

прецизиран интервалът, в който животът върху тел Караново е бил възстановен в началото на класическата ранна бронзова епоха, но засега това е невъзможно. Във всеки случай първото възможно време за изграждане на ранноброн-

зово селище върху селищната могила Караново е около 3310 cal BC, което означава, че прекъсването на живота между късния халколит и ранната бронзова епоха в западната част на тел Караново е било най-малко 1040 години.

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The problem of the duration of the hiatus between the Late Copper Age and the Early Bronze Age in Thrace: the case of Tell Karanovo (Abstract)

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The joint Bulgarian-Austrian archaeological excavation of the Central area at Tell Karanovo was carried out in 2000-2005. It focused on the Early Bronze Age layer but the uppermost levels of the Late Copper Age layer were uncovered as well. After a three-year pause, the so-called hiatus layer was excavated in 2009. This situation offered an opportunity to date the "dark" period between the end of the Late Copper Age and the beginning of the classic Early Bronze

Age. For the purpose, AMS 14C analysis of six animal bone samples from the respective levels in the Central area was conducted at the Centre de Datation par le Radiocarbone of the University Claude Bernard-Lyon 1 in 2010, in the frame of the "Balkans 4000" project. Three of those samples came from the layer corresponding to the so-called hiatus. According to the results obtained, one date (Lyon-7552: 4454-4345 cal BC) would belong to the Late Copper Age, whereas the other

two (Lyon-7481: 3332-3020 cal BC; Lyon-7480: 2907-2671 cal BC) refer to the first phase of the Early Bronze Age (Ezero A). The results of the other three samples originating from the layer of the Early Bronze Age were even more puzzling: two of the dates (Lyon-7551: 4458-4351 cal BC; Lyon-7448: 4446-4251 cal BC) corresponded to the Late Copper Age and only one date (Lyon-7479: 3310-2926 cal BC) referred to the beginning of the Bronze Age.

The discrepancy between some of the radiocarbon dates obtained on animal bone samples and the relative chronology of their context is easy to explain. It poses a methodological problem of dating animal bones from stratified sites, including tells. Whereas taking samples from charred organic material and dating them takes place when it is known for certain that the material comes from undisturbed context, the radiocarbon dating of animal bone, also found in an undisturbed context, does not mean at all that it will necessarily give the age of that context.

The obvious discrepancy between some of the radiocarbon dates obtained and the context of the samples made it necessary to open a new trench at Tell Karanovo. The trench was excavated in 2011. It is located in the eastern section of the Central Area and occupies the western part of square K16/III. It measures 1 x 4 m. In view of the aforesaid problem with the first series of radiocarbon dates related to the project, the excavations were carried out very carefully in thin spits (5 cm thickness); animal bones from problematic features or possibly contaminated contexts were ignored.

Three levels were identified in the stratigraphic sequence of the excavated trench: these were assigned, to the Late Copper Age, to the so-called hiatus (or "gap"), and to the Early Bronze Age. Because of the exceptional relevance of the results of this investigation to the southeast European prehistory with respect to determining the duration of the period between the end of the Late Copper Age and the beginning of the Early Bronze Age at Tell Karanovo, ten more animal bone samples were taken and sent to the Centre de Datation par le Radiocarbone.

The Late Copper Age layer. Two animal bone samples were taken for radiocarbon dating that yielded the following dates: 4449-4265 cal BC (Lyon-8845) and 3496-3104 cal BC (Lyon-8846). The second date refers of course to the beginning of the Early Bronze Age and was obtained from a bone, which had probably sunk into the lower layer during some activity at that time.

The so-called hiatus layer. Four bone samples were taken for radiocarbon dating, which gave the following dates: 4450-4270 cal BC (Lyon-8847); 4447-4331 cal BC (Lyon-8849); 4456-4342 cal BC (Lyon-8850); 5306-5077 cal BC (Lyon-8848). The latter date shows that the bone from which the sample was taken comes from the Late Neolithic Karanovo III-IV layer, and apparently was brought into the Late Copper Age layer together with earth dug out of the site's periphery and used as a building material.

The stratigraphic position of the so-called hiatus layer, sandwiched between a Late Copper Age layer and an Early Bronze layer, as well as the character of its material culture, provide evidence that the layer is in fact a result of the destruction of the last Late Copper Age building horizon of Tell Karanovo.

The Early Bronze Age layer. Phase One (Ezero A). Four samples for radiocarbon dating were taken from the lower levels of that layer, three of which gave the following dates: 3488-3103 cal BC (Lyon-8852); 3500-3111 cal BC (Lyon-8853); 3496-3104 cal BC (Lyon-8846). One sample turned out to be unsuitable for radiocarbon analysis.

Duration of the gap between the Late Copper Age and the Early Bronze Age at Tell Karanovo.

The latest date of the sequence (Lyon-7480: 2907-2671 cal BC) probably refers to the end of the first (Ezero A) phase of the Early Bronze Age and therefore will be excluded from further analysis. The earliest date obtained (Lyon-8848: 5306-5077 cal BC), definitely marks a later stage of the Karanovo III-IV period.

The other fourteen dates fall into two intervals, which refer to the last phases of the Late Copper Age and the initial phases of the Early Bronze Age.

Seven dates refer to the end of the Late Copper Age layer, including the so-called hiatus layer as an inseparable part of it. They all practically have the same lower boundary. Four of those dates (Lyon-7751, -8850, -7752, and -8849, respectively: 4458-4351, 4456-4342, 4454-4345, and 4447-4331 cal BC) have very close values at the upper boundary as well, and overlap in the interval 4447-4351 cal BC (about 100 years). The other three dates from that layer (Lyon-8847, -8845, -7478, respectively: 4450-4270, 4449-4265 and 4446-4251 cal BC) are also very close according to the values of the upper boundary, but overlap in the interval 4446-4270 cal BC (about 180 years). The two intervals (4447-4351 cal BC and 4446-

4270 cal BC) overlap in the period 4446-4351 cal BC (i.e., less than 100 years), which, in terms of the results obtained, appears as the most probable time for the last building phases in the western part of Tell Karanovo. Based on the results obtained we can assume that the life during the Copper Age at Tell Karanovo (or at least its western part) ended at ca 4350 cal BC.

Seven dates refer to the beginning of the Early Bronze Age layer. The earlier four of them (Lyon-8853, -8854, -8846, and -8852: 3500-3111, 3496-3104, 3496-3104, and 3488-3103 cal BC) over-

lap almost completely; two of them are perfectly identical. The large probability interval of these dates can be narrowed by the other three available dates (Lyon-8851, -7481, and -7479: 3351-3027, 3332-3020, and 3310-2926 cal BC) and accordingly defined between 3310 and 3111 cal BC (i.e., about 200 years). The earliest possible date for the appearance of the Early Bronze settlement at Tell Karanovo was about 3310 cal BC; hence the interruption of life between the Late Copper Age and the Early Bronze Age in the western part of Tell Karanovo was at least 1040 years.