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 sociocultural 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...
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 who 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 Iran (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

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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.
of tokens for accounting in Iran 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 Tehran. The site is situated in the Qazvin Plain and the cultural-geographical region of the Central Plateau of Iran, 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...
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
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).

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

<table>
<thead>
<tr>
<th>Season of excavation</th>
<th>Number Found</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>1970 and 1971</td>
<td>19</td>
<td>8</td>
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<tr>
<td>1972</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>1973</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>2011</td>
<td>140</td>
<td>59</td>
</tr>
<tr>
<td>2012</td>
<td>47</td>
<td>20</td>
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<tr>
<td><strong>Grand total</strong></td>
<td><strong>238</strong></td>
<td><strong>100</strong></td>
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Table 1. The number of tokens from different seasons

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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.
Transitional Chalcolithic (or transition from the Neolithic to the Chalcolithic) in the chronological framework of the Central Plateau of Iran (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. 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 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...
Table 2. Types and subtypes of tokens from Tepe Zāgheh.
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.
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
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: the proof of this is the extensive range of these objects in Iran 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.

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

Figure 11. Hyperboloid and tetrahedron subtypes.
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. 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 Iran – including Qazvin Plain – until the land and territorial reforms in Iran in 1961. In this 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 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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References


2011/1390 *Preliminary Report on the Archaeological Excavation by the Department of Archaeology of Tehran University at*


1997/1376 Fifty Years of Archaeology in Iran, Cultural Heritage Organization Press, Tehran. (in Persian).
