



NICOLAUS COPERNICUS
UNIVERSITY
IN TORUŃ
Faculty of History



EXPERIMENTAL ARCHAEOLOGY IN NCU

Newsletter

Edited by GRZEGORZ OSIPOWICZ

EDITORIAL

In the latest issue of our newsletter, we would like to show you exactly what we would like to do during the experimental camp we organize in early summer. This is the third event of this type that we carry out, but the first of international scope. The plans are quite ambitious but very exciting and we are sure that everything will go as it should! The crew will be great and the place where we realise the camp is beautiful! :) If someone still is undecided but thinks seriously to participate, please write to us quickly, there are only two places left! :) Finally, as always... we hope You will like this number, have a nice reading! :-)

Grzegorz Osipowicz

Our new publication

Osipowicz G., Piličiauskienė G., Orłowska J., Piličiauskas G. 2019. *An occasional ornament, part of clothes or just a gift for ancestors? The results of traceological studies of teeth pendants from the Subneolithic sites in Švenčionys, Lithuania*. Journal of Archaeological Science: Reports 29:1-14.

<https://doi.org/10.1016/j.jasrep.2019.102130>

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INSIDE THIS ISSUE

Editorial.....1

About the International Camp of Experimental Archeology.....3

Members of the Society for Experimental Prehistoric Archaeology over the years...11

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International Camp of Experimental Archaeology

Toruń 2020



We invite everyone interested in experimental archaeology to participate in a two-week **International Camp of Experimental Archaeology**, connected with a seminar presenting the state of art of this method in Poland and accompanying traceological workshops. The event is organized by the Department of Prehistory of the Institute of Archaeology, Nicolaus Copernicus University in Toruń, in cooperation with the Society for Experimental Prehistoric Archaeology (SEPA). Papers presented during the seminar and the results of experimental work carried out during the camp will be published in the book entitled **Experimental Archaeology in Poland**. The event is directed primarily to archaeology students and PhD students who want to deepen the knowledge in the field of experimental archaeology, as well as people interested in the traceological method.

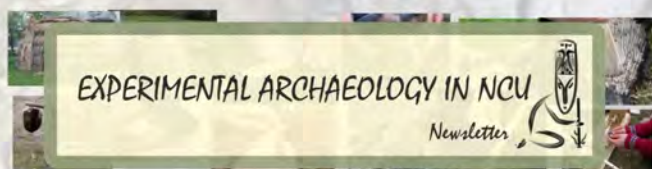


ONLY TWO PLACES LEFT!!!

Date of the camp
15-27 June 2020

<http://www.exarchcamp.umk.pl>

At the next pages, You will find a general description of what we want to do during the camp :)



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International Camp of Experimental Archaeology

Toruń 2020



During the two-weeks of International Camp of Experimental Archaeology, its participants, divided into two groups, will undertake two complex archaeological experiments, the purpose of which will be to create and test replicas of the archaic boats: a dugout boat and a leather-covered boat known more from ethnographic contexts, the so-called skin-on-frame canoe. This profile of planned experiments results from two factors. First of all, both experiments require the use of a wide variety of raw materials and tools. It will make possible to perform a number of minor experiments, the results of which will be used, for example, in later use-wear analyses of prehistoric flint and bone tools, as well as physicochemical analyses of prehistoric adhesives such as pitch or birch tar. Secondly, we hope that this arrangement of the planned work will introduce a note of competition between the two groups of experimenters, which (apart from the purely scientific aspect of the planned work) will eventually result in a large dose of joy during testing the both built boats.

1. What do we know about this type of prehistoric boats?

Skin-on-frame canoe

Beside rafts, leather boats are one of the oldest means of water transport. Archaeological sources, however, do not provide much data on the methods of building and operating units of this type, hence the reconstruction of them is often based on ethnographic data and more modern finds. However, this does not change the fact that it is believed that they were probably used at the end of the Pleistocene (Pydyn 2011, 236). We also have historical reports about the use of this type of boat in the form of mentions in the works of Strabon, Herodotus and Gaius Julius Caesar, whose troops used leather boats during the campaign on the

Iberian Peninsula. In terms of construction, leather boats refer to units made of bark, cane or wicker. They could be built as both, skeletal and shell units (Fig. 1); the first of these techniques is better confirmed by sources (Pydyn 2011, 237).



Fig. 1. Britons with coracles – from Cassell's History of England, Vol. I.

In the case of skeleton boats, various skeleton constructions are found, including those tied from branches, braided and mixed (tied and braided). Perhaps bone fragments and antlers were sometimes used for their construction. Some constructions also used frames and struts, as well as tight straps stiffening the upper part of the boat. The most numerous category of leather boats includes small round, oval, elliptical and square or rectangular units. They were common in various geographical regions (Hornell 1946, 93-172; Johnstone 1980, 26-44; McGrail 1987, 173-191). The skins of many animal species were used to make their plating, e.g. in the United Kingdom and Ireland they were mostly cowhides, while in the Arctic zone deer, caribou, whale, seal and sea lion skins (McGrail 1987, 176).

Dugout canoe

Log boats are units hollowed out in the whole or half-cut trunk of a large tree. Ethnographic sources confirm their use in many regions of the world. The simplicity of this type of units and the relatively complex set of tools necessary to their production made them one of the oldest types of boats used by man. Unlike many other units of the simple water transport, dugouts are known for relatively numerous archaeological contexts dating to the Stone Age (Fig. 2; Pydyn 2011, 251).



Fig. 2. A dugout boat made from an oak trunk, in situ at the Šventoji 58 site in 2015 (after Piliciauskas 2016, 105, fig. 15).

The oldest of European finds of this type is a logboat from the Pesse swamp in the Netherlands (Fig. 3; van Zeist 1957), which is dated to 8265 ± 275 BP.



Fig. 3. The Pesse canoe is the world's oldest known dugout (after https://en.wikipedia.org/wiki/Dugout_canoe).

It is estimated that about 300 units of this type have been found in Poland. At the same time, only 5 of them are dated to the Neolithic and early Bronze Age (up to 1300 BP; Ossowski 1999, 177-211).

The method of construction of dugouts depended primarily on their purpose, local tradition and available material. Ethnographic sources show that both deciduous and coniferous trees were used to make them. Both hard and durable grades, e.g. oak, were chosen, as well as soft and easy to handle, e.g. poplars (Ossowski 1999, 50). Usually, the outer part was processed first, followed by the inner one. Throughout history, various types of stone, flint, bone, antler, shell, and later bronze or iron tools have been used to process this type of boats. During the hollowing of log boats, the controlled firing technique of the interior was often used. The wall thickness was measured by means of drilling, tapping the surface or by hammering series of small plugs of predetermined length made of hard wood. For some boats, the sides were bent with heat to increase their width.

2. What do we want to do and how?

As already noted above, during the camp, its participants, divided into two groups, will undertake the construction and testing of two replicas of archaic boats: a dugout boat and a skin-on-frame canoe. All work carried out will be performed exclusively with the use of flint, bone and stone tools and techniques known in the Stone Age (in the case of the skin-on-frame canoe) or techniques and tools known in the period from the Stone Age to the Late Bronze Age (in the case of the dugout). The reason for the discrepancy in this respect between the two planned experiments will be explained below. All conducted works will be precisely documented, among others using the Cards of the Archaeological Experiment developed by the Society for Experimental Prehistoric Archaeology (www.keap.umk.pl). The experimental tools used during the camp and all related documentation will become a part of a collection of this type of tools stored in the Traceological Laboratory of the IA NCU. It is Poland's the largest database of experimental tools that are comparative material, which is used during the microscopic analysis of prehistoric artefacts.

The planned scope of work includes:

Construction of the leather-covered boat:

The aim of the works will be the construction of a boat covered with deer hide and dimensions of about 4 meters long, 70 cm wide and 40 cm deep.

1. Making a boat frame

The first stage in the production of a leather boat is to prepare the necessary wooden raw material (straight branches). The construction of the boat begins with the construction of a frame, on which later leather sheathing is stretched. To make the skeleton of our boat we will use Hazelwood (*Corylus avellana*), which is very easy to shape. To obtain it, we will use flint tranchets framed in handles made of antler, bone and antler tools in the type of bevel-ended tools, i.e. replicas of tools used in the Mesolithic (Fig. 4, 5).



Fig. 4. Example of cutting a tree with stone axe.



Fig. 5. Example of cutting a wooden branch with antler axe.

Hazel branches and the phloem necessary to fill and form the sides of the boat will be obtained using flint blades. This stage of work should be relatively simple and not too laborious, as demonstrated by past experience in this area. For the construction of the skeleton, we will use the technique that we have already used during making a fish trap, consisting of driving the branches forming the frame into the ground, tying them into the appropriate shape, and then weaving the entire structure.

2. Preparation of hides necessary to cover the boat

It will be necessary to flesh and dehair 10 deer hides, for which we will use flint end-scrapers, bevel-ended tools and bone "beamers" (Fig. 6, 7). We have successfully used all these types of products in our previous experiments (e.g. [Newsletter nr 7; 2019-3](#)).



Fig. 6. Removing the hair from the deer hide with bone „beamer”.



Fig. 7. Fleshing the hide with the use of bone tools.

*Pictures illustrating the planned experimental work were taken from previous projects of this kind carried out at the IA Nicolaus Copernicus University in Toruń.

During this stage of work we will probably also use softening admixtures that facilitate processing and impregnation of the skin, e.g. ochre (Fig. 8). Some of the hides will require tanning, which will be carried out using animal brains or vegetable tannins (Fig. 9).



Fig. 8. Cleaning ochre-rubbed fresh wild boar hide with a flint tool.



Fig. 9. Experimental tanning of the deer hide with pig brains.

3. Covering the frame of the boat with leathers

Prepared leathers should be stretched over the boat frame and connected to each other and also to the frame for example with animal tendons. After drying, the whole boat is impregnated with tar. In our experiment, we will use deer tendons and animal intestines to connect the skins (Fig. 10). For the impregnation of the boat we will use pitch or birch tar, which we will produce by several methods. We have conducted many experiments related to obtaining wood tar (both birch tar and pine tar). We tested kilns of various types of constructions made of various materials. In the planned experiments, we will most likely use ceramic, single- and double-vessel methods (Fig. 11).



Fig. 10. Obtaining tendons from fresh red deer legs.



Fig. 11. Experimental production of birch tar with a ceramic method: A—filling the upper vessel with birch bark; B—closing and covering the kiln with clay; C—firing;; D—opening of the kiln after cooling; E—charred birch bark from the upper vessel; F— results of birch tar production.

They are much more effective than non-ceramic methods (Fig. 12), which, however, will also certainly be used for the occasional production of tar for the purposes of mounting tools in handles.



Fig. 12. Experimental production of birch tar with non-ceramic method: A—The dome-shaped kiln; B—firing; C—opening of the kiln after firing; D—the results of birch tar production with non-ceramic method.

4. Finishing works

The works will include the production of paddles, which will be the replicas of Mesolithic artefacts, and possible decoration of the boat with natural dyes. To make the paddles we will use, among others wood splitting technique which we will make with bone wedges (Fig. 13). We also have experience in the production of various types of dyes. We conducted an experiment whose purpose was to create individual colors and to fix them. We also tested the suitability of individual dyes to cover various types of organic and inorganic surfaces (Fig. 14, 15).



Fig. 13. Splitting wood with a wedge made of antler.



Fig. 14. Experimentally obtained different dyes with natural ingredients.



Fig. 15. Drawing made on dry hide with natural dyes by members of SEPA.

Construction of a dugout boat:

The aim of the works will be the construction of a single-stem boat about 4 meters long, 60 cm wide and 40 cm deep. For construction we will use a trunk of Poplar. As mentioned above, not only the Stone Age tools will be used during this experiment, but also metal axes (copper and bronze), which are replicas of the artefacts used in the Bronze Age (Fig. 16). The works will be divided into stages, during which tools from one specific period will be used. The purpose of such an arrangement of the experiment is to compare the effectiveness of different types of tools made of different raw materials.



Fig. 16. Axes prepared to use in the dougout boat experiment.

Scope of planned works:

1. Processing the outside of the trunk (Fig. 17; removing bark, soft outside wood).



Fig. 17. Poplar which will be a base of our dugout boat.

This stage of work will be carried out without prior preparation of the processed raw material. Similarly to the second part of the experiment (forming the interior of the boat), we will use here bone bevel-ended tools, tranchets framed in the antler shafts, flint and stone axes, copper axes with raised edges and bronze axes with a sleeve. We've used these types of tools in many types of our experiments before (Fig. 18).

2. The interior part treatment

To process the interior part of the boat we will use the firing method, which consists of placing the previously prepared heat inside the boat, fuelling the fire by symmetrical blowing, and then removing burnt wood with the various types of tools (Fig. 19). The fired walls will be protected with wet clay and sand (McGrail 1987, 62). Until now, we used this



Fig. 18. Examples of experimental flint axes used by SEPA members in previous experiments.

technique only to produce small items such as dishes and wooden containers as well as lamps (Fig. 20). This stage of work will be extremely labour-intensive and difficult. It will also require the use of a very large number of tools.



Fig. 19. Experimental removing of charred wood with antler adze.



Fig. 20. Burning of the interior of the small wooden trunk to create a container.

3. Finishing works

They will mainly include sealing the boat with wood tar and animal fat, making paddles and decorating the unit.

In addition to the main experimental works carried out during the camp, its participants will have the opportunity to perform many other accompanying experiments related to, among others with flint knapping, processing of bones, firing ceramics, production of: ropes, wooden containers and lamps for fat, but also use of throwing weapons and many others. We also encourage you to make proposals for carrying out your own experiments, with which we provide assistance both in the matter of consulting and the organization of necessary raw materials and tools. We already have several suggestions from participants that we will present soon on the camp site and probably also in the Newsletter.

Seminar / Conference



In the second week of the camp, a conference on the topic of state of art of experimental archaeology as a scientific method in Poland will take place, at which will be presented a series of speeches about the various aspects of research using this method, conducted so far in Poland. We also encourage participants of the experimental camp to submit propositions of presentations here, on their achievements in the field of experimental archaeology. The detailed plan of the seminar together with the thematic organization of the sessions will be presented at the beginning of 2020. The proceedings from the conference will be published as part of the book *Experimental Archaeology in Poland*.

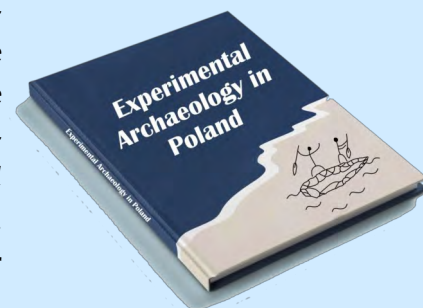
Microscopic research



During the camp, its participants will have the opportunity to develop their knowledge in the field of traceological (technological and functional) analysis of the flint and bone products. We will have three microscopes at the participants' disposal (two optical and one metallographic) and a collection of experimental tools being at the disposal of the Traceological Laboratory of the IA NCU. . If a greater number of camp participants express their desire to take part in this type of class, we will consider the possibility of preparing special thematic lessons.

Publication

The effect of the proposed event will be the publication of the book in English entitled *Experimental Archaeology in Poland*. It will consist of four parts. The first will



contain papers referring to the current state of the art of experimental archaeology as a scientific method in Poland, delivered during a conference accompanying the camp. In the second, more interesting and significant archaeological experiments carried out in Poland recently, will be reported. The third part of the book will be devoted to discussing the results of experiments carried out during the camp, and in the fourth, we will publish articles on experimental work conducted by our friends from abroad. The book will probably be published in 2020 or in 2021.

Location

The base of our camp will be the Golub Castle (Fig. 20, 21). This is a four-wing Gothic building, built at the turn of the fourteenth century by the Teutonic Order on a hill of the right bank of the Drwęca River. During the Renaissance, it was the residence of the sister of the Polish king Zygmunt III Waza, princess Anna Wazówna - a unique and extraordinary figure. The castle offers a beautiful view of the city of Golub-Dobrzyń, the Drwęca Valley and the surrounding area (you can read more about archaeological research nearby at www.searchingformesolithic.umk.pl). Camp participants will have a unique opportunity to spend the night in the castle chambers, eat meals in medieval halls and spend nice evenings in the light of a campfire at the Castle.

Bibliography:

- Hornell J. 1946. *Water Transport*. Cambridge.
- Johnstone P. 1980. *The Sea-Craft of Prehistory*. London & New York.
- McGrail S. 1987. *Ancient boats in N.W. Europe*. London & New York.
- Ossowski W. 1999. *Studia nad łodziami jednopiennymi z obszaru Polski*. Gdańsk.
- Piličiauskas G. 2016 Coastal Lithuania during the Neolithic. In: Zabiela, G. & Baubonis, Z. (eds.): *Archaeology: the Greatest Discoveries in Lithuania*. Vilnius: 64-77.
- Pydyn A. 2011. *Argonauci epoki kamienia. Wczesna aktywność morska od pierwszych migracji z Afryki do końca neolitu*. Toruń : Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika.
- van Zeist W. 1957. *De Mesolithische boot van Pesse*. *Nieuwe Drentse Volkssalmanak* 75, 4-11.



Fig. 20. General view at the Golub Castle.



Fig. 21. General view at the selected chambers in the Golub Castle.

Members of the Society for Experimental Prehistoric Archaeology over the years

