

## **Radiocarbon Dates of the Tsikhiagora Settlement and the Rise of Bedeni Culture in the South Caucasus**

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**The paper deals with the new radiocarbon dates of Tsikhiagora settlement, which are important because the appearance of the Bedeni culture and its coexistence with the Kura–Araxes culture was chronologically unclear. In the middle of the 3<sup>rd</sup> millennium BC, the stable character of the Kura–Araxes culture in the South Caucasus, and in particular in Eastern Georgia, was disturbed, which, among other reasons, must have been caused by the appearance of new elements, northern and southern. The late period of development of the Kura–Araxes culture in Eastern Georgia and its relation to the early tombs was reflected in the materials of Early Bronze Age Tsikhiagora settlement. Stratigraphic data from the Tsikhiagora settlement and new radiocarbon dates allow us to assume the initial period of this cultural transformation in the first half of the 3rd millennium BC, which is important in the study of synchronization with other cultures and the genesis of the Bedeni culture.**

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Caucasus, Georgia, Kura-Araxes, Bedeni, Tsikhiagora

The Kura–Araxes or Transcaucasian archeological culture was widespread in the South Caucasus, Eastern Anatolia, Northwestern Iran, and the Eastern North Caucasus in the 3<sup>rd</sup> millennium BC. The Kura–Araxes culture of the Early Bronze Age is considered as a single cultural-historical event, but with its local peculiarities. The difference between the local variants was manifested in the topography of the settlements, the architecture of the buildings and the construction techniques, some elements of the material culture, and so on. In the middle of the 3rd millennium BC, the stable character of the Kura–Araxes culture in the South

Caucasus, and in particular in Eastern Georgia, was disturbed, which, among other reasons, must have been caused by the appearance of new elements, northern and southern. At this time a new rule of burial applies – grand Kurgan individual tombs, chariots were buried with the deceased, feeling great shifts in social relations, and so on [1]. In the early Kurgans, two groups are distinguished: "Martkopi" [2, 3] and "Bedeni" [2, 4]. The Kura–Araxes culture and the early Kurgans are considered to be the next stages of each other, and in terms of kurgans, the Bedeni group is considered to have come later. This scheme of gradual

development is acceptable, but the relationship between the Kura–Araxes cultural monuments and the burial monuments and the early tombs itself shows a more complex picture, which is reflected in the materials of the later stages of the stratified settlements of the Kura–Araxes culture. At the time, in Inner Kartli, in the valley of the river Mtkvari, Khizanaant Gora [5], Kvatskhela [6], Tsikhiagora [7, 8] Berikldeebi [9-11] well-stratified settlements studied on the basis of the data, we developed a chronological scheme [7] of Kura–Araxes and Bedeni crops:

Phase I – Khizanaant Gora E level;

Phase II – Khizanaant Gora D, C, B, Kvatskhelebi C level;

Stage III – Kvatskhelebi B level, Tsikhiagora B3, B2 layers;

Stage IV (or Bedeni I stage) – Tsikhiagora B1 layer, A level;

Phase II of Bedeni – Berikldeebi, Bedeni layer.

Most obviously, in our opinion, the late period of development of the Kura–Araxes culture in Eastern Georgia and its relation to the early tombs was reflected in the materials of Tsikhiagora Early Bronze Age.

Stages III and IV are presented in Tsikhiagora settlement. Stage III is characterized by the continuation of the construction traditions of the previous stages. The construction of the walls of buildings, which is typical for the lower B3 and B2 layers of Tsikhiagora, is a major construction tradition of the Kura–Araxes culture in Inner Kartli region [12]. Continuation of construction traditions, similarity of settlement planning and types of buildings, which develops by the end of this stage in the form of buildings of Tsikhiagora B2 layer. It can be said that by the end of the III period the traditional Inner Kartli architecture reached the peak of its development. There is more difference in pottery, which allows us to distinguish stage III from the previous one. Stage II is characterized by a biconical shape of the vessel, with a sharp ridge around the middle of the body. The lack of graphic

ornamentation and individual character, also at the end of the II period, manifests itself in the C1 layer of pebbles. Stage III is characterized by the appearance of a relatively clean, thin-walled, well-polished black-surfaced pottery with a large, thick-walled pottery, with a higher degree of burning. Further differentiation of the overall shape and parts of the vessel, mainly the three-part shape. Formed kind of graphic ornament that creates continuous, rhythmic, ornamental belts. Great closeness, both in the forms of pottery and in the style of ornamentation, is seen with the materials of the early tombs, the "Martkopi" group. At this stage, a hollowed-out ornament appears, which was completely foreign to the ceramic complex of Inner Kartli. Changes in the development of the intra-Georgian variant of the Kura–Araxes culture, in its III stage, should include impulses coming from the south, where the Ararat variant of the Kura–Araxes culture is characterized by a three-part pottery shape and a hollow-convex ornament. The fact that only cultural impulses took place in Inner Kartli and not the migration of the southern Kura–Araxes tribes can be seen in the fact that the traditional architecture, stable character of life, the main components of the ceramic complex have not changed. On the contrary, enriched with new impulses, the Inner Kartlian variant of the Kura–Araxes culture rises to a higher level and reaches its highest level of development at the end of Stage III, during the existence of the B2 layer of Tsikhiagora, and then the development of the intra-Georgian variant of this culture ceases. If we also consider that layer B2 is destroyed by strong fires, and the floor of building B1 is laid directly on the ruined plasters of layer B2, the change in the construction tradition was probably due to a change in population. However, the Kura–Araxes culture continues to exist in Inner Kartli. Phase IV is the age of destabilization of the Kura–Araxes culture in the South Caucasus. There is a movement of tribes carrying Kura–Araxes culture. The materials in the B1 layer of Tsikhiagora reflected the rather drastic

changes introduced by the newcomer tribes – the construction of rectangular buildings of masonry and gravel, some peculiarities of the ceramic complex, suggesting that this wave may have originated in southwestern, possibly eastern Anatolia. It is difficult to say what caused the displacement of the Kura–Araxes tribes and the crisis of this culture, but perhaps these events were related to the emergence of a new, Bedeni culture in the South Caucasus, the signs of which also appeared at the beginning of Phase IV in the B1 layer of Tsikhiagora. The settlement layer B1 did not develop on Tsikhiagora, it seems abandoned. The fixation of a 2-3 cm sterile layer between levels B and A suggests that, after about a century, the settlement ceases to exist, after which it begins to function again and two settlement layers of level A are formed. The fourth stage of the Kura–Araxes culture in Eastern Georgia is at the same time the first stage of the Bedeni culture takes place, these two cultures coexist in this region for a long time. The B1 layer of Tsikhiagora is from the beginning, and its level A belongs to the final of the IV stage and reflects the end of the Kura–Araxes culture in this region and the establishment of the Bedeni culture. 60-70% of Tsikhiagora level A pottery is typical of the Kura–Araxes, it is of Martkopi look, but there is also a jar-shaped pottery typical of the Bedeni culture, with a landscape belt or ridge ornament with round fossae, often with thin clay. Dotted stamp completely covered surface vessels and thin-walled black ceramics. Phase II of the Bedeni culture is represented by the Bedeni layer of the Berikldeebi and is a transitional stage from the Early Bronze Age to the Middle Bronze Age. Traditional chronological schemes and small radiocarbon dates of the Kura–Araxes cultural monuments and early tombs existing at that time were used to date the Tsikhiagora layer of the Early Bronze period. III stage BC. 24-23, and phase IV was dated to 22-21 [7]. For B2 layer of Tsikhiagora we have C14 date - BC. 2900 ± 110 years (ТБ-831), which we considered too early and unsuitable for

the existing traditional chronology and did not consider it. Over the past thirty years, a considerable number of radiocarbon dates have been accumulated, both from settlements and tombs, which has confirmed the chronological position of many monuments [11-14].

The new, radiocarbon dates of Tsikhiagora are important because the appearance of the Bedeni culture and its coexistence with the Kura–Araxes culture was chronologically unclear.

In 2021 at D-REAMS Radiocarbon Dating Laboratory (Weizmann Institute of science, Rehovot, Israel) samples from Tsikhiagora were measured for radiocarbon dating by the Prof. Elisabetta Boaretto. The radiocarbon age and the calibrated ranges according to  $\pm 2\sigma$  ( $\pm 2$  standard deviation, meaning 95.4% probability that the true age is included in those limits).

- The bone from Tsikhiagora 1 (pit 79. Level A)- 2584 (89.6%) 2468 BC
- The bone from Tsikhiagora 2 (pit 78. Level A)- 2574 (95.4%) 2460 BC
- The dentine Tsikhiagora 4 ( level B2)- 2818 (72.6%) 2666BC
- The bone from Tsikhiagora 5 (pit 17. Level B1)- 2818 (72.4%) 2666BC

## Conclusions

In the central part of the South Caucasus, at the end of the Early Bronze Age, the process of ongoing culturogenesis seems complex and multifaceted. The fact that after the appearance of Martkopi and Bedeni, the Kura–Araxes culture continues to exist in the area, allows us to consider this event as a new stage in its evolutionary development. Innovations, on the other hand, are so essential that this process represents a more stimulated cultural transformation when a new culture is formed on a local basis under the influence of external impulses. Stratigraphic data from the Tsikhiagora settlement and new radiocarbon dates allow us to assume the initial period of this cultural transformation in the first half of the 3<sup>rd</sup> millennium BC, which is important

in the study of synchronization with other cultures and the genesis of the Bedeni culture.

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## არქეოლოგია

# ციხიაგორას ნასახლარის რადიოკარბონული თარიღები და სამხრეთ კავკასიაში ბედენური კულტურის ნიშნების გამოჩენა

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ნაშრომი ეხება ციხიაგორას ნასახლარის ახალ რადიოკარბონულ თარიღებს, რომელიც მნიშვნელოვანია, რადგან ბედენური კულტურის ნიშნების გამოჩენა და მისი თანაარსებობა მტკვარ-არაქსის კულტურასთან ქრონოლოგიურად გაურკვეველი იყო. ძვ. წ. მე-3 ათასწლეულის შუახანებში, სამხრეთ კავკასიაში, კერძოდ კი, აღმოსავლეთ საქართველოში, ირღვევა მტკვარ-არაქსის კულტურის სტაბილური ხასიათი, რაც, სხვა მიზეზებთან ერთად, გამოწვეული უნდა ყოფილიყო აქ ახალი, ჩრდილოური და სამხრეთული ელემენტების გამოჩენით. ყველაზე თვალსაჩინოდ, მტკვარ-არაქსის კულტურის განვითარების გვიანდელი პერიოდი აღმოსავლეთ საქართველოში და მისი მიმართება ადრეულ ყორღანებთან აისახა ციხიაგორას ადრე-ბრინჯაოს ხანის მასალებში. ციხიაგორას ნასახლარის სტრატეგრაფიული მონაცემები და ახალი რადიოკარბონული თარიღები საშუალებას გვაძლევს ამ კულტურული ტრანსფორმაციის საწყისი პერიოდი ძვ. წ. მე-3 ათასწლეულის პირველ ნახევარში ვივარაუდოთ, რაც მნიშვნელოვანია სხვა კულტურებთან სინქრონიზაციის და ბედენის კულტურის გენეზისის კვლევის დროს.

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