

**FROM THE CHALCOLITHIC TO THE EARLY BRONZE AGE  
IN WEST AND NORTH PONTIC LANDS**

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Surveying the prehistoric archaeology of Anatolia in 1970, U. Bahadır Alkım commented that investigation of the Pontic region during the Chalcolithic and Early Bronze periods 'has so far been on a very limited scale and has raised as many problems as it has solved'<sup>1</sup>. Characteristically, with Mrs Handan Alkım and other colleagues, he spent his last years excavating İkiztepe, a key site in this area, the publication of which is eagerly awaited. The past two decades have also seen much archaeological activity in other Black Sea regions and it may be useful, therefore, to discuss some of the progress made there as well as a basic problem involving chronology.

During the Later Chalcolithic the west Pontic coast and its east Balkan and lower Danube hinterlands were inhabited by a basically agricultural people of the well established Gumelnitsa (including Karanovo VI and Kodjadermen) culture. Genetically and culturally linked to them, the Cucuteni (Romania) - Tripolye (USSR) people occupied the forest-steppe region, settling mainly in its river valleys, between the east Carpathians and the Dnieper. The open Pontic steppe reaching south of the forest-steppe to the coast was occupied by mainly stockbreeding groups. The most westerly of these, between the rivers Siret and Ingul, belonged to a late phase of the Neolithic Southern Bug culture. Subject to influences from their Gumelnitsa and, especially, their Cucuteni-Tripolye

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<sup>1</sup> Alkım, U.B., *Anatolia I*, Geneva 1970, 127.

neighbours<sup>2</sup>, they combined farming with cattlebreeding but, instead of the usual wattle and daub, they built their huts with stone foundations below timber walls<sup>3</sup>. Meeting them in the Ingul valley and concentrated along the lower Dnieper and Don valleys were people of the Sredny Stog culture. Analyses of animal bones in their settlements and the presence of horse burials and bone cheekpieces have indicated that the domesticated horse was more important to their economy than cattle<sup>4</sup>. There appears to have been a close relationship between their more southern Dnieper settlements and those of the Crimean agricultural and stockbreeding Kemi Oba culture, in which the horse was also domesticated<sup>5</sup>.

Already in the Early Chalcolithic period prosperity deriving from the fertile lands of the Thracian plain, the Danube valley and the forest-steppe had stimulated considerable economic and social progress among the Gumelnitsa and Cucuteni-Tripolye peoples. Besides long lived tell settlements in the first two areas, new and innovative ones were being founded. The almost square, small but strongly fortified settlement at Polyanitsa in north-east Bulgaria has entrances and inner T-plan lanes that foreshadow the typical layout of a Roman camp<sup>6</sup>. In the larger settlements, tell and other, rudimentary urban concepts were being evolved and large buildings suitable for meetings and religious ceremonies occupied central positions. The Tripolye settlement of Maidanets in the Dnieper valley near Cherkassy occupied about 300 ha. About 1500 dwellings, some apparently two-storied and housing an estimated 20,000 people, were

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2 Movsha, T.G., 'Problemy svyazei Tripolya-Kukuteni s plemenami kultur stepnogo areala', *Studia Praehistorica* (Sofia) 5-6, 1981, 61ff.

3 Sulimirski, T., *Prehistoric Russia*, London 1970, 66.

4 Telegin, D. Ya., *Seredno-Stogivska kultura epokhi midi*, Kiev 1973, 131ff.

5 Shchepinsky, A.A., 'Pamyatniki iskusstva epokhi rannego metalla v Krymu', *Sovetskaya Arkheologiya* 1963/3, 38ff; 'Kultury eneolita i bronzy v Krymu', *Sov. Arkh.* 1966/2, 10ff; Kuzmina, E.E., 'Kolesny transport i problema etnicheskoi i sotsialnoi istory drevnego naseleniya yuzhnorusskikh stelpei', *Vestnik Drevnei Istory*, 68ff.; Kuzmina, E.E. *et al.*, 'Nevoe v izucheny kultur bronzovogo veka evrazyskikh stepei' *Stud. Praeh.* 5-6, 1981, 73ff.

6 Todorova, H., *The Eneolithic in Bulgaria*, Oxford 1978, 48ff., tables 18-21.



planned on circular and radiating lane systems with open spaces and working complexes<sup>7</sup>.

This prosperity and socio-economic progress received a massive boost from the discovery of rich veins of copper at the beginning of the Later Chalcolithic period. The mining area lay in Gumelnitsa territory near the presentday cities of Stara Zagora and Sliven in the north of the Thracian plain and the scale of exploitation, probably unparalleled elsewhere in the Chalcolithic period, had far-reaching repercussions. At Ai Bunar, near Stara Zagora, one of the richest of mining sites investigated, eleven opencast workings extended nearly half a kilometre and shafts were sunk to depths of 15-20 m. A community of apparently professional miners lived on the site in a settlement over a disused and infilled opencast mine that also contained burials. As evidence of smelting was lacking, either there or in nearby settlements, including the wealthy site of Azmak, it is suggested that ore was sold locally to traders who transported it to at present undiscovered smelting sites whence it was commercially distributed in semi-finished or ingot form. Earlier assumed evidence of local smelting in so-called 'crucibles' in distant settlements is now discounted<sup>8</sup>.

The mechanics of this distribution are unknown to us, but since spectral analysis has demonstrated that the Thracian plain mines were the source of copper for the whole of the Gumelnitsa and Cucuteni-Tripolye territories, its efficiency argues a competent politico-economic organisation. Gumelnitsa metalworkers generally used casting, latterly in closed moulds; in Cucuteni-Tripolye settlements forging was normally preferred. Implements produced included tools especially useful for woodworking, such as axeheads, axe-hammers, axe-adzes, chisels and awls; but a shaft-hole axe-hammer and a similar axe-adze were found in a mine shaft at Ai Bunar. Among other uses of copper were ornaments and cult objects, which were often in the form of pendants or appliqués.

7 Artemenko, I. I., 'Arkheologicheskie issledovaniya v Ukrainskoi SSR', *Sov. Arkh.* 1977/4, 12ff.

8 Chernykh, E.N., *Gornoe delo i metallurgiya v drevneishei Bolgarii*, Sofia 1978, 56ff.; 'Aibunar - a Balkan copper mine of the fourth millennium B.C.', *Proceedings of the Prehistoric Society* 44, 1978, 203ff.

As the end products were manufactured locally, they conformed to the fashion of the dominant culture. Thus the hoard of copper artefacts found at Karbuna in Moldavia, consisting of two axe-heads, 58 anthropomorphic figurines and ornaments and 377 beads, is unquestionably Tripolye work although the copper had been imported from the Thracian plain<sup>9</sup>. Tripolye-manufactured copper ornaments and tools were also traded to Sredny Stog settlements<sup>10</sup>. In late stages of a few large Gumelnitsa settlements there are signs of possible experimental production of bronze, using imported tin.

Probably the most important consequence of the 'copper revolution' was the impetus given to trade among already prosperous agricultural communities. The increased wealth was reflected in the new and exciting shapes and decoration of the fine pottery of the period. Fashioned by highly skilled craftsmen, this included the incised, encrusted and graphite-painted Gumelnitsa ware and the almost baroque shapes and exuberantly swirling painted decoration of Cucuteni-Tripolye<sup>11</sup>. The prosperity is no more emphatically - and extravagantly - stated than in the Late Chalcolithic cemetery at Varna with its gilded and graphite-painted vessels and its numerous gold cult and other ceremonial accessories<sup>12</sup>.

Evidence of the religious life of the Late Chalcolithic Balkano-Ukrainian people is varied and plentiful, although interpretation is inevitably uncertain. The prominence of the Neolithic fertility cult appears to have declined, but anthropomorphic figurines of bone, clay, marble and limestone proliferate. Such figurines rarely play any part in the (inhumation) burial rite. Instead, most of them, generally broken, have been found in what have often been termed 'rubbish pits', but which perhaps were ritual deposits. Almost all

9 Sergeev, G.P., 'Rannetripolsky klad u c. Karbuna', *Sov. Arkh.* 1963/1, 135ff.

10 Telegin, D. Ya., op. cit., 77ff.

11 Raduntscheva, A., *Die Prähistorische Kunst in Bulgarien*, Sofia, 1975 (?); Dumitrescu, V., *Arte preistorică în România*, Bucarest 1974.

12 Ivanov, I.S., 'Razkopki na Varnenskiya eneoliten nekropol prez 1972 g.', *Izvestiya na Aarodniya Muzei - Varna* 11 (26) 1975, 1ff; 'Les fouilles archéologiques de la nécropole chalcolithique à Varna (1972-1975)', *Stud. Praeh.* 1-2, 1978, 13ff.



the intact specimens are single unrelated finds or come from destroyed buildings. Possibly they signified a person's spirit and thus were ritually broken on death, lest the spirit should remain to haunt the living. Other probably ritual objects were anthropomorphic clay vessels and small three- or fourlegged shallow bowls, usually called 'cult tables'. Like other bowls with hollow perforated pedestals they may have been used for burning hallucinatory substances during religious ceremonies.

Towards the end of the Late Chalcolithic the anthropomorphic figurines tend to more schematic shapes and to become assimilated with a newly developed sun cult<sup>13</sup>. In the north especially, zoomorphic models of horned cattle and sheep increase in number.

Then, abruptly and catastrophically, this flourishing Balkano-Ukrainian proto-civilisation was destroyed. The Early Bronze Age culture that ultimately succeeded it was unrelated, quite different and markedly inferior. Just when this happened, and the process of collapse was probably a matter of centuries, is not easy to ascertain. Dendrochronologically calibrated radiocarbon dates, which in the Neolithic and Early Chalcolithic periods are consistent with archaeologically based Anatolian dates<sup>14</sup>, begin to behave oddly about the middle or third quarter of the fifth millennium. According to them and excluding, as at present we must, a small number of isolated dates, the whole Balkano-Ukrainian Chalcolithic period appears to fall between c. 4900 and c. 4200 BC<sup>15</sup>. Even in the same stratified

13 Dumitrescu, H., 'Connections between the Cucuteni-Tripolie cultural complex and the neighbouring Eneolithic cultures in the light of the utilization of gold pendants', *Dacia* NS 5, 1961, 69ff.; Hodinott, R.F., *The Thracians*, London 1981, 18ff.

14 The theory that the Balkan Chalcolithic was contemporary with the Anatolian E.B.A. is no longer tenable. See N. Ya. Merpert in: G. I. Georgiev *et al.*, *Ezero: rannobronzovoto selishte*, Sofia 1979, 497ff.

15 Quitta, H. and Kohl, G., 'Neue Radiokarbondaten zum Neolithikum und zur frühen Bronzezeit Südosteuropas und Sowjetunion', *Zeitschrift für Archäologie* 3, 1969, 226ff.; Todorova, H., *et al.*, *Selishtnata mogila pri Golyamo Delchevo*, Sofia 1975, 12; Todorova, H., *op. cit.* 1978, table 2. The radiocarbon dates used in the present article have been calibrated according to the Time Scale of P.E. Damon *et al.*, 'Dendrochronologic Calibration of the Carbon-14 Time Scale', *Proceedings of the 8th International Conference on Radiocarbon*

settlement the dates for the Late Chalcolithic levels differ little from Early Chalcolithic ones and are sometimes earlier. Then comes a gap until a series of Early Bronze Age dates from Ezero in the Thracian plain<sup>16</sup>. The earliest of these, from Phase B (level VII and the seventh in chronological order) is *c.* 3325 BC, but caution is needed for later dates are given to earlier levels<sup>17</sup>. The confused Chalcolithic dates, the apparent large gap between the Gumelnitsa culture of the Thracian plain and the seventh level of EBA Ezero - greater if the dates for Level X, chronologically the fourth, are taken - stretch credibility beyond reason.

Investigations into this erratic radiocarbon dating behaviour have yielded some interesting results. H. Quitta and G. Kohl found a strongly changing radio-hydrogen content of the atmosphere between *c.* 4600 and *c.* 4200 BC and between *c.* 3100 and *c.* 2800 BC<sup>18</sup>. Independently conducted tests with dendrochronologically dated wood by H.E. Suess and by J. Klein and others demonstrated the existence of corresponding, approximately contemporary variations in radiocarbon concentrations in the atmosphere, Suess tracing a rapid rise followed by a much slower decline *c.* 4420 BC and again *c.* 2900 BC<sup>19</sup>.

So, for the present, radiocarbon dating helps little to chart the decline and collapse of the Balkano-Ukrainian Chalcolithic cultures and their replacement by ones of the Early Bronze Age. But what caused the collapse? Possibly, it seems that, like the erratic behaviour of the radiocarbon dates, it may have been mainly due to climatic change.

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*Dating*, Wellington 1972, 57-59. Use of uncalibrated dates is general in the Soviet Union. In Bulgaria and Romania the practice varies.

16 Georgiev, G. *I et al. Ezero : rannobronzovoto selishte*, Sofia 1979.

17 Quitta, H. and Kohl, G., *op. cit.*, 230; in Georgiev, G. I. *et al.*, *op. cit.*, 511ff.

18 Quitta, H. and Kohl, G. in Todorova, H., *op. cit.* 1975, 325ff.

19 Suess, H., 'The radiocarbon record in tree rings of the last 8000 years', *Radiocarbon* 22/2, 1980, 200ff.; J. Klein *et al.*, 'Radiocarbon concentration in the atmosphere : 8000-year record of variations in tree rings', *Radiocarbon* 22/3, 1980, 950ff.



Basing his conclusions on recent palynological research, B. Frenzel has shown that a short term cold/wet spell occurred in the northern hemisphere at the very end of the Atlantic period, i.e. between c. 3400 b.c. and c. 3000 b.c., with calibration between c. 4250 BC and c. 3750 BC<sup>20</sup>. Although the same doubts must apply to these radiocarbon dates, they do accord with the above mentioned Chalcolithic - Early Bronze Age gap. Moreover, they are supported by substantial archaeological evidence. Surveys of the northern part of the Thracian plain in the neighbourhood of Nova Zagora have shown that at the end of the Chalcolithic period much of the rich arable land surrounding the Chalcolithic settlements of Ezero was subject to flooding and became covered with a deposit of heavy riverine clay that thereafter rendered it suitable only for grazing<sup>21</sup>.

T. Sulimirski has demonstrated the existence of a similar state of affairs in the Ukraine. Early Tripolye settlements (Tripolye A and B1) along the banks of the Dniester, Southern Bug and Dnieper rivers lay on terraces that are only about two metres above the present summer river levels. The site of Melnycha-Krucha on the Southern Bug was typical. Sulimirski writes: 'Beneath the sterile upper layer, about 50 cm thick, extended a stratum of muddy loam, yellowish in colour, 40 cm thick, in which were found animal bones and many potsherds dated to the «beginning of the developed Tripolye culture» (T.S. Passek's period B-1). This layer, as suggested by its description, was evidently reached by the raised level of the Boh (Southern Bug) and was probably even washed away to a great extent, as was observed at Sabatynivka I'<sup>22</sup>.

The related drop in temperature, sufficient to bring ecological changes in central and eastern Europe, would have been even more severe in the mid Eurasian continental land mass and sufficient to

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20 Frenzel, B., 'Climatic change in the Atlantic/sub-Boreal transition in the Northern Hemisphere: botanical evidence' in: J.S. Sawyer, ed., *World Climate from 8000 to 0 BC*, London 1967, 99ff.

21 Dennell, R.W. and Webley, D., 'Prehistoric settlement and land use in Southern Bulgaria', E.S. Higgs, ed., *Palaeoeconomy*, Cambridge 1975, 97ff.

22 Sulimirski, T., 'The Climate of the Ukraine during the Neolithic and Bronze Age', *Archeologia* (Warsaw) 12, 1961, 1ff.

cause groups of the stockbreeding Yamnaya culture<sup>23</sup> from beyond the Volga to move westwards in search of better conditions. This movement into a region itself suffering disruption from the changing climate gradually set up the long and complex chain reaction which ultimately destroyed the Ukrainian and east Balkan Chalcolithic cultures.

The Yamnaya people were pastoralists, mainly engaged in cattle or sheep raising. They used ox-drawn carts with solid wooden wheels and their dead were laid supine with contracted legs in timber-lined pits covered by earth mounds, which often served for numerous secondary inhumations. Burials were richly strewn with ochre. The earliest Yamnaya arrivals met the Sredny Stog people along and west of the lower Don and appear to have been more or less assimilated. This Sredny Stog II culture, like the Crimean Kemi Oba, also penetrated by the Yamnaya, adopted the wooden cart and, to some extent, tumulus burials.

But the pressure from the east continued and increased, gradually evicting Sredny Stog II groups northwest to Tripolye country and west to the valleys of the Dniester and Bug<sup>24</sup>. The Sredny Stog II incursion into the forest-steppe appears to have been neither deep nor long lasting; the deteriorating weather conditions were driving the Tripolye people from their homes, some to higher levels, as at Sabatynivka (in Russian 'Sabatinovka') on the Southern Bug<sup>25</sup> or southwards into the Pontic steppe, where, as at Novorozanovka on the Ingul, a Tripolye layer succeeded a Sredny Stog one<sup>26</sup>.

The Yamnaya migration continued to increase, but presumably there were intervals during which some groups of Tripolye refugees established themselves in the Pontic steppe. By far the most important of these sites was Usatovo, now a suburb of Odessa, which, protected by a sea inlet and lakes, became the eponymous centre of

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23 Merpert, N. Ya., *Drevneishie skotovody Volzhsko-Uralskogo mezhdurechya*, Moscow 1974.

24 Movsha, T.G., *op. cit.* 1981, 61ff.

25 Sulimirski, T., *op. cit.* 1961, 5.

26 Shaposhnikova, O.G. and Neprina, V. I., 'Novorozanovskoe mnogoslinoe poselenie' in : Zolotareva, A. A., ed., *Drevnosti Poingulya*, Kiev 1977, 52ff.



a distinctive transitional culture to which late Tripolye, Sredny Stog II and Yamnaya elements all contributed.

On the edge of the Pontic steppe, at Kainary, 40 km southeast of Kishinev in Soviet Moldavia, a tumulus burial was discovered during the construction of a highway. Although the grave had been destroyed, it was established that the dead person was an adult who had been laid on the then ground level. Ochre was thickly strewn on the recovered bones and grave goods. The latter included a Tripolye clay pot of the early B-1 period, a bracelet and neck band of forged wire, and contemporary steppe culture flint tools. Spectral analysis showed that the copper was from Thracian plain mines<sup>27</sup>.

The archaeologists investigating the burial emphasised its importance as providing evidence of eastern penetration west into Moldavia as early as the beginning of Tripolye B-1 (Cucuteni A3). E. Comsa furthermore draws attention to Sredny Stog II-type grave goods in a tumulus burial at Casimcea in the middle Dobroudja<sup>28</sup>, but the presence there of a stone horsehead sceptre suggests that it was Yamnaya led, if not totally Yamnaya.

The influx of Yamnaya from the east and Tripolye and other northerners soon overburdened the economy of the Pontic steppe, where primitive hoe agriculture could make no headway against the tough root system of the existing vegetation<sup>29</sup>. Only the strong would have been able to survive; of the weaker, those who could moved again, this time south into the Danube valley and the Thracian plain.

Thus, beginning only a little later, what had happened in the Ukraine and Moldavia was repeated in the Gumelnitsa lands, and this region, too, was in no state to cope with large numbers of distressed migrants.

27 Movsha, T.G. and Chebotarenko, G.F., 'Eneoliticheskoe kurgannoe pogrebenie u st. Kainary v Moldavii', *Kratkie Soobshcheniya*.. (Moscow) 115, 1949, 45ff.

28 Popescu, D., 'La tombe à ocre de Casimcea (Dobrogea)', *Dacia* 7-8, 1941, 85ff.; Comsa, E., 'Unele probleme privind populatiile de stepă din nord-vestul mării negre, din perioada eneolitică pînă la începutul epocii bronzului', *Studii și cercetări de istorie veche și arheologie* 29/3, 1978, 353ff.

29 Sulimirski, T., *op. cit.* 1961, 15.

The increased popularity of the sun cult in the Balkans and east-central Europe probably signified the early stages of climatic deterioration as the cult of horned animals reflected the influence of newly assimilated stockbreeding migrants. Symbols of these cults even appeared in the Gumelnitsa cemetery at Varna<sup>30</sup>. As with the Sredny Stog in the east Pontic steppe, the initial trickle of immigrants may have brought more prosperity. But coinciding with increasing severity of the climate, the trickle turned into a flood.

An important early group, largely composed of Cucuteni-Tripolye elements, accustomed to agriculture but not to tumulus burials, found refuge in the Dobroudja. Here, protected by the widest sector of the Danube and its delta, they evolved the Cernavoda I culture, which also spread into Muntenia. While there must have been an indigenous Gumelnitsa basis - many of the flint tools were of Gumelnitsa type - there was a conspicuous lack of copper<sup>31</sup>. The fact that only in one site, Renie I, small copper tools were found, suggests that the Thracian plain mines were already ceasing production.

Initially the Usatovo culture spread southwest as far as the Danube delta. Twenty-six tumuli of various periods excavated between 1964 and 1966 contained over 300 graves. Six of the earliest, all primary burials, were Usatovo. There were also 5 primary and 86 secondary Yamnaya burials<sup>32</sup>. Some of the latter probably belonged to mixed Yamnaya and other steppe stockbreeding group who followed to enter Muntenia and cross the Danube into the Dobroudja. Although termed Cernavoda II, their culture was unconnected with Cernavoda I<sup>33</sup>. Their new bases served as a springboard from which raiders, often identifiable as Yamnaya by their stone

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30 Hoddinott, R.F., *op. cit.* 1981, 23f.

31 Morintz, S. and Roman, P., 'Über die Übergangsperiode vom Äneolithikum zur Bronzezeit in Rumänien', in Symposium über *die Entstehung und Chronologie der Badener Kultur*, Bratislava 1973, 259ff.

32 Shmagly, N.M. and Chernyakov, I.T., 'Kurgany stepnoi chasti mezhdurechya Dunaya i Dnestra', *Materialy po Arkheologii Severnogo Prichernomor'ya* (Odessa) 6, 1970, 5ff.

33 Morintz, S. and Roman, P., *op. cit.*, 272ff.



horsehead sceptres, swept southwards across the Thracian plain and even as far as western Macedonia<sup>34</sup>.

Gumelnitsa prosperity was over and the complete obliteration of the culture was in progress. An agricultural economy already weakened by the climatic change now bore the impossible burden of Cucuteni-Tripolye refugees and increasing numbers of indigenous ones whose only means of existence was someone else's food and shelter. To this were added the destructive activities of Yamnaya and other raiders. Of 28 investigated Late Chalcolithic settlements in present-day Bulgaria, all perished by fire and remained uninhabited for considerable periods, if ever resettled<sup>35</sup>. With the looting or burning of stocks of food and seed famine and disease must have been severe. Some of these who survived eked out a meagre and precarious existence in the mountains. Some managed to migrate to northwest Anatolia.

When, probably about the middle of the fourth millennium, the Balkano-Ukrainian Early Bronze Age gradually took shape, its population displayed very different characteristics from those of its Chalcolithic predecessors. In place of the finely painted and artistically shaped pottery, a thicker grey-black or brown monochrome ware had been substituted. The 'cult tables', anthropomorphic figurines and vessels and other evidence of Chalcolithic cults had disappeared. The once flourishing coppermining and metallurgical industry no longer existed and had been forgotten.

Yet Gumelnitsa and Cucuteni-Tripolye cult objects did not entirely vanish. Hitherto absent in northwest Anatolia, these anthropomorphic figurines and vessels, round pendants and horns symbols on pottery, especially storage jars, became such a common characteristic of the northwest Anatolian, especially the Trojan Early Bronze Age, where they persisted through Troy V, that they suggest an influential, perhaps a considerable migration. This impact on the formation and course of the local Early Bronze Age was to lead a

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34 Berciu, D., 'A zoomorphic «sceptre» discovered in ... Bulgaria and its cultural and chronological position', *Dacia* N.S. 6, 1962, 397ff.; Comsa, E., *op. cit.*

35 Todorova, H., *op. cit.*, table 8.

generation of archaeologists studying east European Chalcolithic cultures to attribute many of their artefacts to 'Trojan influence' and date them accordingly.

Excavations earlier carried out at Dündartepe have brought to light figurines and pottery which suggest contact with peoples of the west and north Pontic coasts<sup>36</sup>. İkiztepe cannot solve all the problems of Pontic relations during this stormy period but we may confidently expect that it will constitute a major stage in their elucidation as well as in our knowledge of prehistoric Anatolia<sup>37</sup>.

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36 Kökten, K. *et al.*, 'Samsun Kazıları', *Bellekten* 9, 1945, 361ff.

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