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A Dugout from the Don River Exhibited at the State Historical Museum, Moscow: Discovery and Dating

A rare archaeological specimen from the Middle Don River, a large dugout found in 1954, is described. The history of discovery, fieldwork, and conservation are outlined. The key role at all stages belonged to M.E. Voss, who did her best to unearth and preserve the specimen—the first prehistoric dugout to be found, restored, and exhibited in the USSR. She passed away before being able to describe the boat in detail. Its age is still problematic. Though it is exhibited among the Mesolithic, Neolithic, and Chalcolithic finds and has been tentatively dated to the late third or early second millennium BC, certain facts relating to the archaeological context contradict this date, and no radiocarbon analysis has been conducted. A brief review of reportedly Stone Age dugouts from Europe is provided, with reference to discovery, restoration, and exhibition. Most appear to be younger than the Stone Age.

Keywords: Dugouts, peat-bog sites, Eastern Europe, Western Europe, radiocarbon age, fossilized wood.

Introduction

The wooden dugout is an essential show-piece of the permanent exhibition in Hall 3 of the State Historical Museum, which hall is devoted to the Mesolithic, Neolithic, and Chalcolithic ages of Russia. The guide's description of the climate situation at the boundary of Pleistocene and Holocene, the evolution of various types of economy, and the directions of the cultural contacts of peoples begins from this dugout. The history of the find is quite interesting in itself; and also, some unsolved problems are connected with the dugout: most prominently, the problem of its dating. I have studied the history of the find in materials from the personal archive of M.E. Voss, researcher of the State Historical Museum, specialist in the Stone and Bronze ages of the forest zone of Eastern Europe. Her investigations from 1930 to 1950 put in place the foundation of modern studies of the Eastern European cultures of hunters-gatherers-fishermen. This vast archive is kept in the Department of

Written Sources of the State Historical Museum, and the dugout material totals more than 50 sheets, including the field diary, rough copies of the report, field sketch, and some photographs.

History of the find

In summer of 1954, the Senior Researcher of the First Archaeology Department of the State Historical Museum, Maria E. Voss (for more detailed information about her life and work see (Kashina, Yakushkina, 2015)) received a message from the local historian and lecturer of the Voronezh University, V.A. Afonyushkin, and the researcher of the Voronezh Regional Museum of Local History, D.D. Leonov. They reported that near the village of Shchuchye in the Liskinsky District of the Voronezh Region, after the spring flood, local villagers had found remains of a boat in a coastal landslide of the Don River, at a depth of 5 m from the daylight surface. One of the

leading experts on the Stone Age at that time, A.Y. Bryusov, the Head of the First Archaeology Department, immediately made arrangements to excavate and transport the boat to Moscow to exhibit it in the State Historical Museum. Thus, this ancient boat was the first in the USSR to be investigated during the excavation works. The Museum allocated funds for the field works, and in August 1954, Maria Voss, with two colleagues from Voronezh, left for Shchuchye. There, some villagers were hired, an excavation trench 5×13 m was established, and for about a week (from August 25 to September 3), excavations were carried out in the wet layer (cleaning of the coastal landslide), with the stratigraphy from the daylight surface recorded in the drawing. Also, 23 soil samples were taken for pollen-analysis. The dugout was cleaned, measured, and photographed in situ. After the primary conservation had been made, the dugout was transported to Moscow. Maria Voss passed away from cancer a year afterwards, and she left only a short typewritten record and made a report

to the museum. On the basis of this report, and relying on his own observations and photographs, which are absent in the Voss archive, Afonyushkin wrote an article (1958). Afterwards, the dugout from Shchuchye was described in publications only twice (Okorokov, 1994: 164–167; Zhuravleva, Chubur, 2010), and these articles were based exclusively on the publication of Afonyushkin.

The dugout was noticed by employees of the steamship line in spring, and was probably totally intact; but by the July 1954, it had been seriously damaged by local villagers. The fore part was destroyed up to one-third (Fig. 1)*. When the water receded a little, Afonyushkin covered the boat with soil till Maria Voss's arrival. The length of the dugout was 7.5 m, the width 60 cm, the height 90 cm, the thickness of the boards varied from 4 to 8 cm, the thickness of the bottom was about 20 cm. The material was an oak trunk about 1 m in diameter, processed at its ends (for a more detailed list of dimensions see (Afonyushkin, 1958)). Close to the stern, at the top of the boards, two pairs of holes remained; into one pair of holes, a crossbar with a rounded cross-



Fig. 1. The dugout found near Shchuchye in 1954 (in situ).

section 6 cm in diameter was set. An expressive feature of the dugout is the “ears”, cut through at the stern. According to villagers, similar “ears” were evident on the destroyed bow. On the pointed stern, there is a solid ledge; allegedly, the one was also on the bow. There are no traces of fire, and no accompanying artifacts were found in the trench. Under the dugout and nearby, there were two fragments of small logs. According to Voss, at least one of them had been deliberately put under the hull. Before the boat was preserved and restored, it showed some traces of processing with a concave (as defined by Voss and Afonyushkin) stone tool (Fig. 2); some wood at the bottom under the stern ledge was not extracted; and there was bark left in the bottom. That's why both researchers concluded that the fabrication of the dugout was not finished, and the boat had never been in use.

Professor of Voronezh University M.N. Grishchenko dated the sandy-silty layer, where the dugout was deposited, to the Subatlantic or Subboreal period (Ibid.). Relying on this opinion and supposing that the bedding (35 thin layers of sand and silt) of the sediments inside and around the dugout indicated its presence in shallow waters of a waterbody without constant current, where

*Illustrations 1–4 kindly provided by the Department of Written Sources of the State Historical Museum archive.



Fig. 2. The stern of the dugout.



Fig. 3. Packaging of the dugout for delivery to Moscow.

wooden debris, sand, and silt were brought every year by flood, Afonyushkin argued: “In conditions of seasonal low-water period, the dugout was partly located below the water-level. Thus, it can be suggested that at the time of the boat’s burial, the water-level was lower than today. Such a low water-level of our rivers is typical of the arid

subboreal period (3000–2500 BC)” (Ibid.: 84). In this way, the idea that the dugout should be attributed to the boundary between Neolithic and Bronze ages was formed, and reproduced from article to article.

The samples of soil taken during the excavations were sent to a well-known expert on peat and geobotanics, Prof. S.N. Tyuremnov, at the Moscow Institute of Peat. However, because of the decease of Maria Voss and Tyuremnov’s moving to Moscow State University in 1959, the results of the analysis were not published, and the samples disappeared (oral report of the Associate Professor of East-European Institute of Peat, L.V. Kopenkina).

The transportation of the dugout from the place of discovery to Moscow was a particular engineering challenge. According to Voss, the waterlogged wood had the consistency of sponge. It was impossible to lift the dugout with a crane using ropes, so it was impregnated with polyvinyl butyral, enveloped in marsh grass, and wrapped with cellophane and canvas cloth (Fig. 3). Then, a case made of oak boards was built around the boat (with a total weight of 1500 t). The case was lifted with a crane, loaded on a barge, and towed to Liski town, whence it was finally delivered by train to Moscow, to the State Historical Museum’s yard. Shortly thereafter, a brief article about this unique find was published in *Ogonyok* magazine (Sinelnikov, 1954).

Restoration and exhibition of the dugout in the State Historical Museum

After some consultation with experts and restorers, the Archaeology Department employees impregnated the dugout, which was placed in the museum basement, with phenol-formaldehyde resin, as recorded in the annual reports of the Department for 1955 and 1956 (VAOPI GIM. Inv. 1, No. 1092, 1119). Then it was moved into the building and, initially, installed in Hall 4, dedicated to the Bronze Age (Fig. 4). In 1965, during a regular re-exposition, the boat, with a pedestal, was moved into Hall 3 (Mesolithic–Chalcolithic). The reason for this is difficult to explain. The decision was probably made by V.M. Rauschenbach and I.K. Tsvetkova, followers of A.Y. Bryusov, who was very weak at the time and died in 1966. The pedestal of the dugout has a hidden wheeled base: it can be rolled out into the hall up to two-thirds of its length. This pedestal is still in use (Fig. 5).

By the start of the dugout’s exhibition, the lost forepart had been almost completely restored. It was built as a nearly exact copy of the stern, only slightly narrower. An amorphous piece of wood, attached on top of the bow (it can be clearly seen at Fig. 5 at the left) was probably determined to imitate the remains of a sculptured head of an elk, like on the boats depicted in petroglyphs of White

Sea and Fennoscandia regions. It is known that Bryusov looked for a material prototype of these representations (Klein, 2014: 259) and possibly asked the restorers to make this detail on the boat from Shchuchye.

Along the upper part of the boards on the inside, imitations of holes were made in the form of hollows. According to the records of Voss, only two pairs of holes were certainly noted in the stern part of the boat, and the rest were not reported. Six double bulkheads were inserted into the hollows, and the preserved bulkhead with a rounded cross-section was removed. Its location is currently unknown, it is not mentioned in the museum inventories. Probably the artificial bulkheads served as cross-braces, and were made on the advice of the restorers. The dugout is now exhibited without

them. In 1984, when the State Historical Museum was closed for reconstruction, restorers performed another considerable conservation of the boat, using impregnation with polybutyl methacrylate, foam inserts, and painting (Turishcheva, Kozlov, 1999). In 1997, the new exposition was opened, and the dugout was exhibited without a cover for some time; but for safety reasons, it was decided to use the new glass cover.

Other fossilized boats from Liskinsky District

The River Don in Liskinsky District of the Voronezh Region has yielded plenty of fossilized boats. In 1911, close to the mouth of the Ikorets River (ca 4 km north of Shchuchye), villagers found a boat ca 11 m long without “ears”, with a “cross-cut” stern and holes in the upper part of the boards. The boat was sawn for cattle bunks, which were in use till the Second World War (OPI GIM. Inv. 487, No. 103) (Afonyushkin, 1958: 89).

In 1956, after the death of Maria Voss, the villagers of Shchuchye reported a find of another boat, only 400 m from the dugout found in 1954. It had also been damaged by the locals at the beginning of archaeological studies (Fig. 6). Afonyushkin published an article about this find (1960), and the boat was taken to the Voronezh museum. At the initiative of A.V. Okorokov in 1994, L.D. Sulerzhitsky estimated its age as $2240 \pm \pm 40$ BP (GIN-8160, uncal.), which corresponds to the Early Iron Age (Okorokov, 1994: 169).



Fig. 4. The dugout in Hall 4 of the State Historical Museum (1956–1965).

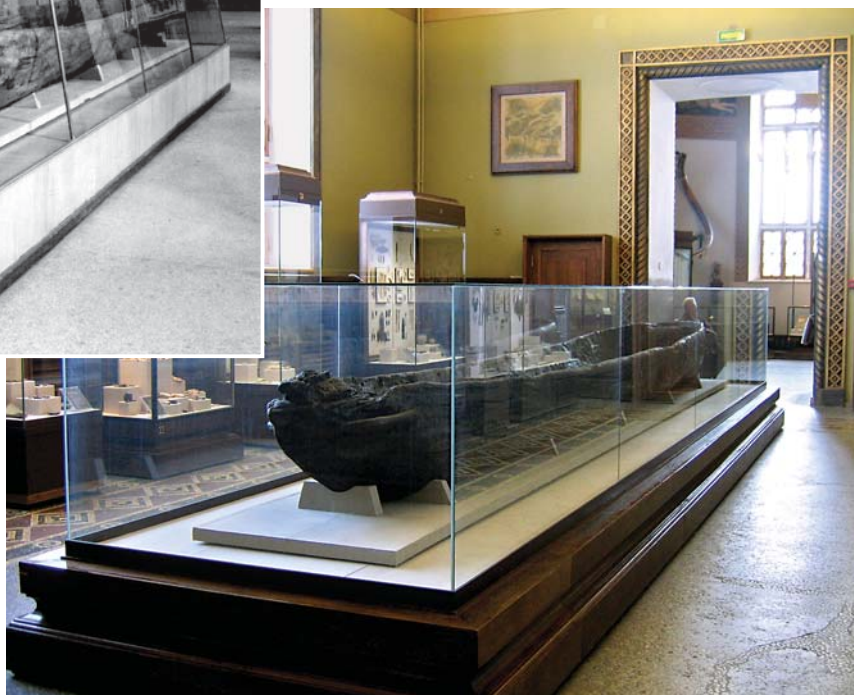


Fig. 5. The dugout in Hall 3 of the State Historical Museum.



Fig. 6. The dugout found by V.A. Afonyushkin near Shchuchye in 1956 (the photograph was obtained by the employees of the First Archaeology Department from Afonyushkin in 1950–1960s).

Afonyushkin himself dated both dugouts to the late third–early second millennium BC, basing this on the fact that the depth of occurrence of both boats was 5 m (1960: 136–137). Now, only a fragment of the bottom is exhibited at the Voronezh Regional Museum of Local History, in the hall of the Neolithic–Chalcolithic.

In 1992, 40 km to the west of Shchuchye, near the village of Uryv-Pokrovka, one more dugout was found (Fig. 7)*. Its length was 9.5 m. This time, the dugout was unearthed (by employees of the Ostrogozhsky Museum of History and Art) without significant damage. There were no funds for conservation, media publishing of the find didn't help, and the director of the museum decided to put the dugout in a steel gas tube and flood it in an artificial reservoir. The dugout is still there.

Issues of dating of the dugout from Shchuchye

After 60 years, the dating of the dugout is still problematic. There are no accompanying artifacts. On the photograph made in 1954, the traces of adze-work can be seen (Fig. 2), the dimensions of which are described by Afonyushkin in detail; but this is insufficient to conclude the use of a stone tool. The boat was repeatedly processed with chemicals, and now has a smooth surface with longitudinal cracks. Therefore, it cannot be now reliably determined by direct visual inspection whether a stone or a metal tool was used. Dendrochronological analysis is most likely also impossible, owing to the conservation effects and to the absence of reference samples for this region. Palynological samples taken many years ago are lost. The radiocarbon method was unknown at that time. Reportedly, Bryusov immediately delivered a piece of wood to the Institute of Forest for elaboration of the conservation strategy; but it is unknown whether it has been destroyed, or is still kept somewhere. Most probably it is also lost, like the single bulkhead. Experts on radiocarbon dating (Y.V. Kuzmin and N.E. Zaretskaya) suppose that there is a hypothetical possibility of using the AMS-method to date a sample taken with a cylindrical



Fig. 7. The dugout found near Uryv-Pokrovka in 1992.

*I thank the Director of the Ostrogozhsky Museum of History and Art, M.I. Pilipenko, and journalist V.T. Kulichenko for providing the photographs, texts, and oral reports.

drill from the depth of the stern massive, but it is hard to tell if it is possible to clean the sample from admixtures (oral reports).

One can try to determine the relative chronology of the fossilized boats from Liskinsky District by the condition of their wood. Thus, the dugout found in 1911 was very firm. Those found in 1956 and 1992 were extracted from the river with ropes and a crane; and they didn't fall apart. The condition of the find of 1954 was somewhat different: according to the description of Voss in her field diary, the wood "caved in when pressed with a finger" (OPI GIM. Inv. 487, No. 103, fol. 51), one board fell off, and it was impossible to lift the dugout with ropes. Soil scientist M.A. Bronnikova believes that the availability of iron and sulfur in soil-deposits of this microregion could have had a destructive impact on the wood with air penetration; therefore its sponge structure cannot definitely point to a more ancient age of the dugout than the other three (oral report). According to a specialist on fossilized wood, E.K. Kublo, the condition of the "wet" fossilized wood depends on its type, and oak usually remains hard. But what the reason for the different condition of the boats is, she cannot tell (oral report). Notably, only the dugout of 1954 can be reliably considered to be made of oak, because this find was studied by the experts at the Institute of Forest and the Institute of Peat; whereas the data on the wood of the remaining boats are not supported by scientific research.

Thus, radiocarbon dating is the most effective method of estimating the age of fossilized dugouts, because the look of the most ancient samples is similar to that of the recent samples. This method has proved itself in the study of many other boats dating to the Early Iron Age, Middle Ages, Modern and Contemporary periods (Okorokov, 1994: 169–181; Zhuravleva, Chubur, 2010).

Review of the Stone Age dugouts in Western and Eastern Europe

A large body of literature is dedicated to the dugouts of the Stone Age, but there is no recent and complete review of them: the information is scattered over separate articles. The Pesse canoe (Netherlands, 7500 cal BC), 2 m long, made of pine, is believed, as of today, to be the oldest. Then comes a series (several dozen) of remains of boats belonging to the Ertebølle culture of Denmark and Northern Germany, and to the Cortaillod culture of Switzerland, dating to 5000–4000 cal BC. Also, some Meso- and Neolithic dugouts have been found in France and Italy (Andersen, 1987; McGrail, 1987; Lanting, 2000; Klooss, Lübke, 2009). They are made of oak, aspen, or linden, and their length is from 6 to 10 m. Some of them were found during underwater rescue excavations. Construction features of some Danish dugouts include the

occurrence of the cut-in stern plank and the clay platform on the bottom for making a small fire, probably for night fishing, especially for eel-fishing. Also, in Denmark, boat-burials have occurred (Grøn, Skaarup, 1991). In Europe, multiple dozens of dugouts relating to Bronze and Early Iron Ages have been found (Lanting, 2000); in the European part of Russia, also, lots of them are known (Okorokov, 1994: 169; Zhuravleva, Chubur, 2010). In the territory of the former USSR, fragments of boats have been found in the Šventoji-1B site (Lithuania, the layer is dated to 3500 BC), and two models (?) ca 50 cm long in the Šventoji-2B site (the layer is dated to 4000–3000 cal BC) (Rimantiene, 2005: 79, 266, 288, 321–322). Two large fragments (one of them more than 2 m long) of dugouts made of aspen or poplar were found in Sārnate, Latvia, also in Neolithic layers. These are not exhibited, and not radiocarbon-dated (Vankina, 1970: 92; Berzins, 2000). Interestingly, in Trans-Urals peat-bogs, no similar finds are known, though lots of oars occur there (Kashina, Chairkina, in press).

Conclusions

Saving, preservation, and museumification of fossilized dugouts represent another issue. All the boats from the Don River, except for the one found near Uryv-Pokrovka, were irreparably damaged by local villagers. From my point of view, the first thing that should be done upon discovery of a fossilized boat is to take several samples for radiocarbon analysis (and to plan distribution of samples to various laboratories); and only after that, take other measures. This demands considerable funds for preservative agents, labor costs and time; and also free space for exhibition with controlled conditions of temperature and humidity. Exactly owing to the lack of funds and free museum space, the Uryv-Pokrovka dugout is still in the tube under water. The same problems exist even in the West. Recently, there was a museum scandal in Germany: it was found out that in the Museum of Stralsund, several fossilized dugouts made of linden are falling apart, because they were not preserved properly (<http://www.monoxylon.ch/?s=stralsund&lang=de>).

The originality of the dugout investigated by M.E. Voss consists in the complicated execution of the stern (and probably of the bow, which is completely lost), occurrence of the solid ledges, and of four through "ears". No such details are known in any other found sample. Taking into account the date obtained for the "neighboring" dugout found in 1956, it can be suggested that the 1954 find, which was so different in its morphology, relates to another period; but it's hard to tell whether this period was before or after the Early Iron Age. Judging from the context of all fossilized dugouts, those of the Stone Age could have remained only in peat deposits. Thus, the find

from Shchuchye most likely doesn't belong to the Stone Age. The main task for its further study is to try to obtain a radiocarbon date using the AMS-method. Then, possibly, the issue of dating this dugout will be finally solved.

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