The Workshop hands-on activities were successfully accomplished with twill weaves. We prepared two starting borders on the rigid heddles, separating mechanically the warp threads for 2/1, and 2/2 and 3/2 twills respectively. Since Agnete Wisti Lassen has convincingly demonstrated, that crescent shaped loom weights may have been specialized tools for twill weaves in BA Anatolia\textsuperscript{2}, we applied for our tests copies of similar loom weights found in Early Helladic contexts in Tiryns, weighting from c.550 to 557g. However, the ‘banana’ loom weights are very unique in the panoply of the Aegean weaving implements.

In the set up for the 2/1 twill, crescent shape weights were combined with spherical loom weights from Crete in a totally ahistorical, although functional manner. All twill weaves were practiced with a quite success, including the herringbone pattern. ‘Bananas’ appeared to be very functional and easily manageable tools. However, the true challenge in twill weaving appeared when we tried to memorize the order in which sheds should be changed for the 2/2 twill weaves. We tested different systems: from short rhymes and long storytelling, to drawings and graphical analyses.

For those who were able to stay a bit longer in Poland there was also an excursion to the Biskupin Archaeological Museum – one of the largest and oldest archaeological parks in Europe. We were kindly hosted by the Director of the Biskupin Archaeological Museum, Wiesław Zajączkowski, in a recently opened hotel and conference centre. We are especially grateful for the excellent and fascinating guiding by Anna Grossman, who is also the Head of the Popularization and Exhibition Department of the Biskupin Archaeological Museum. Amongst many attractions of the site, a small field of blooming flax and Wrzosówka sheep resting in the middle of the road gained our highest interest.

We were also invited to participate in the celebrations of the Midsummer Night, which took place at the shores of the Biskupin Lake. This event became an unexpected but extremely interesting and enjoyable grand finale of the 2

We would like to thank all the participants for their dedication and stimulating enthusiasm!

We welcome you at the THIRD Experimental Archaeology Workshop in Warsaw in June 2016!

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Pictures from the Workshop: Katarzyna Żebrowska, pictures from Biskupin: Agata Ulanowska