

An Archaeological Study of the Tokens from Tepe Zāgheh, Qazvin Plain, Irān

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Abstract: The study of circumstances surrounding the development of record-keeping for information purposes, and of what these records looked like in prehistoric human societies has always been of significance in archaeological research. Such research is important because it relates to the beginnings of the use of accounting which came to be one of the main elements of institutionalized management and bureaucracies under urbanization and in historical periods. Tepe Zāgheh is one of the key sites during the transitional period from Neolithic to Chalcolithic period in the Qazvin Plain, having provided a considerable collection of tokens (counting objects) in addition to various other pieces of the archaeological evidence discovered in the excavations carried out there. Thus 238 Zāgheh tokens were available for typological study and theoretical analysis. The principal goals of this paper are to re-identify accounting and reckoning systems at Tepe Zāgheh and to identify the evolutionary stages of these systems in Zāgheh. It is apparent from implemented studies that Zāgheh society had an early form of accounting system for keeping track of farming products and of animal counts, and that tokens were the principal devices used in this process.

Keywords: Irān, Qazvin plain, Tepe Zāgheh, Accounting system, Counting objects / Tokens, Transitional period from Neolithic to Chalcolithic

Introduction

One of the significant topics of archaeological debate has been the study of the process and circumstances of socio-cultural evolution of human societies. Tepe Zāgheh is one of the important sites of the transitional period from the Neolithic to Chalcolithic periods in the Qazvin Plain – indeed Zāgheh is a key site, containing evidence for the first stages of sociopolitical ranking and classification. Some evidence places social complexity and cultural development at this level during the fifth millennium B. C. E. in the Central Plateau of Irān, *e.g.*, the architectural remains, a painted building (a shrine?), funeral rites, various types of transitional Chalcolithic ceramics, specialization in the production of artifacts and goods, the beginnings of the separation of residential and industrial spaces, agriculture with the growth of irrigation methods and domestication of cereals, and development of animal husbandry with the domestication of various animal species (Young and Fazeli 2008; Fazeli *et al.* 2009; Mashkour *et al.* 1999). The evolution of communities that are receptive to cultural and technological changes generally proceeds towards social, political, and economic complexity in several stages: from egalitarian to ranked societies and classified societies (Fried 1967: 109).

Surplus production and the establishment of craft specialization are among the significant stimulants of socio-economic evolution in human communities. And here a group of people controlled and redistributed production between specialists and other people (Hirth 1996: 217–218). The rise of an elite group is one of the main traits of ranked societies, a group who are responsible for gathering the products of the craft specialists and the surplus of farmers and then redistributing them (Service 1962: 171). For this process, human societies need to keep track of goods which were produced by themselves and those that were from natural resources (Wright and Johnson 1975: 267). Tokens (counting objects) are one of the main devices for

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such an accounting system. Noteworthy collections exist of various types of tokens from excavations at Tepe Zāgheh, providing an appropriate research base for examining the accounting system in prehistoric societies of the Qazvin Plain, the subject with which this paper deals.

The goals of this paper are to draw up a classification and typology of the Zāgheh tokens and to identify the mechanism of resource and product management and, in general, the accounting system in the Zāgheh society. We attempt to synthesize the results of typological studies with a theoretical basis in various steps of research, so as to yield a precise interpretation of the socio-economic structure of Zāgheh society and its accounting system. Thus 238 tokens from the 1970/1349, 1971/1350, 1972/1351, 1973/1352, 2011/1390, and 2012/1391 seasons have been studied in this paper¹ (see “The Archaeological Context” below).

Scientific Background

The pioneering studies by Denise Schmandt-Besserat (1974, 1981, 1992, 1996) and her theory about the “origin of writing” are very important in research on tokens and accounting systems. Her comprehensive studies on token collections of the ancient Near East is the basis for our understanding of tokens and their role in the prehistoric era. Schmandt-Besserat’s studies were inspired by earlier research: Oppenheim (1959: 121) argued, from clay envelopes from Nuzi in Mesopotamia dating to the second millennium BC, that small miscellaneous objects (pebbles) had a connection with counting and units. Afterwards, Pierre Amiet (1966 a, b) deciphered the local recording system from the tokens, seal impressions, envelopes, and tablets from Susa in the fourth millennium B. C. E., which his system was developed by Schmandt-Besserat (1992) incorporating information from some objects in the Near East.

Although the archaeological research on Tepe Zāgheh is quite comprehensive, a full study has not been carried out on the accounting system and the tokens at this important site dating to transition period from Neolithic to Chalcolithic period. This deficiency is apparent not only for Zāgheh in Qazvin Plain, but also for other prehistoric sites of the Central Plateau of Irān. Sadegh Malek Shahmirzadi has published pictures of tokens from the 1972 and 1973 excavation seasons, describing them as ‘clay objects’ (Malek Shahmirzadi 1977: 362-367). The late Mohammad Saleh Salehi (1977/ 1976) was the first Iranian archaeologist which discussed, in a short article, “The Probability of the Existence of Counting Objects at Tepe Zāgheh”; he introduced a cone, a cylindrical, and two sphere clay objects from the 1994 season as a counting

objects or “calculi.” Schmandt-Besserat, in her book *Before Writing*, published descriptions, catalogues, and analysis of 29 tokens from Zāgheh (Schmandt-Besserat 1992: 41– 42, Figs. 25.1 & 25.2) – tokens found at excavations prior to the 1979 Revolution in Irān (Negahban 1976, 1977; Malek Shahmirzadi 1977).

The Role of Tokens in Initial Accounting System in Irān

As mentioned above, Oppenheim (1959: 121) suspected that ‘pebbles’ from Mesopotamia were used as counting objects. Amiet (1966) elaborated on their function as a recording and accounting system – one which led ultimately to writing and, through its associated cognitive skills, to other economic, social, and conceptual changes (Schmandt-Besserat 1992: 6-8). This token system was the earliest system of signs – a code – used for transmitting information from community to community. It has been argued that each token symbolized one concept: the cone and sphere represented measures of grain, the cylinder or lenticular disk showed a unit of animals, and so on (Schmandt-Besserat 1992: 162). The need for counting, and accounting, related to food production, is reflected in associated demographic and socio-economic changes. The tokens served for budgeting, managing, and planning the resources of past communities (Schmandt-Besserat 1992: 197). Tokens from 8000 to 4400 B. C. E. are ‘plain’, with geometric and naturalistic shapes for keeping track of products of farming and numbers of animals; tokens from 4400 to 3200 B. C. E. are ‘complex’, having a greater diversity of shapes and markings, and being used, additionally, for tracking the objects manufactured in workshops (Schmandt-Besserat 1992: 6-8). The tokens, used as counters, were used to account for each type of goods: jars of oil were counted with ovoids, small measures of grain with cones, and large measures of grain with spheres. The tokens were used in one-to-one correspondence: one jar of oil was represented by one ovoid, two jars of oil by two ovoids, and so on (Schmandt-Besserat 1996: 15-20).

Tepe Ganj Darreh (layer E) (Smith 1978) and Asiab (Braidwood *et al.* 1961) are, in the eighth millennium B. C. E., the first sites in Irān to include tokens.² It was in these sites, still in the process of Neolithization, that tokens and human and animal figurines were discovered (Broman 1990). Both sites date to the period between Epi-Paleolithic and Pottery Neolithic, and yield evidence of changes in the economic, social, and technological systems, and of the sedentarization of communities. Indeed, the utilization

1. Some tokens were also found during other excavation seasons at Tepe Zāgheh, but in this article we will only examine the tokens accessible in the Institute of Archaeology, University of Tehran, or published elsewhere.

2. Other sites which took part in the Neolithization process, such as Chia Sabz, Sheikhi Abad, and Chogha Golan in the Zagros region, but not Ganj Darreh or Asiab, have been excavated recently and provided collections of tokens. The study of these collections could increase our knowledge about the first stages of the use and evolution of an accounting system in Irān

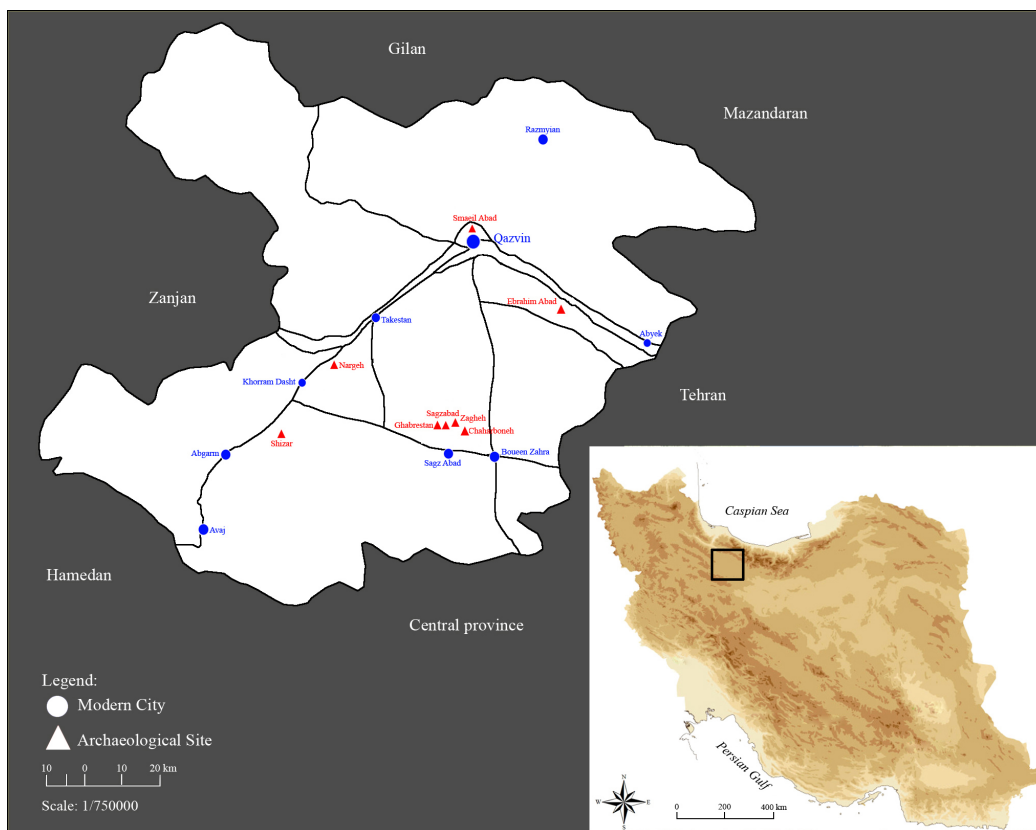


Figure 1. Map of Irān and the location of archaeological sites in Qazvin Province (Fazeli and Moghimi 2013, Fig. 1).

of tokens for accounting in Irān first arose in societies which were in the process of Neolithization; in subsequent periods, this system evolved and became more widespread.

The available evidence suggests that the writing revolution arose from accounting, and the first indications of them appeared on the textual documents of the late fourth millennium B. C. E., i.e., the Proto-Elamite tablets first discovered at Susa. Analysis of the impressed and incised signs for tokens on the envelopes, numerical tablets, and pictographic tablets is the best method for recognizing the meanings of the token types and subtypes. Eighteen different signs were identified on numerical tablets. These signs were made by impressing signs representing tokens on clay tablets before drying. A deep impression from a sphere is the sign of the spherical token, and a shallow impression from a sphere is the sign of the disk-shaped token. Impressions from small cones are signs of the cone token, and long wedge-shaped impressions indicate the cylinder token. Furthermore, the evolution of an abstract numbering system has been rewritten, replacing the earlier understanding of the counter signs (Damerow 2006; Englund 1998; Dahl 2002). As we now understand them, the plain tokens including cones, spheres, and flat disks represent amounts of cereal, perforated cones and spheres

signifying units of land measurement, and cylinders and lenticular disks represented numbers of animals (Schmandt-Besserat 1981: 283; 1996: 80–82).

Tepe Zāgheh: The Archaeological Context of the Studied Collection

Tepe Zāgheh is located in the Sagzābād District of Bouin Zahra County in Qazvin Province, *ca.* 60 km south of Qazvin and 140 km west of Tehrān. The site is situated in the Qazvin Plain and the cultural-geographical region of the Central Plateau of Irān, at 35° 49' 24" N, 49° 58' 31" E, and 1252 masl (Figure 1). The site is no more than 1 m above the present level of the surrounding plain, extending 210 m north–south and 145 m east–west (*ca.* 4 ha). Excavations at Zāgheh have revealed occupational deposits to a depth of approximately 6 m covered by alluvial sediments in recent times (Figure 2).

The sites of Zāgheh, Ghabristan, and Sagzābād (Qara Tepe) are clustered together in the Sagzābād District. Excavations were begun by the late E.O. Negahban, the director of the Institute of Archaeology of the University of Tehran, in the early 1970s as part of a long-term project of archaeological research in the Qazvin Plain (Negahban



Figure 2. General view of Zāgheh, looking to the north.

1997: 314). Nearly twenty seasons of archaeological excavations at Tepe Zāgheh have been carried out, the first having been conducted by Negahban in 1970 (Negahban 1973). Excavations were continued in ten campaigns by Negahban and Malek Shahmirzadi until the Iranian Revolution of 1979, which brought the excavations to a halt (Negahban 1976, 1977). After a long hiatus, excavations at Zāgheh started again in 1990 and continued intermittently.

The late Mohamad Saleh Salehi, on behalf of the Institute of Archaeology of University of Tehran, excavated near the painted building in the central part of the site in 1994 and 1995 (Salehi 1997). In the Qazvin Plain re-evaluation project, Tepe Zāgheh was excavated in 2001 by Hasan Fazeli Nashli, in order to ascertain the size of the settlement, establish an absolute chronology, and pinpoint the craft areas of the site (Fazeli Nashli *et al.* 2005). Hekmatollah Mollasalehi's horizontal and vertical trenches revealed social distinctions and stratigraphy and resolved chronological issues in the 2004 and 2007 seasons (Mollasalehi *et al.* 2006). And, with the goals of re-identifying the craft area and tracing the organization of pottery production, the southern part of the site was excavated horizontally by Fazeli Nashli in the 2011 and 2012 seasons (Fazeli Nashli 2011, 2012).

The chronology of the site has been subject of debate. Bovington and Masoumi (1972) were the first to test two charcoal samples and from them to estimate a date of the seventh millennium B. C. E. for Zāgheh. Malek Shahmirzadi suggested a timespan from the early sixth millennium to *ca.* 4500 B. C. E., and argued that the lower

phase of Zāgheh corresponded to the Archaic Plateau period (Pottery Neolithic), while he attributed the upper phase to the Early Plateau period (Malek Shahmirzadi 1977: 3). For the next stage, Marjan Mashkour proposed calibrated dates of 5212–4918 B. C. E., based on the C14 analysis of faunal remains (Mashkour *et al.* 1999: 68). Radiocarbon dates from the re-excavation of Zāgheh in 2001, however, indicate that the site was occupied for only a single period, with characteristics of the Transitional Chalcolithic (Sialk II or Early Plateau B); it was settled from *ca.* 5380 to *ca.* 4324 B. C. E., giving the site a timespan of around one thousand years (Fazeli Nashli *et al.* 2005, 73: Tab. 24; Pollard *et al.* 2012: 120).

The 238 tokens studied in this paper were found in the 1970-1973, and 2011-2102 seasons. Nineteen pieces from the collection go back to 1970 and 1971, 18 to 1972, 14 to 1973, 140 to 2011, and 47 to 2012. The quantitative amount of finds from each season are listed in Table 1. The current study is based on the finds from the 2011 and 2012 seasons, and information about those from prior excavations was added to enhance the analysis. The procedures, aims, and results of these excavations are briefly reviewed in the following.

Extensive trenches, generally 10 × 10 m, were dug in the central part of the site exposing the upper architectural levels during 1970 and 1971 seasons (Negahban 1973, 1977). Nearly 1050 square meters of the residential area of the 'Zāgheh Village' were excavated horizontally in various adjacent operations in 1972 and 1973 (Malek Shahmirzadi 1988, 1992). Stratigraphical evidence from

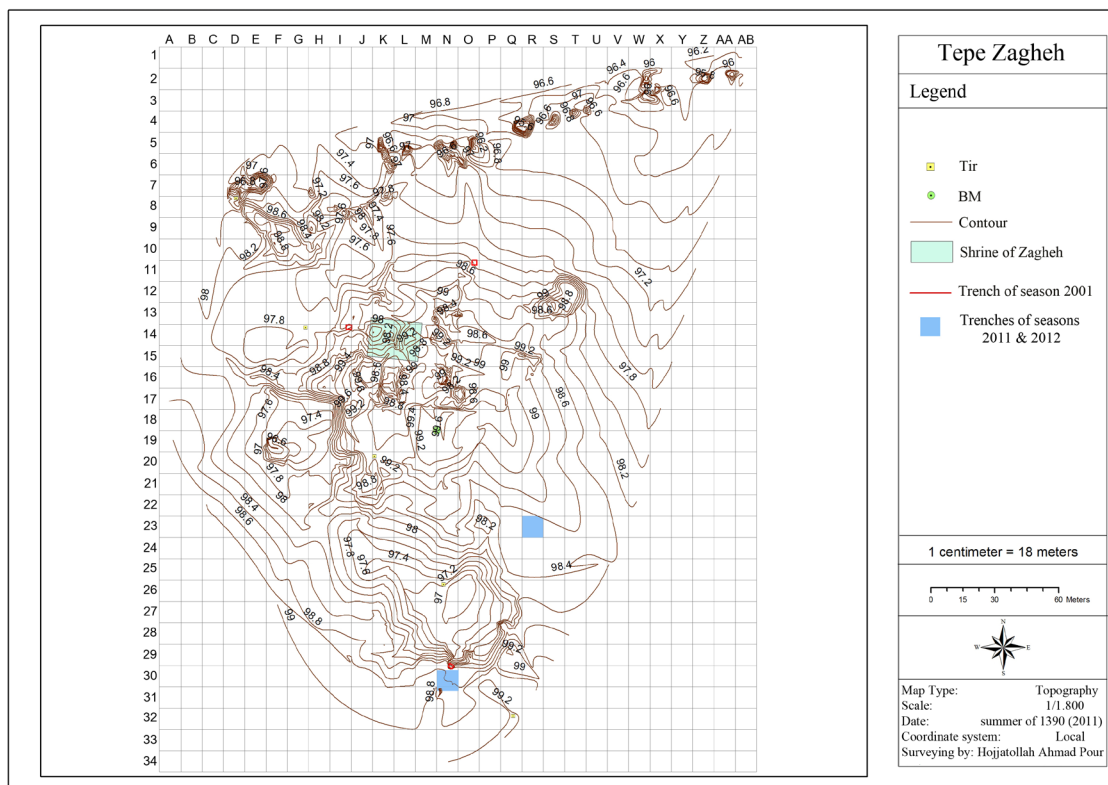


Figure 3. Topographic map of Tepe Zāgheh with the location of trenches.

deep soundings at Test Trench F.G.X (T.T.F.G.X), Trench D.X, and Section A revealed twelve architectural levels in deposits, 6 m from the top surface to virgin soil with no major disruption in their cultural sequence (Malek Shahmirzadi 1977: 84; 1999: 316-317). In order to better understand the organization of production, in 2011 a 10 × 10 m trench (N30) was opened in the southern part of the site, 1 m beneath the bench mark (Figure 3). At the end of the excavations, no residential or heated structures was identified; instead, the deposits consisted of layers of ash and heated clay – all in secondary context (Fazeli Nashli 2011, vii) (Figure 4).

Season of excavation	Number Found	Percentage
1970 and 1971	19	8
1972	18	7
1973	14	6
2011	140	59
2012	47	20
Grand total	238	100

Table 1. The number of tokens from different seasons

The 2012 season of excavations continued to pursue the recently established goals of 2011. Two trenches were

opened: N30a in the south of the site, 2.2 m below the bench mark (Trench N30 was limited to 5 × 5 m for 2012), and R23, 10 × 10 m, in the southeastern part of the site, 1.2 m lower than the bench mark (Fazeli Nashli 2012: 2) (Figure 3). Despite of excavations to a depth of 3.3 m, no structure adjacent relating to a pottery kiln or workshop were found. The extensive ashy deposits and burnt-clay layers containing prepared clay (clay lumps for pottery or objects making), ceramic tools, deformed wares, slags, broken figurines, potsherds, animal bones, stone tools, spindle whorls and tokens, altogether provide direct and indirect evidence for craft activities in Zāgheh. These material, however, suggest that Trenches N30 and N30a are situated in a non-residential area of the site, an area for discarding/dumping household debris and craft-activity wastes (Figure 5). Furthermore, except for some scattered remnants of residential spaces from the uppermost level, no remains found at Trench R23 is related to craft-activity.

It is noticeable that all of the tokens from the 1970 to 1973 seasons were found in upper levels (levels II to VI), and evidence from the 2011 and 2012 trenches fits into the same cultural-chronological horizon. These levels, from the first half of the fifth millennium B. C. E. and its cultural period, have been designated by various terms, such as Sialk II, Cheshmeh-Ali, Early Plateau B, and

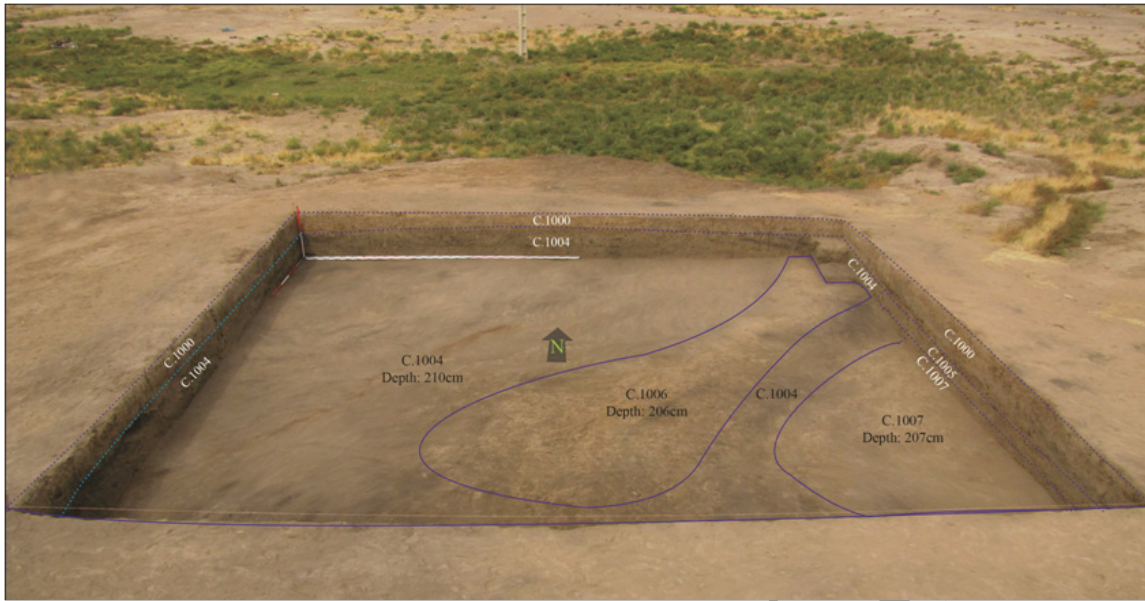


Figure 4. General view of Trench N30 in 2011 season, looking north.



Figure 5. General view of Trench N30a in the 2012 season, situated within Trench N30, looking east.

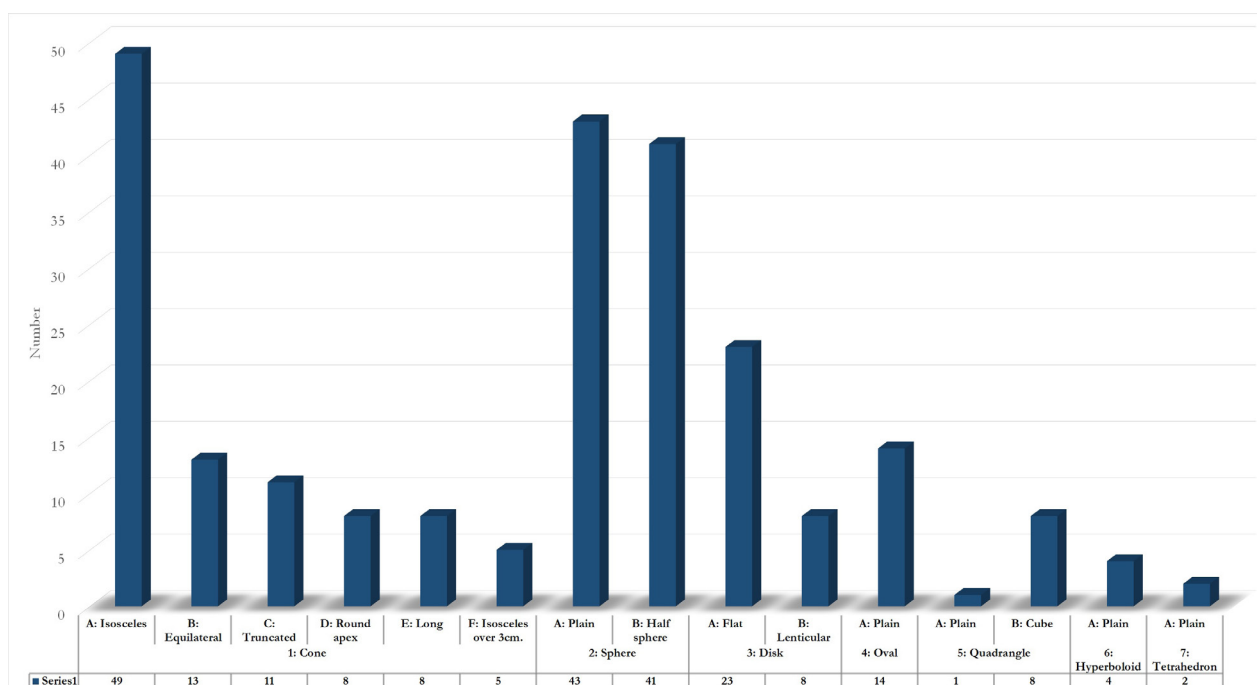


Figure 6. Bar chart showing the types and subtypes of discovered tokens.

Transitional Chalcolithic (or transition from the Neolithic to the Chalcolithic) in the chronological framework of the Central Plateau of Irān (Majidzadeh 1981: 142; Malek Shahmirzadi 1995; Fazeli Nashli *et al.* 2005, 2009; Pollard *et al.* in press).

The Study Collection

Schmandt-Besserat's (1992) typology was used in this study for sorting the finds. In this typology shapes and forms are main traits/attributes, and geometric shapes of tokens show a variety of types. Each documented type has a numeric code and a name for its geometric shape. For example, 'Type 1: Cone'. In view of the existence of differences in the traits and details of the objects, subtypes are defined for each type and given a letter from the Roman alphabet and again a name for their geometric shapes.³ In total, seven main types with subtypes were recognized, all of them "plain tokens," comprising: (1) cone, (2) sphere, (3) disk, (4) oval, (5) quadrangle, (6) hyperboloid, and (7) tetrahedron (Table 2; Figure 6). Table 2 shows the types and subtypes of Zāgheh tokens with the number of them found and their image. The typological description and interpretation of the tokens will be presented below:

Type 1: Cone. Ninety-four tokens (39%) are of the cone type. As mentioned above, these objects, in two different sizes, represent tracts and measures of grain. A small cone

3. It is noteworthy that no differences between subtypes exist in the performance and function of tokens.

is the symbol for a small unit of grain ('small basket'), the one generally used, and a large cone (over 3 cm base-to-apex) similarly represented a large unit of grain ('large basket'). These tokens have an upper segment extended above the base. This type comprises six subtypes: A. Isosceles (Figure 7: Nos. 1-3); B. Equilateral (Figure 7: Nos. 4-5); C. Truncated (Figure 7: Nos. 6-7); D. Round apex (Figure 7: Nos. 8-9); E. Long (Figure 7: Nos. 10-11); F. Isosceles over 3 cm (Figure 7: No. 12). The majority of cones – except cones over 3 cm – fall within the range of 10 to 20 mm for their radius and height.

Type 2: Sphere. Eighty-four tokens (35%) are of the sphere type. These objects represent a large unit of grain ('large basket'). This type comprises of two subtypes: A. Plain (Figure 8: Nos. 1-3), and B. Half sphere (Figure 8: Nos. 4-6). These tokens have a circular shape with the same diameter from all aspects. The majority of spheres have a diameter in the range of 10 to 20 mm.

Type 3: Disk. Thirty-one tokens (13%) are of the disk type. These objects represent a unit of animals: a disk may be the symbol for ten individual sheep. This type comprises of two subtypes: A. Flat (Figure 9: Nos. 1-3), and B. Lenticular (Figure 9: Nos. 4-5). These tokens have a circular profile and flat, concave, or convex sides, with a constant diameter. The majority of disks fall within a range of 10 to 20 mm in diameter.

Type 4: Oval. Fourteen tokens (6%) are of the oval type, and all are of the same subtype: A. Plain (Figure 10: Nos. 1-2). These objects usually represent quantities of jars of

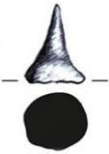



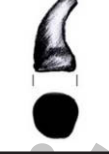





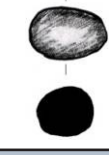


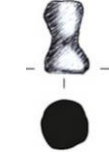

Type and Subtype	Number found	Example
1: Cone 94		
A: Isosceles	49	
B: Equilateral	13	
C: Truncated	11	
D: Round apex	8	
E: Long	8	
F: Isosceles over 3cm	5	
2: Sphere 84		
A: Plain	43	
B: Half sphere	41	
3: Disk 31		
A: Flat	23	
B: Lenticular	8	
4: Oval 14		
A: Plain	14	
5: Quadrangle 9		
A: Plain	1	
B: Cube	8	
6: Hyperboloid 4		
A: Plain	4	
7: Tetrahedron 2		
A: Plain	2	
Grand total	238	

Table 2. Types and subtypes of tokens from Tepe Zāgheh.



Figure 7. Cone subtypes.

oil and have an oval profile and a circular cross-section, with a length twice their width.

Type 5: Quadrangle. Nine tokens (4%) are of the quadrangle type. Their exact symbol and representation, however, is undetermined. This type comprises two of subtypes: A. Plain (Figure 10: No. 3), and B. Cube (Figure 10: No. 4). The plain quadrangles have four angles and little depth, like a plate.

Type 6: Hyperboloid. Four tokens (2%) are of the hyperboloid type, and all are of the same subtype: A. Plain (Figure 11: Nos. 1-2). These tokens are mostly hourglass-shaped, and their precise use is unknown.

Type 7: Tetrahedron. Two tokens (1%) in the collection are of the tetrahedron type, and again both are of the same subtype: A. Plain (Figure 11: Nos. 3-4). This type has four angles or sharp bends in its base but is otherwise like the cone type. The function of these tokens was presumably the same as that of the cones.

Manufacturing Technique of the Collection

The technological characteristics of this collection are discussed below. Clay (bole) with fine mineral and organic temper was the material most commonly used for

manufacturing the tokens. This composition gave solidity and flexibility to the fabric. The majority of the objects are self-slip with a smooth surface. All the tokens were baked to the right temperature, except for a few; though the black and gray core and surface of some of them is due to incomplete firing. Some indications such as fabric, shaping, and surface of objects are considered to grade the manufacturing of tokens. By these criteria, just 13 tokens are coarse and all the others are considered medium- or fine. The majority of tokens are quiet proportional and their features are carefully shaped. Fortunately, 166 pieces in the collection are well- conserved, and through them we could evaluate all elements and variables. The dominant colors in the objects are gray (light and dark), buff, brown (light and dark), and light red. Remarkably, most of the objects were retrieved from ashy deposits (garbage) in the southern part of the site (Trenches N30 and N30a).⁴ Wright and colleagues. (1980, 277) speculated that tokens found in garbage pits suggest they were discarded after the harvest, during the traditional season for feasts.

4. It is noteworthy that just 32 tokens were retrieved in the 1970 to 1973 seasons, which is few in proportion to the volume and extent of excavations in the residential area of Zāgheh's village.

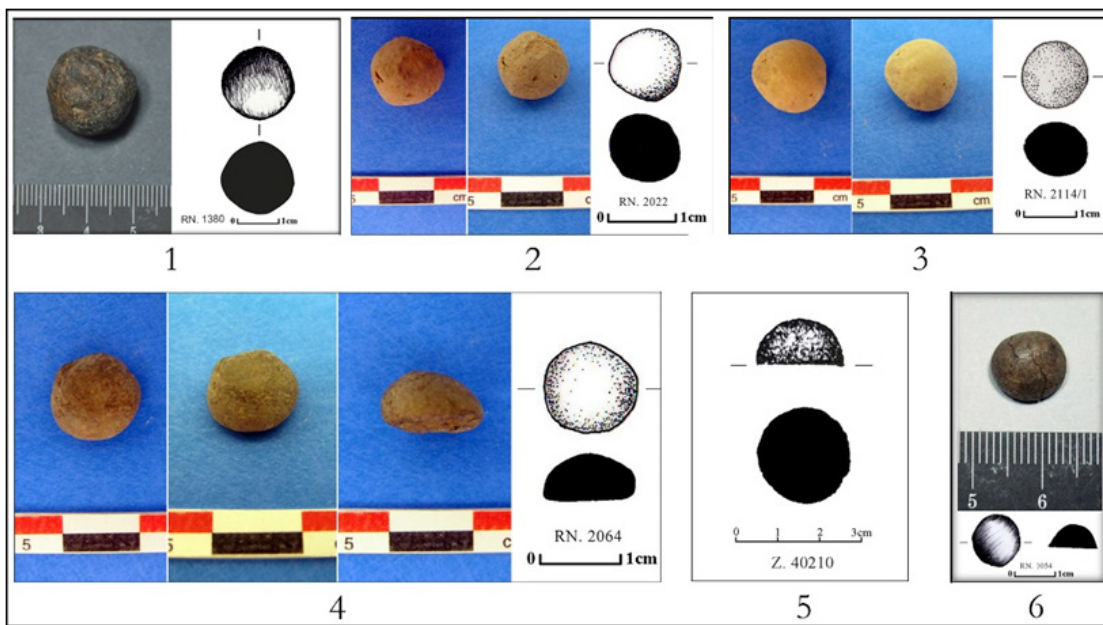


Figure 8. Sphere subtypes.

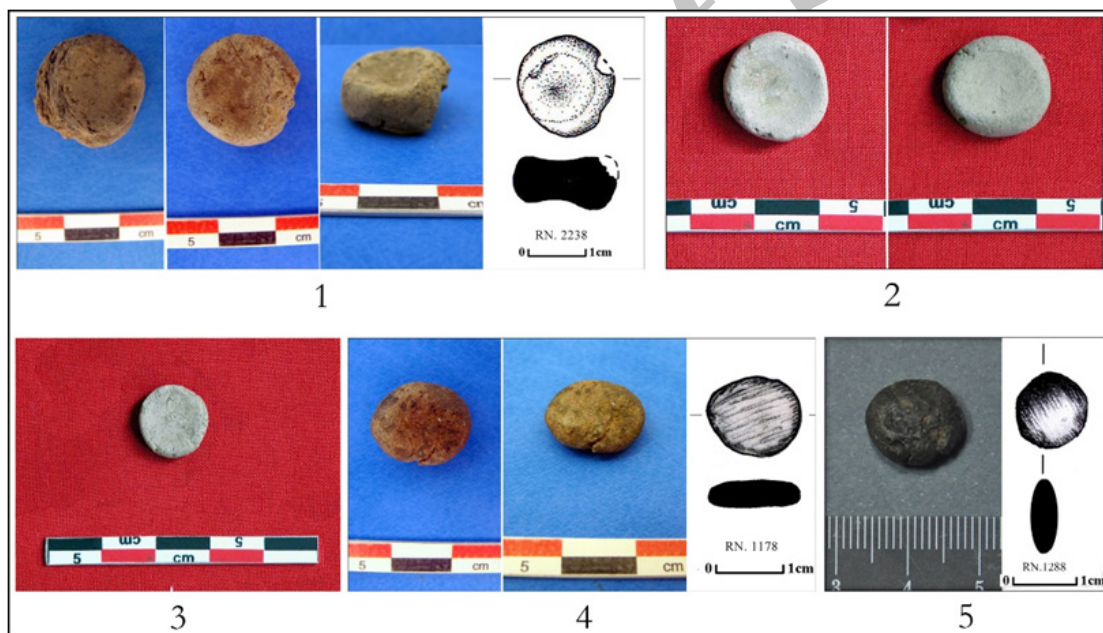


Figure 9. Disk subtypes.

Discussion and Conclusion

As we have seen, tokens or counting objects from Zāgheh are ‘Plain’, and seven basic types were identified based on the current collection. The first three types – cones, spheres, and disks – were the most commonly used and show the greatest number and variety of subtypes. The prevalence of these types, which represented measures of cereal and grain and numbers of animals, suggests that accounting and reckoning systems were mostly used for keeping track

of products derived from farming and animal husbandry. The remaining types – quadrangle, hyperboloid, and tetrahedron – had a lower usage and could be designated as ‘rare types’.

Some points should be noted about the evolutionary level of the accounting system and tokens in Zāgheh society. Based on absolute and relative chronology, the settlement at Zāgheh was occupied over a long period of nearly nine hundred years from 5200 to 4400 or 4300 B. C. E. By this stage, which included extensive settlement

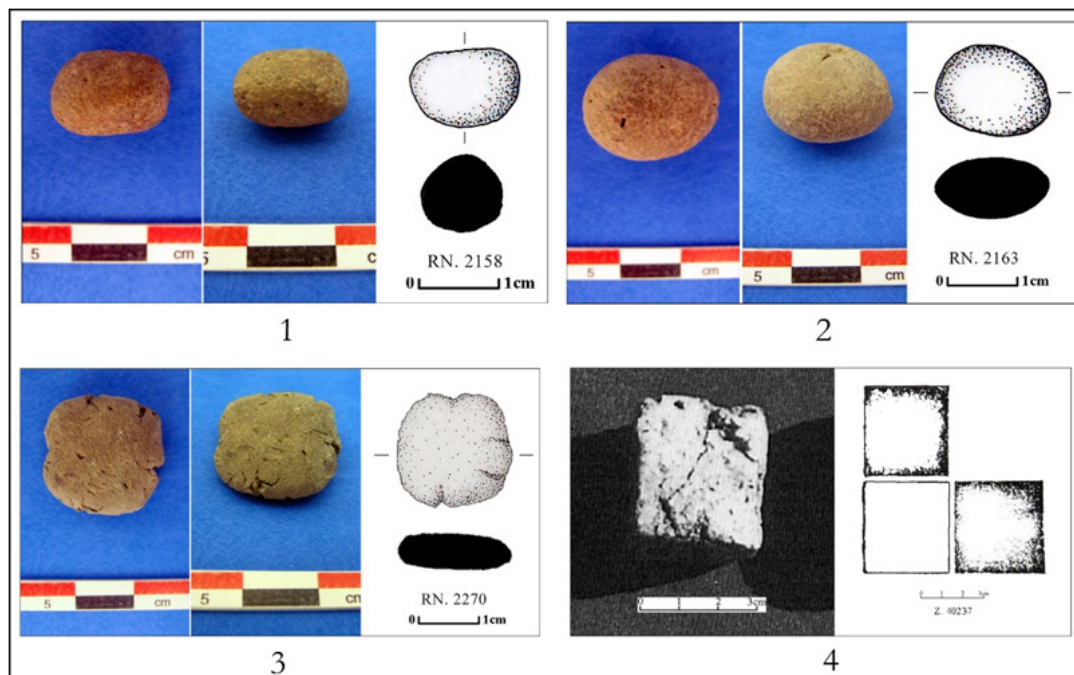


Figure 10. Oval and quadrangle subtypes (No. 4, after Malek Shahmirzadi 1977, Pl. 19, No. 5).

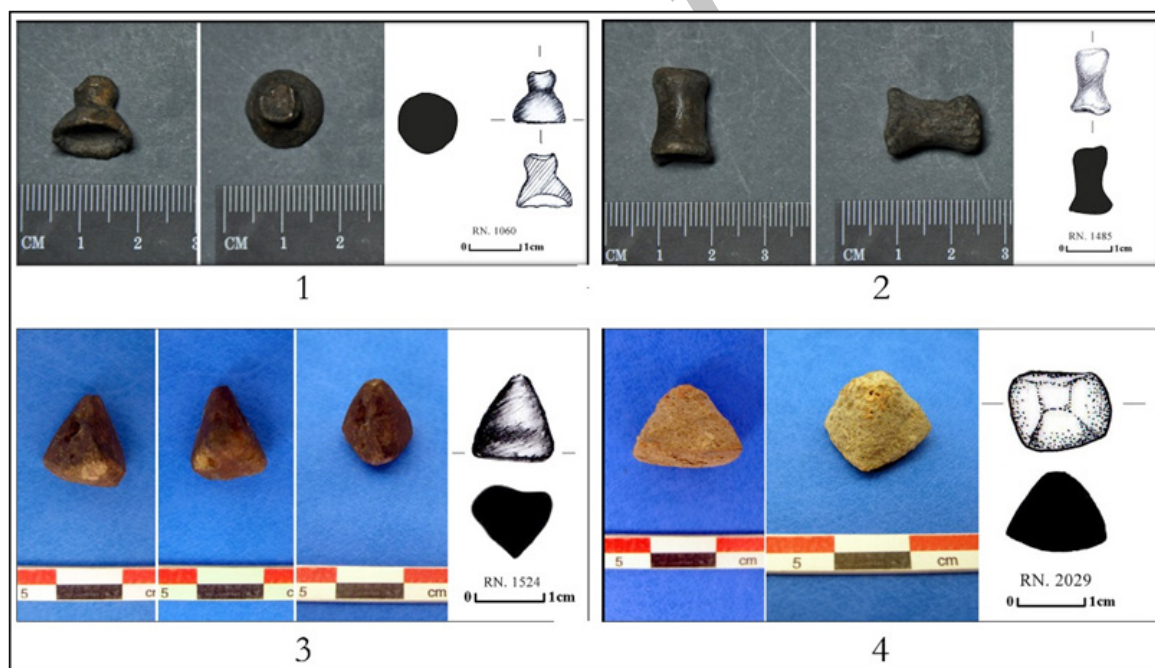


Figure 11. Hyperboloid and tetrahedron subtypes.

of the village and the development of agriculture, a period of nearly three thousand years had passed since tokens were used and had begun to play a part in the accounting system. In other words, the tokens of Zāgheh belong to the evolutionary level at which humans, knowledge of their cognitive concepts was increasing, and tokens were recognized a practical model. This was the result of increased circulation and transmission of information in

human societies:⁵ the proof of this is the extensive range of these objects in Irān and other Middle Eastern countries.

5. The exchange of information seems to have developed in this period in the Central Plateau. The population growth in several plains of the Central Plateau, the appearance of analogous cultures and close settlements (Valipour 2011: 44), the domestication of ungulates (Mashkour *et al.* 1999; Young and Fazeli 2008), identical stylistic symbols in pottery, and much other evidence indicate the increase in communications and interactions.

Evidence derived from various excavations and multidisciplinary research has indicated that the people of Zāgheh can be considered as heterogeneous ranked society. The following features all indicate the beginnings of separation of the residential part from the craft area, organization of craft and non-farming activity (Malek Shahmirzadi 1980; Fazeli Nashli 2005), creation and observance of style and standard in the production of some artifacts, developed agriculture based on irrigation (Malek Shahmirzadi 1999: 321; Fazeli Nashli *et al.* 2009: 16-17; Gillmore *et al.* 2011: 51), the common social internal and external relations indicated by monumental and ritual buildings, differentiation in burials and funeral rites with an emphasis on ideology (Negahban 1979; Malek Shahmirzadi 1979; Talai 1999; Mollasalehi *et al.* 2006), gradual growth of the reorganization of production (Wong *et al.* 2010), and external and inter-regional cultural interactions in Qazvin Plain in the fifth millennium B. C. E. In this society, tokens' function as a device for advancing some norms of supervisory control and behavior within a cultural system. The presence of this mechanism indicates solidarity in social relations among families and individuals, and the early traces of institutionalized management of economic activities. The need for control of this system implies the probability of control was presumably exercised by the class of agencies in the society that is identified as an elite.

The growth of an accounting and reckoning system is one of the main elements in the development of a redistributive economy. In redistributive process, a group of individuals in the society collect the products of farming and animal husbandry, and probably products manufactured in workshops (which usually resulted from ensemble and public activities), and, after recording their measures, store them in a place. It may be assumed that, for 20 baskets of cereals, 20 cone or sphere tokens were kept with an accountant; after a basket was given to a family, one token would be removed from the collection. This assumption is borne out by the fact that the majority of Zāgheh tokens were found at the place for depositing the debris and garbage in the southern part of the site. It can be assumed that, after harvesting and thrashing of cereals, the process of collection and redistribution would take place and then some tokens would be discarded. This program could be performed as part of the traditional season for feasting or after harvest.⁶ It should be noted that this assumption implies the participation of people in communal activities, which required a division of products after harvesting. The communal system of traditional agriculture was in use in various regions of Irān – including Qazvin Plain – until the land and territorial reforms in Irān in 1961.⁷ In this

6. Nowadays such traditional feasts are held in all regions of Irān: the hazelnut-picking feast in the Alamout District and the pistachio-picking feast in Boueen Zahra County of Qazvin Province are good examples.

7. This reform abolished the lord-and-peasantry system in villages under a landlord.

system, the lord's farming lands were divided into several blocks, or *boneh* in local term; each block or *boneh* was ceded to several farmers for communal work, and when it was done they gave the products to the landlord. Then, he redistributed the products to his farmers based on the time they had spent in communal activity (Elyasiyan 2004). Although, it is too early to be assumed such pattern for rural communities for the fifth millennium of Zāgheh but it is important to know how such complex system manipulated in later times during the historical period.

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چکیده‌ی مقالات به زبان فارسی

پیرامون باستان‌شناسی رمه‌داری: خاور نزدیک و آنسوی آن

کامیار عبدی

پژوهشگاه علوم انسانی و مطالعات فرهنگی

تاریخ دریافت: ۱۳۹۴/۱/۱۳

تاریخ پذیرش: ۱۳۹۴/۴/۲

خلاصه: نوشتار حاضر با استناد به مشاهدات جغرافیایی، تاریخی و قوم‌نگاری و با استفاده از عواملی نظیر میزان جابه‌جایی، تقسیم کار و نظام اجتماعی، راهکارهای کوچ‌روی قبل از دوره‌ی معاصر را معرفی نموده و در پی آن، نشانه‌های این راهکارهای متفاوت را در زمینه‌هایی نظیر باستان‌شناسی، باستان‌زیست‌شناسی، شیمی در باستان‌شناسی، باستان گیاه‌شناسی، مطالعات تحلیل فضایی و الگوهای استقراری پیگیری می‌کند.

واژگان کلیدی: رمه‌داری، خاور نزدیک، کوچ فصلی، کوچ‌روی، بوم‌شناسی انسانی

اصلی مقاله‌ی حاضر بازشناسی سیستم ثبت و ضبط در تپه زاغه و واکاوی اینکه نظام حسابداری زاغه در چه مرحله‌ای از پیشرفت این سیستم قرار داشته، است. به نظر می‌رسد که براساس شواهد موجود، اشیاء شمارشی / توکن‌های زاغه برای شمارش محصولات کشاورزی و نگهداری احشام کاربرد داشته و این کالانشان‌ها را می‌توان جزو اصلی نظام حسابداری و شمارشی برشمرد.

واژگان کلیدی: ایران، دشت قزوین، نظام حسابداری، نظام شمارشی، اشیاء شمارشی / توکن‌ها، دوره گذار از نوسنگی به مس‌سنگی

ورود پنبه به خاور نزدیک

خاویر آوارز-مون

دانشگاه مک‌کواری

تاریخ دریافت: ۱۳۹۴ / ۲ / ۱۴

تاریخ پذیرش: ۱۳۹۴ / ۳ / ۳۰

خلاصه: در سال ۱۹۸۲ آرامگاهی اشرافی در ارجان در نزدیکی شهر بهبهان امروزی کشف شد. در این آرامگاه تابوتی مفرغی پیدا شد که در آن پارچه‌های پنبه‌ای و پولک‌های طلایی قرار داشت که از وجود پارچه و البسه‌ی اشرافی در این آرامگاه خبر می‌داد که قدمت آنها به واپسین سال‌های حکومت عیلام بازمی‌گشت. هدف اصلی این پژوهش بررسی نقش این کشفیات در زمینه‌ی تاریخ البسه‌ی اشرافی، بویژه شناخت ما در زمینه‌ی تاریخ خاستگاه پنبه و ورود آن به خاور نزدیک است.

واژگان کلیدی: ارجان، پنبه، پولک، البسه، عیلام

جستاری باستان‌شناختی درباره توکن‌های مکشوفه از تپه زاغه، دشت قزوین، ایران

نیلوفر مقیمی

دانشگاه تهران

حسن فاضلی نشلی

دانشگاه تهران

تاریخ دریافت: ۱۳۹۴ / ۳ / ۲

تاریخ پذیرش: ۱۳۹۴ / ۴ / ۱۸

خلاصه: نوشتار حاضر به بررسی چگونگی توسعه نظام ثبت و ضبط اطلاعات مربوط به محصولات در تپه زاغه دشت قزوین خواهد پرداخت. چنین مطالعاتی از آنجا ارزشمند هستند که مراحل اولیه استفاده از سیستم حسابداری و شمارشی را بررسی می‌کنند؛ نظام شمارشی در عصر شهرنشینی و دوران تاریخی به یکی از عوامل اصلی مدیریت مؤسساتی و بروکراسی تبدیل شد. تپه زاغه یکی از محوطه‌های کلیدی هزاره‌ی پنجم پ.م در دشت قزوین است که در آن تعداد بسیار زیادی اشیاء شمارشی در ابعاد و اشکال گوناگون بدست آمده است. این اشیاء شمارشی که تعداد آنها به ۲۳۸ عدد می‌رسد هم از لحاظ گونه‌شناسی و هم از لحاظ بحث‌های نظری قابل مطالعه هستند. هدف

مطالعه و تاریخ‌گذاری قلعه جوشاتو(شاهین‌دژ)، آذربایجان غربی): بزرگترین دژ مانایی؟

کاظم ملازاده

دانشگاه بوعلی‌سینا

تاریخ دریافت: ۱۳۹۴ / ۴ / ۱۱

تاریخ پذیرش: ۱۳۹۴ / ۵ / ۱۰

خلاصه: حوضه‌ی رودخانه زربینه‌رود واقع در جنوب دریاچه‌ی ارومیه، به جهت شرایط مناسب زیست‌محیطی از دوره‌ی پیش‌ازتاریخ به بعد مورد توجه گروه‌های مختلف انسانی قرار

فصل به سرپرستی نگارنده بررسی شد. طی این بررسی شمار زیادی محوطه مربوط به دوران پیش از تاریخ شناسایی و ثبت شد که از این میان احتمالاً ۲۸ محوطه در فارس مربوط به دوره مس و سنگ است. همان گونه که با توجه به وضعیت طبیعی منطقه قابل پیش بینی بود، بیشتر محوطه ها از نوع پراکندگی سفال بدون ارتفاع محسوس هستند. این محوطه ها بر اساس ریخت شناسی و مشاهدات امروزی درباره ی کوچ نشینان منطقه، و نیز شمار اندک یافته های سطحی آن ها از نوع کوچ نشینی هستند. سفال های به دست آمده از سطح محوطه های فارس به هر سه دوره ی مس و سنگ قدیم، میانی و جدید تعلق دارند. دوره هایی که بیشترین سفال های مربوطه در آن بازه ی زمانی قرار دارد، دوره ی مس و سنگ میانی است. بیشتر محوطه ها مربوط به دوره ی مس و سنگ میانی هستند. دوره ی مس و سنگ قدیم تعداد محوطه ها و جمعیت کمتر و در دوره ی مس و سنگ جدید نیز تراکم محوطه ها و جمعیت نسبت به مس و سنگ میانی سیر نزولی پیدا می کند. مطالعه ی سفال های دوره ی مس و سنگ نشان دهنده ی ارتباط و نزدیکی بسیار زیاد سفال منطقه با سفال های دوره ی مس و سنگ در فارس (با کون الف و ب)، خوزستان (شوشان میانه و جدید) و تا حدودی فلات مرکزی ایران است. ولی به نظر می رسد سفال مس و سنگ فارس شباهت بیشتر با فرهنگ های پیش از تاریخ فارس دارد. به نظر می آید در این دوره ارتباط برون منطقه ای بین فارس با دشت خوزستان و فارس زیاد بوده است. در واقع افزایش تجارت و روابط منطقه ای و فرامنطقه ای یکی از ویژگی های بارز دوره ی مس و سنگ است. این روند گرچه در دوره های قبل نیز وجود داشته است ولی در این دوره با توجه به وجود شواهد و مدارک فراوان افزایش چشمگیری یافته است. سفال های به دست آمده طی بررسی که مربوط به این دوره بوده اند شباهت زیادی با سفال های خوزستان و فارس دارند.

واژگان کلیدی: مس و سنگ، فارس، سفال، کوچ نشینی

تداوم و تغییر در اواخر دوره ی باستان ایران: نگاهی

اقتصادی از ساسانیان

خداداد رضاخانی

دانشگاه برلین

تاریخ دریافت: ۱۳۹۳ / ۱۱ / ۹

تاریخ پذیرش: ۱۳۹۴ / ۱ / ۱۹

خلاصه: اقتصاد دوره ی باستان اکثراً در چهارچوب تجارت و بازرگانی مطالعه شده و کمتر به جنبه «تولیدی» اقتصاد، که

گرفته که شاهد آن حضور تعداد زیاد محوطه های باستانی است. متأسفانه این منطقه به صورت علمی بررسی و مطالعه نشده و محوطه های بسیاری ناشناخته باقی مانده است. یکی از این محوطه ها قلعه جوشاتو، واقع در ۱۲ کیلومتری شمال شرقی شهرستان شاهین دژ و جنوب استان آذربایجان غربی است که به دلیل موقعیت استراتژیک، ابعاد و ساختار معماری فوق العاده و منحصر به فرد، از اهمیت ویژه ای برخوردار است. مهمترین اثر معماری قلعه جوشاتو، یک دیوار دفاعی به طول باقی مانده ی ۶۷ متر است که با تخته سنگ های بزرگ و مهارت فوق العاده در ضلع شرقی محوطه ساخته شده که در نوع خود منحصر به فرد است. بقایای معماری مشهود محوطه معرف دو سبک متفاوت معماری و احتمالاً دو دوره ی ساخت و ساز است. با این حال اکثریت سفالینه های مطالعه شده مربوط به سنت سفال نخودی ساده ی عصر آهن III و بویژه سنتی است که در محوطه های مانایی دیده می شود. با توجه به سنت سفالگری و داده های معماری و نیز موقعیت محوطه در مرکز قلمرو پادشاهی مانا، قلعه جوشاتو به احتمال بسیار یکی از استحکامات مهم و مرکزی مانایی بوده که در اوایل قرن ۸ ق.م ساخته شده است. البته این احتمال وجود دارد که دیوار دفاعی اصلی جوشاتو توسط اورارتویی ها ساخته شده و بعد از عقب نشینی آنها، مانایی ها با بازسازی قلعه آن را مورد استفاده قرار داده اند. پژوهش حاضر نتیجه بررسی سطحی و مطالعه میدانی نویسنده در طی تابستان ۱۳۹۱ و ۱۳۹۲ است.

واژگان کلیدی: قلعه جوشاتو، مانا، معماری عصر آهن III، شمال غرب ایران

دوره ی مس و سنگ در کوهستان های بختیاری: محوطه های نو یافته ی فارس

علیرضا خسروزاده

دانشگاه شهرکرد

تاریخ دریافت: ۱۳۹۳ / ۱۲ / ۱۴

تاریخ پذیرش: ۱۳۹۴ / ۴ / ۲۵

خلاصه: فارس در بخش میانی کوه های زاگرس (مرکز استان چهارمحال و بختیاری) واقع شده و رشته کوه های نسبتاً مرتفع با چندین قله ی بالای ۳۰۰۰ متر ارتفاع بخش های قابل توجهی از چشم انداز طبیعی این منطقه را تشکیل می دهند. این چشم انداز عبارت از یک دشت نسبتاً کوچک و چندین دره ی کوچک منتهی به این دشت است. این منطقه از کم شناخته شده ترین مناطق فلات ایران است. در سال ۱۳۸۶ این منطقه طی یک

بلکه تنها در قالب مظاهر تبیین یافته و به صورت قراردادهای هنری غیر قابل تغییر پدیدار گشته است؛ به گونه‌ای که تعیین هویت افراد بر مبنای تاج‌های شخصی، سرپوش‌های خاص، جامگان، نشان‌های ویژه، نحوه‌ی جایگیری، نوع فیگور و تبلور در بازنمایی امکان‌پذیر می‌گردد. از رهگذر شواهد نشانه‌شناختی، شخصیت‌شناسی پاپک از خاندان پرآوازه‌ی قارن، در حکم بیدخش و نائب‌السلطنه‌ی حکومت در زمان پادشاهی بهرام دوم، بهرام سوم، نرسه و هرمزد دوم صورت پذیرفته است. بر خلاف نظر برخی محققان مبنی بر یکی دانستن نشان بیدخشی و آنچه که نشان دودمان قارن است، تصویرشناسی تطبیقی تفاوت فاحشی را میان آن دو آشکار می‌سازد. نشان دودمان قارن، غنچه‌ای در حال شکفتن بر یک پایه‌ی افقی است و نشان منصب بیدخشی غنچه‌ای در میان دو برگ و فاقد پایه‌ی افقی است. نگارکند صخره‌ای هرمزد دوم در نقش رستم فارس بهترین شاهد بر این مدعا و تأکیدی بر وضوح تفاوت میان کاربرد دوگانه‌ی غنچه‌های مورد بحث است؛ به گونه‌ای که هر دو نشان به وضوح بر کلاهخود دشمن از پای درآمده‌ی هرمزد دوم نقش بسته است. از سوی دیگر، اصالت خانوادگی بیدخش پاپک، اندیشه‌ی رایج انحصار مقام بیدخشی به خاندان سلطنتی را ابطال می‌سازد.

واژگان کلیدی: ساسانی، بیدخش، پاپک، دودمان قارن، شواهد نشانه‌شناختی.

در همه دوران‌ها اهمیت بیشتری داشته، پرداخته شده است. به علاوه، تقسیم مصنوعی دوره‌های تاریخی بر مبنای تغییرات سیاسی، از جمله برداشت تاریخ‌نگارانه از گسست در تاریخ ایران بعد از فتوحات اسلام، باعث عدم توانایی بسیاری از محققین در بررسی عواملی نظیر تغییرات اقتصادی در طولانی مدت شده است. مقاله حاضر با در نظر گرفتن جنبه تولیدی اقتصاد ساسانی، سعی در تثبیت چند اصل در مطالعه تاریخ اقتصاد اواخر دوره ساسانی و اوایل دوره اسلامی دارد و با مقایسه دو منطقه‌ی خوزستان و تخارستان، به نکاتی در مورد این اصول اشاره می‌کند.

واژگان کلیدی: ساسانیان، اسلام، اقتصاد، کشاورزی، پساباستان، خوزستان، تخارستان

نشانه‌های دودمان قارن و منصب بیدخشی

سرور خراشادی

دانشگاه تربیت مدرس

تاریخ دریافت: ۱۳۹۴/۱/۲۴

تاریخ پذیرش: ۱۳۹۴/۴/۱۲

خلاصه: هنرمند عصر ساسانی در خلق آثار یادمانی این دوران، پیرو مکتب رئالیسم بوده است؛ هرچند این واقع‌گرایی منجر به بازنمایی افراد با ویژگی‌های کاملاً شخصی و چهره‌پردازی دقیق نگشته و اصولاً شبیه‌سازی مد نظر خالق این آثار نبوده است؛