



The Neolithisation of the Eastern Balkan Peninsula and fluctuations of the Black Sea level

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Abstract

The Neolithic period of Bulgarian prehistory has been studied for a century. The investigation of the Black Sea coast, Longoza and Southern Dobrudzha has produced particularly interesting results. These regions had long remained unnoticed by scholars and their prehistory being studied during the past few decades. At the beginning of the Holocene, the Eastern Balkan Peninsula was almost completely uninhabited. Mesolithic sites are few, the only one from Bulgaria being located at the ancient sand dunes near Pobiti kamuni, west of Varna. The earliest habitation in the Longoz is situated in the place of Balkuzu near the town of Dalgopol, Varna district. This site, like the rest from the period (the Early Neolithic), is united at the Tzonevo culture. The special features of the Early Neolithic in the Longoz are typical only for this area but it is quite possible they will be characteristic of other Black Sea Neolithic settlements because closest analogies were found at the site Fikirtepe near Istanbul, Turkey. The Tzonevo culture corresponds chronologically to the Karanovo II culture in Thracia and the Kriş III culture in Romania. The initial stage of the Tzonevo culture, which has to correspond to the Karanovo I culture and the earlier phases of the Kriş culture, is not found till now. It is very much possible that such settlements existed. During investigation on the curve of the fluctuations of the Black Sea level during the designated period, we considered it to be vastly below present sea level. The deep and calm mouth of the Kamchiya River was closed, and the deposits covered eventual settlements along the river banks during the next transgression about some meters. We can suppose (future deep analysis in this direction will corroborate or reject this hypothesis) that during the Neolithic the landscape “Longoza” presented a deep and jutting-out sea bay inland. The assertion that the Neolithisation of the Bulgarian Black Sea region is delayed vastly besides Thracia or Northeastern Bulgaria is appropriate but our investigation on the Black Sea level during the Early and the Middle Holocene is under way to change these conceptions.

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1. Introduction

The Neolithic period of Bulgarian prehistory has been studied for a century. Investigation of the Black Sea coast, including Longoza and Southern Dobrudzha, has produced particularly interesting results. These regions had long remained unnoticed by scholars and their prehistory has only been studied during recent decades. Some of the sample sites in these areas include Balkuzu, Golyamo Delchevo, Usoe, and Durankulak. The results have been published completely from the archaeological excavations at Golyamo Delchevo (Todorova, 1975), and the “Kaletó” tell near Levski, in the Varna district (Margos, 1972b).

However, analysis of the problem of the beginning of Neolithisation has not been published. The question has been discussed only during overall reviews of Neolithisation (Todorova, 1995).

The beginning of Neolithisation in the eastern part of the Balkan Peninsula is not associated with environmental conditions, particularly fluctuations of the Black Sea level. In the scientific literature, these two issues are studied separately. A partial attempt to link the data is provided by Peev (2004) for the comparatively small Longoza area of the Bulgarian Black Sea coast. Some studies have been carried out regarding the Black Sea fluctuations and their influence on historical development along the West Pontic coasts. (Mihova, 1995, 1998; Lazarov, 1996; Filipova-Marinova et al., 1997; Filipova-Marinova and Hristova, 2001).

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2. Mesolithic

After the Karangatian period occurred, the Neoeuxinian stage of geological history of the Black Sea followed, which coincides with Wurm III (25–17 ka). The global sea level was 120–130 m below its present level (Alekseev et al., 1986). The Neoeuxinian regression spanned the time interval between 30 and 9–8 ka. The Neoeuxinian coastline features include beaches, sand dunes, and bars (Fig. 1). In the geophysical record (Fig. 2), a vast bay is recognized in the area of the ancient Danube Delta.

At the beginning of the Holocene, the Eastern Balkan Peninsula was almost completely uninhabited. Mesolithic sites are few, the only one from Bulgaria being located at the ancient sand dunes near Pobitite kamuni, west of Varna (Fig. 3). Despite a decade's field work, which still continues, habitations have not yet been recognized.

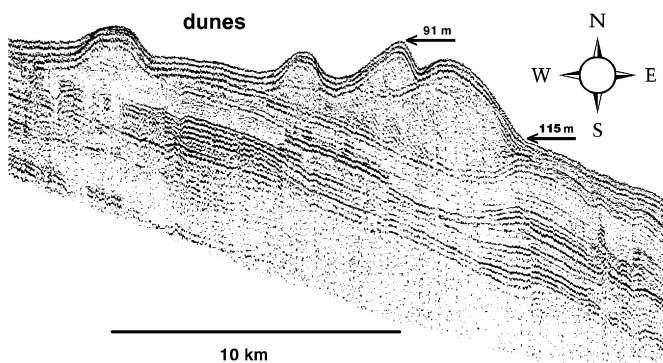


Fig. 1. Fragment of seismic-acoustic record in the region of the old Black Sea shoreline (profile Emine cape, Bulgaria).



Fig. 3. Mesolithic site Pobitite kamuni, west of Varna, Bulgaria.

The site has revealed hundreds of flint microliths, unfortunately unstratified, that belong to the period between the ninth and eighth millennia BC (Todorova, 1995). This is the largest collection of Mesolithic artifacts in Southeastern Europe. Margos (1972a) has found more than 12,500 tools and flint splits. This type of microlith is widespread in the Varna region to the Early Neolithic.

This palaeogeographical situation is clearly the reason why Bulgarian data on Mesolithic habitations are missing with the exception of Pobitite kamuni, in the Varna district. During the Late Paleolithic and Mesolithic periods, a great part of the present Black Sea shelf was a large river valley. Therefore, the habitations of Mesolithic humans was found on the present continental shelf, more precisely at the areas of the palaeo-valleys of the Eastern Balkan Peninsula rivers (Fig. 4).

3. Black Sea level 9–7 ka and Neolithisation

Ten thousand years ago, the global sea level was about 44 m below its present level (Lambeck, 1996). During this period, the level was lower in the Black Sea. The formation of the Holocene deltas started at about 8000 BP when, according to the isotope and sea level curves, a sudden change in level occurred, about 14 m (5–15 cm/a).

In the central part of the continental shelf is an Early Holocene (Bugazian) littoral phase of sandy gravel sediments with detritus at depth 30–34 m (Shimkus et al., 1979; Dimitrov and Govberg, 1982). C^{14} dates at the bases of the Lower Holocene layers are 7480 ± 540 and 8080 ± 20 BP (Dimitrov, 1982). Sediments situated above the Early Holocene coastline are dated at 6890 ± 630 BP (Kuptzov et al., 1979). The palynological analyses of the Lower Holocene sediments indicated an increase of woody vegetation, with pollen counts up to 65% (Bozhilova et al., 1979). This increase in sea level is marked by the formation of coastal lakes along the western Black Sea.

According to data from the Black Sea and the Mediterranean, sea level in 8–7 ka was more than 11 m below present one. In the Franchthi Cave, Greece at

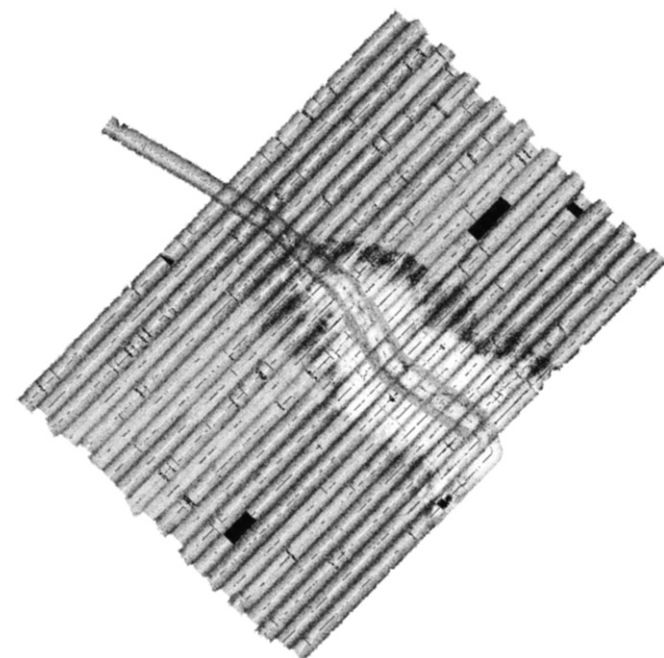


Fig. 2. A large bay at the area of the ancient Danube Delta (geophysical record 2001).

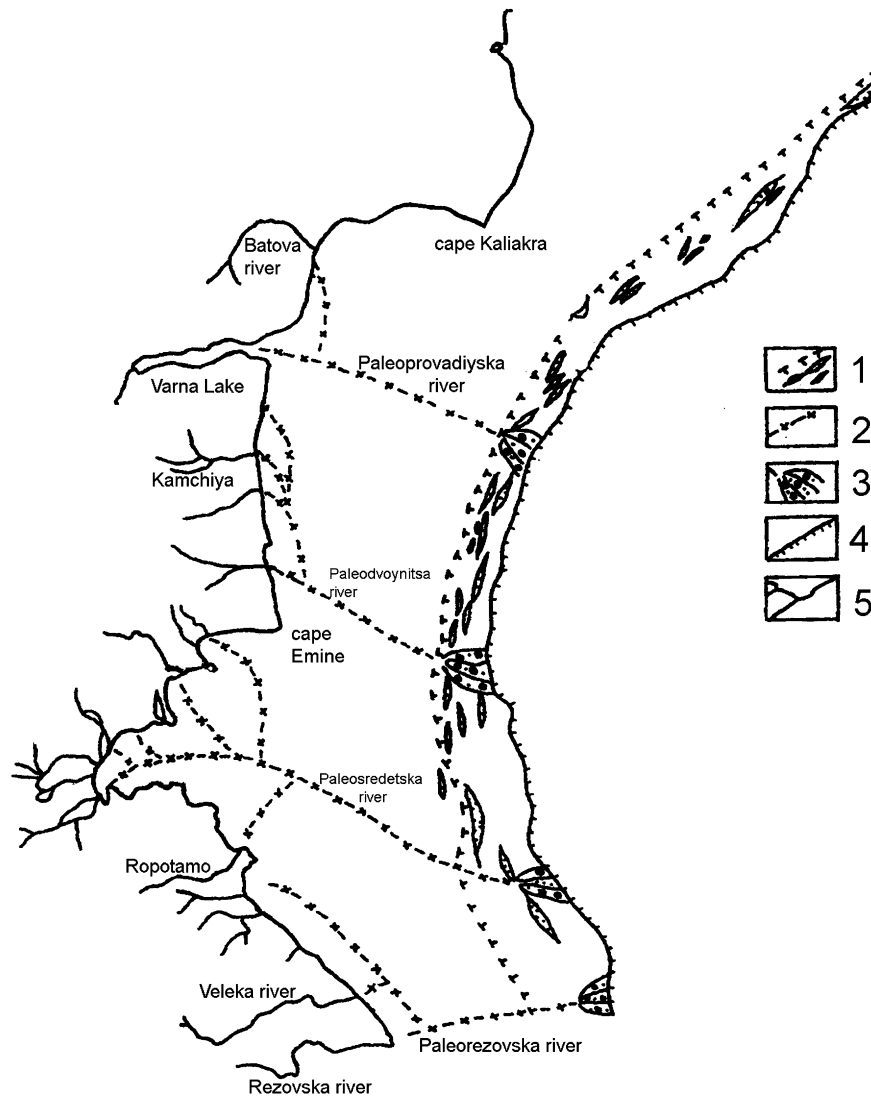


Fig. 4. Palaeo-valleys of the Eastern Balkan Peninsula rivers (after Mihova, 1998). (1) Ancient shore line; (2) river palaeo-valleys; (3) ancient river deltas; (4) boundary continental shelf—continental slope; (5) present coast line.

–11 masl, Neolithic artifacts dated 7610 ± 150 BP are found (Jacobsen and Farrand, 1987). The same level is reached again at ca. 6000 BP (Lambeck, 1996). At the end of the Eneolithic period, there was only a small increase in the level of the Aegean, approximately 1–2 m. In the Franchthi Cave the level is –9 m below present one, and along the southern coast of the Argolida peninsula, the level is –10 m (van Andel, 1987). During the period 8300–7100 BP, Gifford (1983) notes cultural layers from Franchthi at the same depth, –9 m below present one.

New data were obtained from the prehistoric necropolis off Cape Shabla, northern Bulgarian Black Sea coast. Two burial sites are present, the first at –6.5 m asl and the other at –3.5 masl (Fig. 5). These could be dated to Late Neolithic or Eneolithic. Sea level along the Bulgarian coast was at least 7 m below present. From investigation (Peychev and Peev, 2006) of Holocene sea level fluctuations,

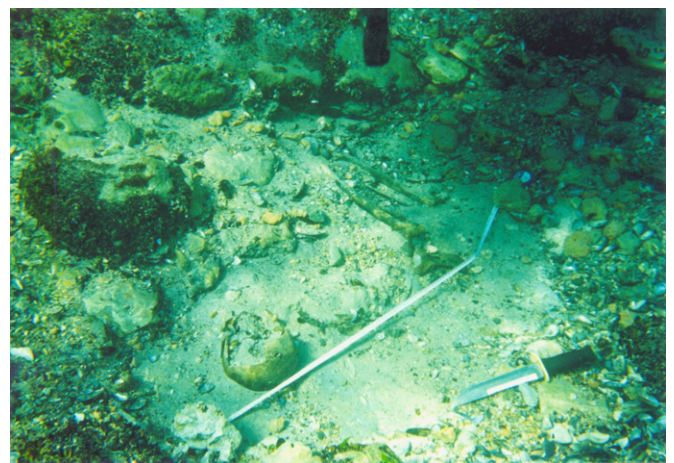


Fig. 5. Underwater photo of prehistoric grave at depth –3.5 m below present off Shabla cape, Bulgaria.

a sea level curve for the western part of the Black Sea from the Late Paleolithic period to the Eneolithic was constructed (Fig. 6).

Todorova (1978) summarized the achievements of many years of research in the prehistoric archaeology of the Longoza region. The earliest habitation in the Longoza is situated at Balkuzu near the town of Dalgopol, Varna district. This site, as others from the Early Neolithic, displays the Tzonevo culture. The special features of the Early Neolithic in the Longoz are typical only for this area, but it is quite possible that they will prove characteristic of other Black Sea Neolithic settlements, as suggested by the very close analogies to the Fikirtepe site near Istanbul,

Turkey (Mellaart, 1975). The Tzonevo culture corresponds chronologically to the Karanovo II culture in Thracia and the Kriş III culture in Romania. The initial stage of the Tzonevo culture, corresponding to the Karanovo I culture and the earliest phases of the Kriş culture, has not been found until now.

On the curve of Black Sea fluctuations, the level during Early Neolithic was below the present sea level. The deep and calm mouth of the Kamchiya River was closed and the river banks were covered by several metres during the next transgression. During the Neolithic, the Longoza landscape had a prominent embayment. Future analysis will corroborate or reject this hypothesis.

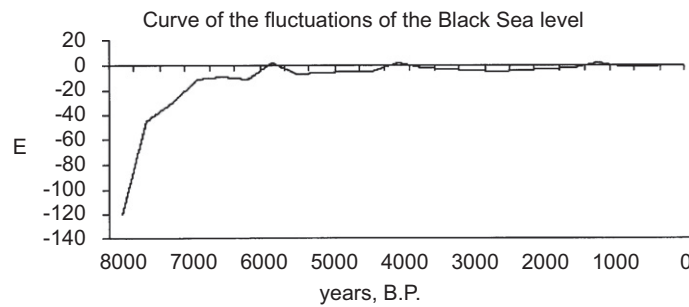


Fig. 6. Holocene curve of the Black Sea level (Psychev and Peev, 2006).

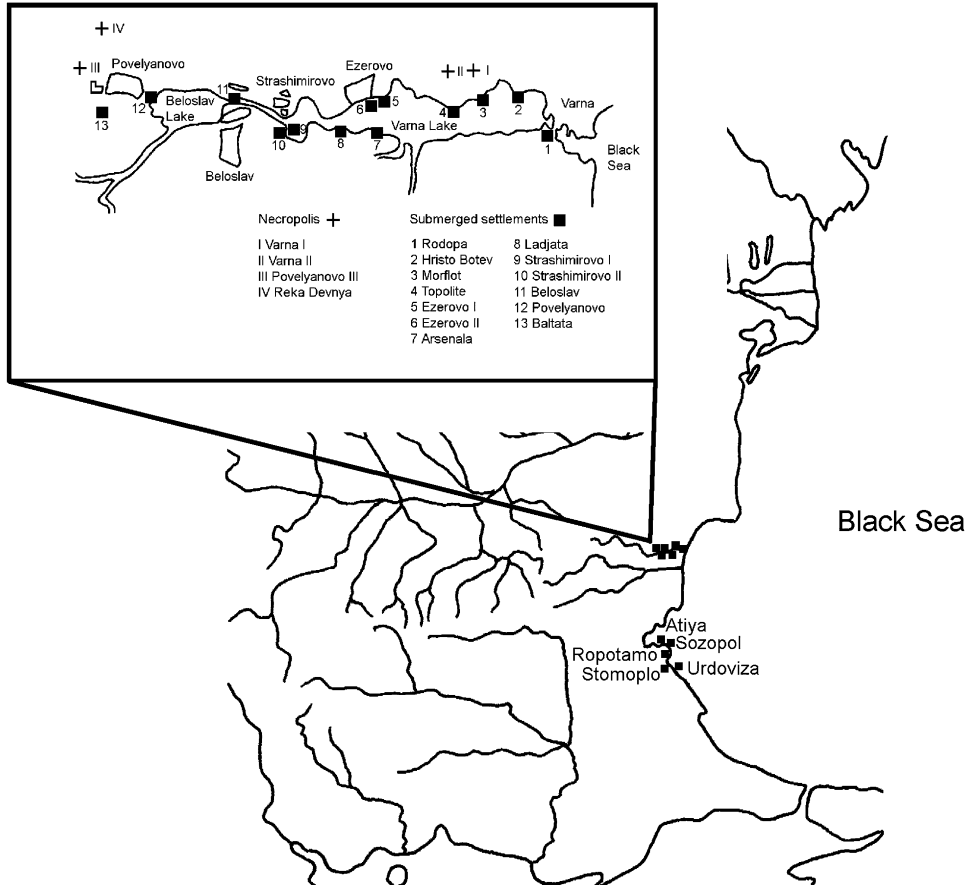


Fig. 7. Map of the submerged settlements along the Western Black Sea coast (after Peev, 2004).

During the next stage of human development, the Stone–Copper epoch, the situation was similar. At the bottom of the present Varna–Beloslav Lake, 13 submerged settlements have been found at depths of 6–8 m dated to the Late Eneolithic and the Early Bronze Age. No such settlements have been found from an earlier period. Clearly the earlier habitations were covered with river deposits and now lie several metres below the present sea level. All 18 of the prehistoric settlements that are known along the Bulgarian Black Sea coast (Fig. 7) are situated 6–9 m below the sea level.

Detailed analysis of existing results and new data show that all of these settlements were situated on the first unflooded river terraces, and not on wooden platforms or on pylons. This conclusion, to a great degree, determines the characteristics of the habitations (Peev, 2004, in press). Unfortunately, more sites have been destroyed during building and trawling work, which has presented difficulties for archaeologists. However, despite these challenges, the first excavators of the submerged settlements were entirely correct in identifying the presence of four stratigraphical layers (Margos and Toncheva, 1962). Later excavations using the methods of underwater archaeology confirmed these observations.

During the present investigation, significant data were taken from interdisciplinary observations at some of the sites. For example, investigations on the settlement near Cape Urdoviza determined that the site was along the banks of the ancient valley of the Karaagach River, approximately 800–900 m from the present coastline, close to the ancient mouth of the river (Georgiev et al., 1994). The Late Eneolithic and the Early Bronze Age settlements at Sozopol were located in what was at the time a river valley, on a high terrace some 70–80 m westward and 5–6% northwest to the southwest slope. The Early Bronze Age sites are closer to the ancient river channel. The geophysical and geological investigations of the area around Lake Varna–Beloslav show that all of the settlements were situated on the first unflooded terrace of the ancient valley of the Provadiiska River.

4. Conclusions

Although prehistoric settlements are found along the shoreline, geomorphologic and stratigraphic analyses indicate that during their existence they were river settlements, situated at the mouth of lower river valleys. This is also indicated by the fluctuation curve of the Black Sea level between 6500 and 4000 BP. As this position protected the settlements from the gales of the Black Sea, they represented reliable trade centers for the exchange of articles through marine trade with the inland areas. Only the well-preserved estuaries of the rivers provided safety for prehistoric humans. The habitations found to date were directly connected with the Black Sea.

The other very important element is the moment of the formation of the Longoza forest, connected with the

formation of sandy barriers along the Bulgarian Black Sea coast. Their formation barred the river valleys, producing alluvial deposits. The age of the Longoza forest along the West Black Sea coast is dated at 3155 ± 100 BP, according to data from the Ropotamo River (Bozilova and Beug, 1992). If this date is accepted as valid for the Kamchiya River, although this assertion is very speculative, 8000–6000 years ago the Longoza was not an area with overgrowth, as it is at present, but was an excellent protective gulf from storms.

Currently, it may be appropriate to assert that the Neolithisation of the Bulgarian Black Sea region occurred later than it did in Thrace or Northeastern Bulgaria. Later investigations on the Black Sea level during the Middle Holocene are under way, which may change these conceptions.

Acknowledgements

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References

- Alekseev, M., Chistyakov, A., Shterbakov, F., 1986. Chetvertichnaya Geologiya Materikovyih Okrain. Nedra, Moscow, p. 243 (in Russian).
- Bozhihlova, E., Filipova, M., Dimitrov, P., 1979. Pyiltzevoi analiz pozdnechetvertichnyih osadkov perifericheskoi oblasti shelfa zapadnoi chasti Chernogo morya. INMV XV (XXX), 157–162 (in Russian).
- Bozilova, El., Beug, H.-J., 1992. Holocene history of vegetation in SE Bulgaria (Lake Arkutino, Ropotamo region). *Vegetation History and Archeobotany*, pp. 19–35.
- Dimitrov, P., 1982. Radiovuglerodni datirovki na dumni utayki ot bulgarskia chernomorski shelf. *Okeanologiya* (Sofia) 9, 45–53 (in Bulgarian).
- Dimitrov, P., Govberg, L., 1982. Stratigraficheskie kompleksyi donnyih otlozheniy i nekotoryie chertyi geologicheskoy istorii shelfa zapadnoi chasti Chernogo morya. *Petribalticum* II, 55–59 (in Russian).
- Filipova-Marinova, M., Hristova, R., 2001. Sea level fluctuations in the western part of the Black Sea during the Holocene. *Comptes rendus de l'Académie Bulgare des Sciences* 52 (5), 59–64.
- Filipova-Marinova, M., Hristova, R., Mihova, E., Lazarov, M., 1997. Ekologichni i arheologichni dokazatelstva za promenite v bulgarskia sektor na Cherno more prez holotzena. In: *Izvestia na USB-Varna. Varna*, pp. 51–54 (in Bulgarian).
- Georgiev, M., Petkov, A., Stoev, D., Velkovski, K., 1994. Geophysical prospecting of the aquatoria of the Southern Black Sea coast aimed at reconstructing of the palaeorelief. *Thracia Pontica* V, pp. 317–328.
- Gifford, J., 1983. Core sampling of a Holocene marine sequence and underlying Neolithic off Franchthi Cave, Greece. In: Masters, P., Flemming, N. (Eds.), *Quaternary Coastlines and Maritime Archaeology*. Academic Press, London, pp. 262–282.
- Jacobsen, T.W., Farrand, W.R., 1987. Franchthi Cave and Paralia: Maps, Plans and Sections. Excavations at Franchthi Cave, Greece. Fascicle 1. Indiana University Press, Bloomington.
- Kuptzov, M., Zeldina, B., Shimkus, K., Dimitrov, P., 1979. Opredeleniya absolyutnogo vozrasta. In: *Geologiya i Hidrologiya Zapadnoy Chasti Chernogo morya*, Sofia, pp. 91–93 (in Russian).
- Lambeck, K., 1996. Sea-level changes and shore-line evolution in Aegean Greece since Upper Paleolithic time. *Antiquity* 70, 588–611.

- Lazarov, M., 1996. Potunalite selishta po zapadnoto Chernomorie v konteksta na Pontiyskata i Sredizemnomorskata istoria. *Istoria* 1, 48–61 (in Bulgarian).
- Margos, A., 1972a. Mikroliti ot eneolitni selishta vuv Varnensko. *Izvestiya na Narodniya Muzei Varna VIII (XXIII)*, 233–235 (in Bulgarian).
- Margos, A., 1972b. Paristoricheska selishtna mogila “Kaletu” pri s. Levski, Varnensko. *Izvestiya na Narodniya Muzei Varna VIII (XXIII)*, 236–245 (in Bulgarian).
- Margos, A., Toncheva, G., 1962. Praistoricheskoto nakolno sleishte pri s. Ezerovo, Varnensko. *Izvestiya na Varnenskoto Arheologicheskoto Druzhestvo XIII*, 1–16 (in Bulgarian).
- Mellaart, J., 1975. *The Neolithic of the Near East*. Thames and Hudson, London.
- Mihova, E., 1995. Kolebanie na morskoto nivo na Chernomorie i evolyutzia na bregovata zona prez holotzena. In: *Geografia'94*. Sb. Dokladi izneseni na natsionalnata nauchno-prakticheska konferentsia po geografija, Sofia 9-10.IV.1994, Sofia. pp. 149–154 (in Bulgarian).
- Mihova, E., 1998. Kolebanie na morskoto nivo i paleoekologichni uslovia za razvitiето na choveshkia zhivot kraibregovete na Chernomorie. In: *Bregoukrepvane i Dulgotrainsko Stabilizirane na Sklonovete na Chernomorskoto Kraibrezhie*. Acad. Press “Prof. M. Drinov,” Sofia, pp. 64–69 (in Bulgarian).
- Peev, P., 2004. Submerged settlements along the west Black Sea coast. The problem of situation. In: *The Geoarchaeology of River Valleys*. Archaeolingua, Budapest, pp. 161–169.
- Peychev, V., Peev, P., 2006. Evolyutzia na bulgarskoto chernomorsko kraibrezhie sled rannia holotzen. Varna, Slavena (in Bulgarian).
- Shimkus, K., Dimitrov, P., Chabashvili, S., Govberg, L., Novikova, Z., 1979. Obshtaiia litologicheskaiia karakteristika razrevov. In: *Geologia i Hidrologia Zapadnoi Chasti Chernogo Moria*. BAS, Sofia, pp. 101–114.
- Todorova, H., 1975. Selishtnata mogila Golyamo Delchevo. *Razkopki i prouchvania*. Sofia
- Todorova, H., 1978. Prouchvania na neolita i eneolita v Longoza (nachaloto na VI—kraya na V hilyadoletie pr.n.e.). *Izvestiya na narodniya muzei Varna XIV (XXIX)*, 1–9 (in Bulgarian).
- Todorova, H., 1995. The Neolithic, Eneolithic and Transitional period in Bulgarian prehistory. In: *Prehistoric Bulgaria*, pp. 79–98.
- van Andel, T., 1987. The adjacent sea. In: van Andel, T., Button, S. (Eds.), *Landscapes and people of the Franchthi region*. Bloomington, Indiana University Press, pp. 3–63.