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COMPARATIVE ANALYSIS OF THE SETTLEMENTS OF JEITUN AND TOGOLOK-TEPE: CONTINUITY OF ARCHITECTURAL AND ECONOMIC TRADITIONS IN THE JEITUN CULTURE

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ABSTRACT

This article analyzes the Neolithic settlements of Jeitun and Togolok-Tepe in Southern Turkmenistan, which belong to the Jeitun culture, using comparative-stratigraphic, architectural-spatial and typological methods. The study compares V. M. Masson's monographic data on Jeitun, O. K. Berdyev's publications on the stratigraphy of Togolok-Tepe, later research led by D. R. Harris, and the results of modern historiography. For Jeitun, the main comparative criteria were the structure of the household-dwelling complexes and the spatial placement of hearths; for Togolok-Tepe, the four building horizons, the Togolok I–II phases, houses with shared walls, work areas and the dynamics of the ceramics. The analysis shows clear continuity between the two sites in building technology, the single-room house model, household-level production and a way of life based on farming. At the same time, the densification of houses, the use of shared walls, the development of door constructions and the changes in the ceramic repertoire at Togolok-Tepe are interpreted as features reflecting the internal evolution of the Jeitun culture. The article proposes to regard Togolok-Tepe not as a cultural phenomenon separate from Jeitun, but as an important stratigraphic reference site that illuminates the later stages of the Jeitun tradition.

KEYWORDS

Jeitun, Togolok-Tepe, Neolithic, Jeitun culture, stratigraphy, dwelling architecture, hearth, ceramics, early farming, Southern Turkmenistan.

Introduction

The Neolithic sites of Southern Turkmenistan occupy a special place in the question of how a producing economy and settled village life took shape in Central Asia. The settlements of the Jeitun culture, located along the northern foothills of the Kopet Dag, show the earliest composite forms of early farming, domestic animal herding, mud-brick architecture and pottery production. The eponymous site of this culture, Jeitun, was studied systematically by V. M. Masson from the mid-twentieth century, and later international expeditions enriched its stratigraphy, radiocarbon chronology and palaeoeconomy with new data.[1]

However, the internal development of the Jeitun culture cannot be understood from the eponymous site alone. In this respect Togolok-Tepe is of particular importance. The site was identified in 1939 by A.

A. Marushchenko, and from 1961 O. K. Berdyev began excavating its Neolithic layers. The initial 3×2 m trench revealed four building horizons, and the excavated area was later expanded to 10×10 m.[2]
The aim of the article is to compare the materials of Jeitun and Togolok-Tepe by the same criteria and to identify the architectural, economic and material-cultural continuity and change between them. The main indicators used in the comparison were the natural-geographic setting of the sites, chronology, stratigraphy, dwelling construction, hearths, courtyards and work areas, tools, the farming-herding model and the ceramic assemblage. The unevenness of the data — Jeitun has been excavated over a wider area, while Togolok-Tepe has been studied on a relatively limited one — was consistently taken into account as a methodological limitation.

Historiography and Source Base

V. M. Masson's research is decisive in the history of the study of Jeitun. His monograph Poselenie Dzheitun (Problema stanovleniya proizvodyashchei ekonomiki) [The Settlement of Jeitun: The Problem of the Emergence of a Producing Economy], published in 1971, is the main primary source on the settlement's architecture, economic activity, hearths, production tools and social organization.[3]
In later years, research led by D. R. Harris, C. Gosden and M. P. Charles clarified the lower layers of Jeitun, the renewal of floors, the use history of the houses and the radiocarbon chronology; the excavations showed that the settlement was occupied around the 6000s BCE.[4]
The main source on Togolok-Tepe is O. K. Berdyev's 1964 article "Stratigrafiya Togolok-Tepe v svyazi s rasseleniem plemen dzheitunskoi kultury" [The Stratigraphy of Togolok-Tepe in Connection with the Settlement of the Tribes of the Jeitun Culture], published in the journal Sovetskaya arkheologiya. It analyzes the site's four Neolithic building horizons, architectural remains and ceramic materials in relation to the phases of the Jeitun culture.[5] Berdyev later placed Togolok-Tepe within the broader chronological system of the Neolithic of Southern Turkmenistan in his monograph Drevneishie zemledeltsy Yuzhnogo Turkmenistana [The Earliest Farmers of Southern Turkmenistan].[6]
In modern historiography, A. Kurbanov has re-summarized the Neolithic sites of Southern Turkmenistan, bringing together in one corpus the topography of Togolok-Tepe, the history of its excavation, its four-horizon stratigraphy and its early radiocarbon dates.[7] D. R. Harris's study of the origins of agriculture in Western Central Asia makes it possible to compare Jeitun, Togolok and other sites from an ecological-economic point of view.[8]

Natural-Geographic Setting and Chronological Position

Jeitun and Togolok-Tepe are located in the same broad ecological space — between the northern piedmont plain of the Kopet Dag and the southern edge of the Karakum Desert. Jeitun lies northwest of Ashgabat, in the zone where the Karakum sands meet the foothill farming area. Togolok-Tepe formed about 2 km south of the first sand ridge of the Karakum, near one of the ancient watercourses belonging to the Sekizyap system. Such a landscape gave the inhabitants of both settlements simultaneous access to arable land, pasture, hunting resources and seasonal water.[9]
Chronologically, Jeitun mainly represents the early phase of the Jeitun culture. Togolok-Tepe has a longer stratigraphic sequence: O. K. Berdyev designated the lower two horizons as Togolok I and the upper two as Togolok II. In later systematizations the lower layers were linked to the Early Jeitun phase and the upper layers to the Middle Jeitun phase. For this reason Togolok-Tepe offers a more dynamic

stratigraphic section than Jeitun for observing the changes that took place within a single culture over time.[10]

Among the old radiocarbon results from Togolok-Tepe, a date of 5370±100 BCE is widely cited. However, directly equating such older "BCE" results with modern calibrated dates requires caution. Overall, modern syntheses see the Jeitun culture as a long process spanning roughly the end of the seventh millennium to the fifth millennium BCE, with chronological differences between specific sites and horizons.[11]

Table 1. Stratigraphic-chronological comparison of Jeitun and Togolok-Tepe

Criterion	Jeitun	Togolok-Tepe	Comparative interpretation
Cultural affiliation	Eponymous site of the Jeitun culture	Early and middle phases of the Jeitun culture	Compared within one cultural tradition
Building horizons	Several building phases; 3 general phases proposed in later excavations	4 Neolithic building horizons	Togolok shows change over time better
Internal phasing	Mainly Early Jeitun	Togolok I – lower 2 horizons; Togolok II – upper 2 horizons	Transition from the early to the middle phase is observed
Radiocarbon data	Beginning around c. 6000 cal BCE	Old result: 5370±100 BCE	Cautious comparison needed due to different methods
Excavated area	Relatively wide	Limited; overlain by a later-period fortress	Quantitative comparisons are not absolute

Dwelling Architecture and Spatial Organization

The basic unit of Jeitun architecture is a small, usually single-room rectangular dwelling. Mud-brick walls, a plastered floor, a hearth-fireplace attached to the wall, a courtyard and ancillary work areas form an interconnected system. In Masson's final count, 30 household-dwelling complexes were identified, each consisting not merely of a "house" but of a dwelling, a courtyard and ancillary structures.[12]

Materials from building horizon II of Jeitun, reanalyzed, allow at least 22 interior hearths to be reliably documented. Of the 21 cases with known orientation, 14 are located on the north wall and 7 on the east wall; the orientation of the hearth in room 24 is unknown. This statistic shows that hearths in Jeitun houses were not placed randomly, but also did not follow one rigid scheme. The massive hearth-fireplace built along the wall left the central area of the room open and combined cooking, heating and living activities in a single space.[13]

At Togolok-Tepe the Neolithic layers are at least 3 m thick and contain four occupation horizons. In the second building horizon, wall sections preserved to a height of 30–40 cm were uncovered; Berdyev described them as similar to the Neolithic houses of Jeitun, Chopan-depe, Chagylly and Bami. One important difference at Togolok is that houses are observed to share walls relatively more often. This may be linked to a densification of the settlement plan or to economical use of the available space.[14]

Work structures made of low parallel walls have also been identified at Togolok-Tepe. They are interpreted as areas connected with drying or processing grain; similar structures also occur at Jeitun

and other early farming settlements. This shows that the functional connection between the house and the outdoor work area was stable at both sites.[15]

Some changes over time can also be seen in architectural details. Synthesizing publications note that the entrances of the earliest houses at Jeitun were relatively simple, whereas at Togolok and Chopan-depe door-pivot stones, which indicate a door mechanism, are found. In addition, finishing floors and surfaces with lime-based mortar is more widespread at Jeitun, while the share of clay plaster increases at Togolok. These may be seen not as the emergence of an entirely new architectural tradition but as a structural refinement of the existing Jeitun-type house model.[16]

Table 2. Architectural and interior-space features

Feature	Jeitun	Togolok-Tepe	Result
Main house type	Single-room rectangular dwelling	Mud-brick dwellings of the Jeitun type	Typological continuity
Wall material	Mud brick / clay	Mud brick / clay	Same construction technology
Relation between houses	Relatively freer layout; separated by courtyards	More houses with shared walls	Densification of planning
Hearth	Massive wall hearth-fireplace; number and orientation well documented	Hearths present, but catalog of number/orientation limited	Functional tradition preserved
Courtyard / work zone	House + courtyard + ancillary room model is clear	Parallel work walls and open areas	Household-level production continues
Floor and plaster	Gypsum/lime and clay layers, renewed many times	Clay plaster, some reed-mat impressions	Technological closeness, local difference
Door construction	Early forms	Door-pivot stones recorded	Structural refinement

Tools, Economic Activity and Production

A flint industry occupies a large place in the material culture of Jeitun. Sickle inserts, scrapers, piercing and drilling tools, knives, polished stone items and bone tools reflect various economic processes. In Masson's materials, some finds are concentrated inside dwellings and others more in courtyards and work rooms, which shows that everyday production was spatially zoned. Nevertheless, the family household, rather than a separate centralized workshop, remained the main organizational unit of production.

The finds from Togolok-Tepe also fit this general economic model. The site has yielded scrapers, geometric microliths, sickle inserts, grinders and mortars, bone tools, ornaments and animal bones. The excavated materials show that the population engaged in farming and herding, while hunting remained as a supplementary resource.[17]

The presence of sickle-related stone tools at both sites shows the central place of grain cultivation and harvesting in the economy. At Jeitun, traces of wheat and barley grains and building material mixed with straw have been recorded; palaeobotanical data from other Jeitun-culture settlements in Southern Turkmenistan confirm the regional character of this model. Sheep and goats are regarded as the main domestic animals, while the bones of wild animals indicate that hunting had not disappeared entirely.[18]

The parallel low walls identified in the eastern excavation sector at Togolok-Tepe are interpreted specifically as connected with drying and processing grain. At Jeitun too, open areas and courtyards were actively used for economic processes. For this reason, understanding the economic space at both sites as "an indoor living zone + a courtyard/work zone" is the most cautious model.

Ceramic Assemblage and Cultural Dynamics

Ceramics are among the most important features linking Jeitun and Togolok-Tepe chronologically. In the Early Jeitun phase, hand-made painted and unpainted bowls, cylindrical vessels and rectangular vessels formed the main repertoire. The decoration includes horizontal wavy and straight lines and bracket-like motifs. The lowest horizon of Togolok is compared with this early assemblage.[19]

In the upper layers of Togolok, vessel shapes multiply: jars and plate-like shapes are added to the earlier types, while in the decorative system crossing vertical-horizontal lines and dot motifs appear and geometrization intensifies. It was precisely on the basis of changes in ceramic shape and decoration that O. K. Berdyev assigned the lower layers of Togolok to the Early Jeitun phase and the upper layers to the Middle Jeitun phase.[20]

Petrographic and typological syntheses also show that by the Middle Jeitun period the vessel repertoire at Togolok had expanded and that the share of painted vessels and the decorative style had changed. It is appropriate to see this difference not as a "replacement of cultures" but as a technological and aesthetic transformation within the same tradition. It is the four-horizon stratigraphy of Togolok that makes it possible to observe these changes within a single settlement.[21]

Table 3. Comparative indicators of material culture and economy

Indicator	Jeitun	Togolok-Tepe	Comparative conclusion
Flint industry	Sickle inserts, scrapers, knives, drills, etc.	Scrapers, microliths, sickle inserts, etc.	Same technological tradition
Grain processing	Sickle inserts, grinding equipment, crop traces	Sickle inserts, grinders, parallel work walls	Farming is the main branch at both sites
Animal husbandry	Sheep and goats; hunting also retained	Agro-pastoral economy, hunting supplementary	Mixed producing economy
Place of production	In houses, courtyards and work rooms	In houses and outdoor work areas	Household-level production
Ceramics	Early Jeitun shapes and decoration	Early features in lower layers, Middle Jeitun features above	Togolok shows cultural evolution

Continuity and Differences between Jeitun and Togolok-Tepe

The first main result of the comparative analysis is that continuity between the two sites is stronger than discontinuity. The mud-brick single-room house, the hearth along the wall, the courtyard-work area connected to the dwelling, flint farming tools and hand-made painted ceramics make up the general "architectural-economic package" of the Jeitun culture.

The second result is that some structural and planning changes are visible at Togolok-Tepe. These include the increase in houses with shared walls, the clearer formation of door constructions, differences in floor plastering and the expansion of the ceramic repertoire. These features do not prove that the population was completely replaced. Rather, they show that, while the same economic and

architectural basis was preserved, internal evolution took place under the influence of local experience and the passage of time.

The third result is that the two sites cannot be equated quantitatively. Jeitun has been excavated over a large area, and its houses and economic complexes are documented fairly completely; Togolok-Tepe, because of the later-period fortress above it and its limited excavated area, provides fragmentary data. For example, while the number and orientation of hearths at Jeitun can be counted statistically, no such catalog yet exists for Togolok. Therefore, the conclusion that "there are few hearths" or "few houses" at Togolok would mistake a lack of evidence for a real historical difference.

The fourth result is that Togolok-Tepe is very well suited to testing the chronological development of the Jeitun culture. Jeitun is a well-studied model of the early phase, and through the lower and upper horizons of Togolok the changes of that model in later phases can be observed. Thus, the relationship between Jeitun and Togolok-Tepe is better understood as "two interrelated views over time of one cultural system" than as "a comparison of two separate settlements."

Scientific Novelty of the Study

The scientific novelty of the article lies in combining stratigraphic, architectural and economic data on Jeitun and Togolok-Tepe, published at different times, into a single system of comparative criteria. The previously re-verified data on Jeitun's 30 household-dwelling complexes and at least 22 interior hearths were compared with Togolok-Tepe's four building horizons and the Togolok I–II phases. As a result, the changes at Togolok were interpreted not as a break with the Jeitun tradition but as a gradual transformation in building density, door construction, work areas and the ceramic repertoire.

The article also specifically singles out the uneven preservation of evidence as a methodological factor: whereas extensive planigraphic data exist for Jeitun, the excavated area at Togolok-Tepe is relatively small. For this reason the comparison relied not on absolute numbers but on the ratio of functional and typological features. This approach makes it possible not to confuse real differences between the two sites with differences in the degree to which they have been investigated.

Conclusion

The comparative analysis of Jeitun and Togolok-Tepe shows that a stable architectural and economic tradition existed in the Neolithic of Southern Turkmenistan. Both settlements formed in a similar ecological space on the border between the Kopet Dag piedmont and the Karakum, and relied on a producing economy combining farming, herding and hunting.

Jeitun is the early and most fully documented model of this tradition. Its small single-room mud-brick dwellings, courtyards and work rooms, and wall hearth-fireplaces reflect a socio-economic organization at the household level. The identification of 30 main household-dwelling complexes in building horizon II and the recording of at least 22 interior hearths show that the interior space was organized in a fairly standardized, though not absolutely uniform, system.

Togolok-Tepe, in turn, is a stratigraphic reference site showing how this model changed over time. The division of the four Neolithic horizons into two major phases — Togolok I and Togolok II — and the linking of the lower layers with Early Jeitun and the upper layers with Middle Jeitun reveal the internal sequence of cultural development. The greater use of shared walls, the development of door constructions and the changes in the shape-and-decoration system of the ceramics are the main indicators of this process.

Thus, rather than interpreting Togolok-Tepe as an independent, parallel cultural phenomenon separate from Jeitun, it is scientifically better founded to assess it as an important settlement reflecting the continuity and transformation of the Jeitun culture. While the commonalities between the two sites — building material, dwelling type, household economic model, farming tools and the basic technology of ceramics — indicate cultural continuity, the changes in planning and material culture at Togolok reveal the internal evolution of this tradition.

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