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THE BRONZE AGE IN IRAN AND AFGHANISTAN[1]

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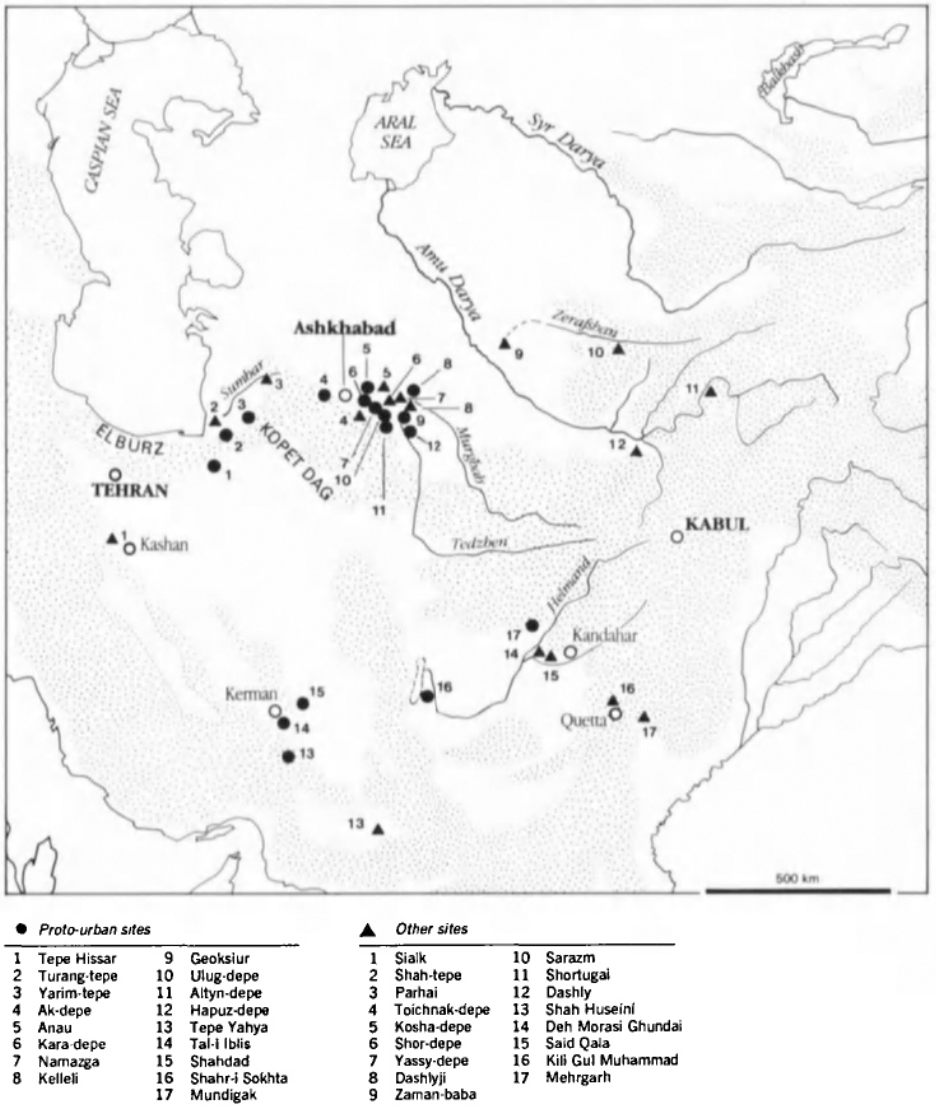
THE agricultural economy and the stable mode of life connected with it were firmly established on Iranian territory in the Neolithic Age. During the following period cultures of a new type arose, solidly based in all ecological niches suitable for a food-producing economy. This period, which introduced copper implements into the culture, is usually referred to as Eneolithic or Chalcolithic. Its age on Iranian territory roughly corresponds to the timespan between 5500–5000 and 2900 B.C. The occurrence of rich mineral deposits favoured an early spread of metal objects; ore was not only processed by the local population but, equally, exported to neighbouring countries, into Mesopotamia and to the north of the Kopet Dag range.

We may distinguish several cultural centres among the early agricultural communities in Iran. The central regions, including Kashan and Tehran, are best-known from the excavations at Tepe Sialk (Sialk I–III). [2] Copper pins and beads are reported from the lowermost layers of the site, which also include a developed painted pottery with decorative patterns gradually becoming more complicated (Fig. 1). Ornaments of Sialk III pottery are particularly rich; apart from geometric patterns, they include animal figures. One may distinguish goats, birds, snakes, horses, bulls, panthers (Fig. 2). Human figures are also present in rare cases. On some vessels there are complicated scenes which include several human figures;

[1] See Map 7
[2] Ghirshman, 1938.



MAP 7 Settled Bronze Age sites of Central Asia.

these probably illustrate intricate mythological stories. A finite, stable, ornament-oriented style shows the artistic pattern of the early agricultural age, as represented by Sialk pottery. Specialized industries are typical of the material production of Sialk III; copper implements increased in number, and at least some were cast in closed moulds. Similar technical progress occurred in pottery production, where the potter's wheel was introduced. A closely comparable culture is represented in the lower strata of Tepe Hissar.

A distinct centre of early agricultural communities was established in Fars; Tal-i Bakun is the best-known site there.[3] Colourful geometric ornament, combined with stylized animal figures is typical of the local artistic style. The cultural ties in the course of the

[3] Zangsdorff and McCorn, 1942; Egami and Masuda, 1962.

FIG. 1 Sialk I.

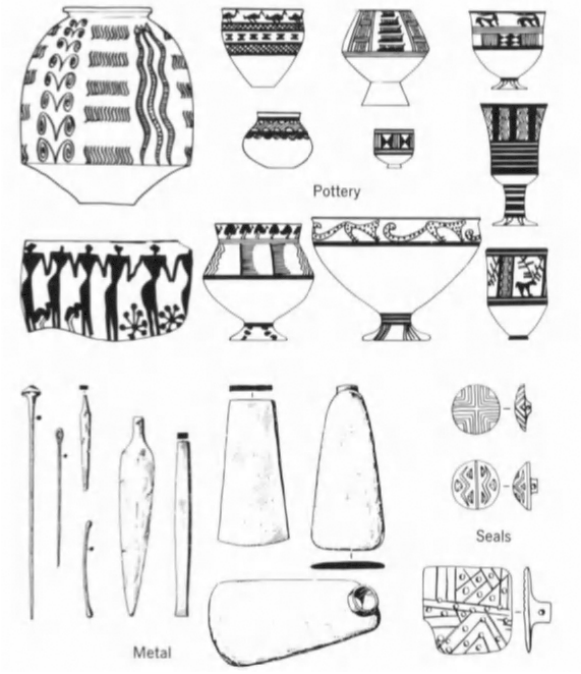


FIG. 2 Sialk III.

Eneolithic Age were mostly oriented towards the west, to the areas of highly developed cultures of Mesopotamia and Elam. The spread of early agricultural tribes to the east by

the end of the Eneolithic Age resulted in the establishment of a clear interaction with the communities in southern and northern Baluchistan. Judging from preliminary reports, the Khorasan Eneolithic was in many respects similar to Namazga type Eneolithic assemblages in southern Turkmenistan.

The specialized production which universally occurred in the early agricultural communities led to greater complexity of the socio-economic pattern, while the stable production of food stimulated population growth. The division of communal groups into classes resulted in the establishment of a settled hierarchy, which could be politically related to tribal or supra-tribal organization. These trends were reflected in the most spectacular way in the emergence of large urban or proto-urban settlements. This process, which already occurred in the final stages of the Eneolithic, was particularly characteristic of the following Bronze Age.

The early agricultural culture dating from the end of the fifth to the third millennia B.C. is the best known in southern Afghanistan. The main settlements were situated inside the fertile and sufficiently irrigated province of Kandahar (Mundigak,[4] Said Qala,[5] Deh Morasi Ghundai[6]). The three features of an early agricultural mode of life, namely, solid mud-brick houses, developed painted pottery and terracotta figurines representing a female fertility goddess or various ungulates, are present in the local material culture. Occurrence of rich copper deposits favoured the development of metallurgy on the territory of Afghanistan. The technique of a closed moulding was mastered not later than the mid-third millennium B.C. As in Iran, the economic pattern favoured the concentration of population and the emergence of large proto-urban settlements.

The northern coast of the Persian Gulf is strongly affected by tectonic uplift. A compact series of orographic ridges narrows where the easternmost extensions of the Zagros mountains merge with the Makran, linking the Iranian plateau to the Indian subcontinent. The Zagros-Makran coastal chain isolates the whole region from any marine influence so that, in spite of its proximity to the ocean, the climate is an arid or continental steppe. Human settlements can be located either on the better watered sections of the piedmont escarpments or along the water-courses; however, they mostly cluster like a bunch of grapes around the deltaic fans.

The scarcity of water and soil has kept the size and distribution of agricultural settlements within very narrow limits, and deviations from the norm have required very high energy expenditure to redirect the flow of water and resources. Periodically in the

[4] Casal, 1961.
[5] Shafer, 1971
[6] Dupree, 1963.

history of the Central Asian countries, no matter how great and radical the labour investment and technological innovations, sudden, total interruptions in the water supply have always occurred. Urban life has been ephemeral throughout their history. Archaeological evidence clearly indicates that the process involved in the formation of proto-urban societies, albeit displaying a fairly uniform cultural pattern throughout the vast region, was characterized by highly autarchic economic regimes articulated in many small territorial cells across large stretches of desert. The average distance between deltaic enclaves and along the desert margins is about 70 km, that is, a good two-day journey for a loaded camel caravan; this distance is much greater in the southern basins, for example, Sistan lies some 350 km away from the Arachosian plain to the east along the Helmand and about 300 km from the oasis belt of Dasht-i Lut to the west. The large stretches of desert wasteland separating each river system from its neighbour probably stood in the way of any attempt to integrate the isolated ecosystem cells into larger political entities until late protohistoric times. These environmental constraints could hardly have been overcome before the introduction of animal transport to reduce time/distance ratios of transport, so increasing economic interdependence. Only in the second half of the third millennium B.C. were camel figurines found in southern Turkmenistan depicted as drawing wheeled vehicles.[7] This followed a period of increasing occurrence at human settlements where they were probably first used as a source of meat and fur.[8]

In earlier periods local societies may be assumed to have operated their production systems in conditions of isolation, making do with little or no dependence upon foreign goods to meet their subsistence requirements. Quite unlike the vast, largely coherent, alluvial plains of western Asia, all the deltaic oases were close to a variety of mineral and biological ressources, mainly as a result of their wide variety on environments.[9] Full functioning of early state economies during the third millennium B.C. would have been physically feasible only within a range of 50–250 km. The archaeological evidence suggests that, following a period of steady, low-profile economic growth, from 3200 B.C. almost every local society underwent radical social transformation, reaching its peak in about 2500 B.C. when the centres of each enclave had attained their maximum physical expansion and were marked by all the effects of increasing hierarchical complexity.[10]

The social and economic development of the local society was not however slowed down by the geographical isolation of the individual enclaves, nor by the irregular water supplies. Like Baluchistan in the southern regions of Central Asia, eastern Iran also became

[7] Masson, 1981.
[8] Compagnoni and Tosi, 1978.
[9] Costantini and Tosi, 1977, pp. 277–93, map on p. 334; Jarrige and Tosi, 1981, pp. 118–20.
[10] Masson, 1967; Tosi, 1977.

the scene of urban and proto-state formation no later, nor less complex, than those emerging around 3000 B.C. along the great alluvial corridors of Mesopotamia and the Nile. Indeed, in the light of our present knowledge, it could be claimed that the protohistoric civilizations of eastern Iran were the third corner of one and the same triangular area of primary development of a state society, lying between the Nile valley, Anatolia and the Hindu Kush.

Lack of resources, even of water, is not enough in itself to prevent a region from developing economically. In most cases it speeds up the selective trends towards more sophisticated systems of social organization. The technical and political tools required to ensure survival and material prosperity grow with the communities, generation after generation, in a process of adaptation expected to last thousands of years. The control over the desert margin economic complexes of eastern Iran was thus made possible, at least as far as the main branches of its economy were concerned, as early as the Chalcolithic, that is, between 5500–5000 and 3500 B.C. During this time-span, not only were the material bases of the Neolithic economy consolidated through the selection of the first domestic mutants of wheat and barley in the whole of Central Asia but the pattern was one of sedentary, intensive peopling of rural villages linked to land tenure. There is no doubt that the urban societies of the third millennium B.C. in Central Asia are the result of an evolution deeply rooted in local adaptation and that the material tools had been completely acquired by the end of the fifth millennium B.C. Large-scale investment is evident at this time in the form of extensive copper-mining in central and south-eastern Iran[11] and in complex waterworks designed to make even the outlying areas fertile. The most significant evidence consists of the terraces of Rud-i Gushk near Tepe Yahya[12] and the canals on the Tedzhen delta, near the oasis of Geoksiur.[13]

In Greater Mesopotamia the period of gestation was equally long and was brought to an end in about 3200 B.C. by the profound changes accompanying the Uruk period. There was such a radical change in the material culture that the entire social structure may be assumed to have been shaken by a rapid acceleration in the mechanisms of production, exchange and accumulation. The emerging stages appear to have been fully operational right from middle Uruk, that is, about 3300 B.C., while all the elements of centralization of the ceremonial and administrative functions defining the urban configuration of a territory appeared together within the following century. The formation of the state and urbanization thus largely coincided in western Asia.

[11] Caldwell, 1967.
[12] Prickett, 1976.
[13] Lisitsyna, 1970, 1972.

In eastern Iran the process was somewhat different and was characterized by a greater degree of detachment; here the urban society took several centuries longer to reach maturity with respect to the appearance at about 3300–3200 B.C. of the first signs of state emergence. These may be identified in the instruments of administration and redistribution of agricultural produce: proto-Elamite writing tablets, cylinder seals and their clay impressions, counters fashioned out of clay and certain ceramic types such as bevelled-rim bowls. They were found either collectively or singly in all the explored sites of this period, for example, Sialk IV, Yahya IVC, Iblis V, Shahr-i Sokhta I and Hissar II.[14] However, these new classes of objects were developed earlier only in Susiana, while they appear in eastern Iran as imports, albeit without the various Late Chalcolithic cultural complexes undergoing any other changes. In fact, unlike Mesopotamia or Susiana, the archaeological evidence seems to indicate that the acquisition of elements so closely related to the emergence of a new order of economic relations was not accompanied by any dramatic social upheavals. However, both the above considerations point to a direct interference extending from Susiana towards the Plateau, the underlying causes of which seem more complex and more closely related to peculiar regional circumstances than had been originally believed, giving rise to speculation about colonization.[15] In fact, although tablets and seals were identical, the way they were introduced in each region varied considerably.

At Sialk IV and Yahya IVC, both situated on the more exposed western boundaries of the Turanian basin, the inventory of proto-Elamite materials is one of the most complete. Tablets and seals (Fig. 3) are associated inside individual architectural complexes in which discontinuity of occupation is combined with the continuity of the tradition dominating the rest of the cultural complex.[16] At Shahr-i Sokhta they are found at the earliest levels of Phase 10, with no connections with the west emerging even from the extremely abundant pottery inventory.[17] The same has been detected at Hissar II.[18] The general impression is one of a slight influence on the cultural terrain, upon which the response of the local populations was immediately grafted. This was particularly apparent in the more central and densely populated regions of the basin, such as the Helmand valley and the eastern Elburz piedmont. This dominant influence of local traditions is particularly apparent in the seal inventory, the only discriminant element present in the Chalcolithic complexes preceding the proto-Elamite interference. Rare seal impressions have been found in Sialk III

[14] Lamberg-Karlovsky, 1978; Lamberg-Karlovsky and Tosi, 1973, pp. 34–7; Amiet, 1983; Amiet and Tosi, 1978.
[15] Ghirshman, 1938; Weiss and Young, 1975.
[16] Lamberg-Karlovsky, 1978, p. 117.
[17] Amiet and Tosi, 1978.
[18] Dyson and Howards, n.d.

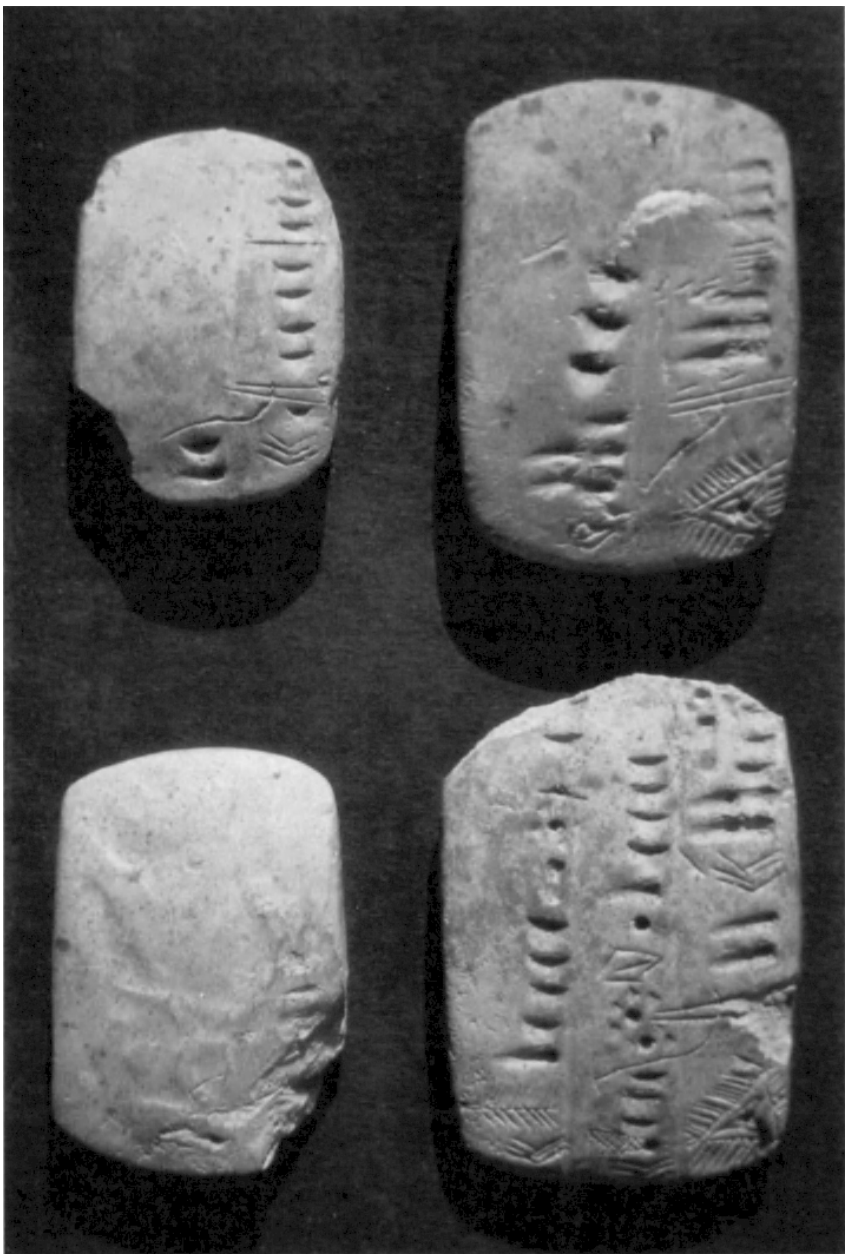


FIG. 3 Tepe Yahya: proto-Elamite seals and tablets.

and the seals themselves are of the stamp type whith concentric crosses and other geometric compositions.[19] Seals of the same type made of limestone and soap-stone (gypsum) have frequently been found in Layers IB and IC at Hissar[20] and have recently been dated to about the mid-fourth millennium B.C.[21] Following the proto-Elamite period, after 2800

[19] Ghirshman, 1938; Deshayes, 1974.
[20] Schmidt, 1937, pp. 54–6, 359, Plate XV.
[21] Dyson and Howards, 1989.

B.C., the stamp seal returned to favour and continued to be the most characteristic feature of the whole of eastern Iranian and middle Asian sphragistics until the second millennium B.C.

In conclusion, what probably happened was that a management model was exported in the framework of an intensified exchange of resources, already highly developed during Chalcolithic times. This is indicated also by the kind of texts written on the sixteen tablets from Sialk and the twenty-seven from Yahya. They record the delivery of foodstuffs and receipts referring exclusively to agricultural products and involving several agencies and their dependants.[22]

The final Chalcolithic is thus characterized by proto-state structures in which elements of the new social organization remain confined to specific functions, while the structure of the population still shows no strong signs of tension caused by disparities between the larger centres and the smaller rural areas. Although the effect seems to be delayed with respect to western Asia, the break with tradition was nevertheless a radical one.

Already in the first two centuries of the third millennium B.C. there was a considerable increase in the size of each regional centre, a phenomenon conventionally denoted as proto-urbanism. The span of maximum expension corresponds to the Early Bronze Age. The most striking example is the rapid development of the Helmand valley. Urbanization was completed between 2600 and 2500 B.C., as is attested by the construction of monumental architectural complexes at Mundigak and Shahr-i Sokhta, by the grassroots expansion of the rural architectural villages and by the layout of the craftsmen's quarters in the suburban environment. After the year 2200, that is, at the beginning of the Middle Bronze Age, the urban system begins to deteriorate and there is a radical and rapid decline of the large centres in all the enclaves of Central Asia. None of the explanations proposed so far successfully link up the numerous conditions of the archaeological evidence over such a wide area. It was certainly a very complex political phenomenon, which does not necessarily mark the end of the state of supertribal organization.[23] Unlike the western Asian Mediterranean and historical Indian civilizations, in the Central Asian world the state as a suprafamiliar hierarchical system developed with structures that did not necessarily depend on the concentration of people and services allocated in regional centres.

In the archaeology of prehistoric Iran, the shapes and decorations of the painted pottery have represented the main diagnostic elements for defining the variability in time and space of the different cultural traditions. During the two millennia preceding the advent of the first proto-state entities at the end of the fourth millennium B.C., pottery vases were not

[22] Meriggi, 1971/72.
[23] Biscione, 1977; Biscione and Tosi, 1975.

used merely as containers. By means of the richness of the composite painted decorations, with their geometric or naturalistic themes, the surfaces of the vessels were transformed into a symbolic and representational system. They were projected inside the community as bearers of coded information. In the many villages on the strips of irrigable soil around the large eastern Iranian deserts between the end of the sixth and the beginning of the fourth millennia B.C. the complex patterns covering almost the entire surface of bowls and jars became an instrument for representing and transmitting an ideological heritage common to very large areas. It is thus to be expected that, despite the size of the areas involved, this transformation helped for a long time to maintain a substantial cultural homogeneity in the production of such ordinary instrumental goods. This dual nature of pottery products was shared by the earliest agrarian societies to be found in the whole of western Asia. With the rise of social stratification in the fourth millennium B.C., pottery lost this symbolic and representational function, replaced by more expandable information processors, up to and including the universal medium of writing. Meanwhile, painted decoration became increasingly cursive and schematic until it ultimately disappeared.

Inversely, in the whole of eastern Iran painted decoration persisted until the mid-third millennium B.C., that is, until nearly 1,000 years after its decline in the western Asian regions. This persistence enables us today to evaluate the continuity and spread of the various cultural traditions included in the more mature phases of the urbanization process.

On examination of the situation prevailling in about 4000 B.C., for which the archaeological evidence is more reliable, there can be seen to be three main cultural traditions in eastern Iran and Baluchistan. North of the great Iranian desert, the area of integration coincides with the distribution of red-slipped pottery with black or bichrome black-and-brown decoration, which was identified for the first time at Anau IA[24] and subsequently at Hissar I on the Gorgan plain. With only a few variants, it extends along the Elburz and Kopet Dag ridges, over an area roughly coinciding with that of the early agricultural culture of Jeitun.[25] It extends southwards as far as the oasis of Kashan, where this pottery is characteristic of the Sialk Periods I–II. In contrast with this cultural complex is the buff ware that, south of the 32 ° N. parallel, defines the area of expansion of the southern tradition, which spread along the whole extent of the southern Zagros. McCown[26] had already remarked on the opposition between these two traditions, and subsequent research has not so much changed the terms of this generic dialectic as shed more light on particular situations and different formative processes. Since recent research has shown that agriculture in the

[24] Pumpelly, 1908; Masson, 1962.
[25] Masson, 1971; Masuda, 1976.
[26] McCown, 1942.

eastern Iranian countries is based on the domestication of local cultivars, the origin of such a marked opposition probably lay in the first agrarian communities that arose between the seventh and the sixth millennia B.C. and developed in relation to separate centres of primary domestication.

It is no coincidence that a third cultural tradition was identified as early as 1945 in northern Baluchistan, in the Quetta pottery.[27] Its area of distribution actually corresponds to a third centre of agricultural origins which grew up around barley cultivation, and cattle, sheep and goat grazing as early as the seventh millennium B.C., which was identified thanks to recent discoveries at Mehrgarh on the Bolan river.[28] The Baluchistan tradition of the early millennia B.C. is characterized by buff ware with geometric decorations rigidly organized into panels often with pronounced two-tone colours. The area of distribution covers at least the whole of central-northern Baluchistan and the middle Helmand valley where Layers II–III of Tepe A of Mundigak[29] are to be found. The Baluchistan pottery tradition is followed in reverse until Period IB–IA of Mehrgarh, and very soon emerges as the technologically most highly advanced of the whole of eastern Iran. The use of the potter's wheel became generalized by the end of the fifth millennium B.C., that is, at a time the large production centres such as Mehrgarh were being set up. In the rest of eastern Iran the introduction of the fast wheel took place much later, around 2600–2500 B.C. and corresponds to the production standardization of full urbanization.[30]

Of the three cultural traditions, only the southern one seems to have consistently embodied influences stemming from south-western Iran and Mesopotamia, mostly in the Ubaid period.[31] However, here also, the palaeobotanical scenario concerning agriculture during Period VI (6000–5000 B.C.) of Tepe Yahya and surroundings seems to suggest that the production processes were quite autonomous well before these influences were felt,[32] proto-state structures developed early towards the end of the fourth millennium B.C., the relative urban centres being concentrated in the fertile plain of Gorgan at Turang-tepe[33] and in the piedmont strip of the Etek at Namazga and Altyn-depe.[34]

The boundary line in the southern piedmont zone corresponds to the course of the Halil-rud along the Jiroft valley, westward from which lies the Kerman region, while to the east there are the longitudinal valleys of the Makran leading into Baluchistan. In the cultural

[27] Piggott, 1947; Fairservis, 1956.
[28] Jarrige and Meadow, 1980; Lechevallier and Quivron, 1981; Costantini, 1984*a*.
[29] Casal, 1961, pp. 128–34.
[30] Vidale, 1984.
[31] Kamilli and Lamberg-Karlovsky, 1979.
[32] Costantini, 1984*b*.
[33] Deshayes, 1977.
[34] Masson, 1967, 1968, 1981.

complexes of Iblis and Yahya to the south of Kerman as well as of the Bampur valley to the east, there are marked differences in pottery production as early as the first half of the fourth millennium B.C., that is, the earliest documentation of the Bampur valley through the site of Shah Huseini.[35] In general, the whole region has not developed into forms of urbanization, but is structured into a system of small oases at the bottom of the mountain valleys, and into a semi-nomadic population of the steppe highlands accompanied by an early intensification of sheep and goat grazing.

There were very strong links with the coast which in the second half of the third millennium B.C. led to a very high degree of integration in the whole of the Oman peninsula, as is documented by the convergences between the pottery of Yahya IVB and that of Bampur IV–VI towards the Umm an-Nar culture.[36] Also the complex of Baluchistan tradition can roughly be divided into a western area, including the Quetta and the Helmand valleys, on the one hand, and an eastern-southern one extending from the Kalat plains to the piedmont strips between the Sind and the Kirthar mountains. The Helmand valley was the most important pole of urban development and was to play the role of a culture hinge between the three different traditions of eastern Iran during the Chalcolithic period. For the whole of the fourth millennium B.C., pottery production remains characterized by painted decoration, which in any case is enriched by the addition of naturalistic themes, mostly zoomorphic in nature. The gradual cultural integration into smaller regional organizations does away with the north–south contrasts expressed in terms of red and buff ware. This transformation is made more evident by the emergence of new pottery types related to the improved control over the manufacturing processes, and of firing in particular. The introduction of reduction kilns afforded higher temperatures and the production of the earliest grey ware, first appearing in Baluchistan during the Togau A Phase, about 3800 B.C.[37] This particular black-painted grey ware actually consists of *porcelaine grès* fired at a temperature exceeding 1,000 °C, as a result of the amalgam between the clay and high percentages of ferrous oxides.[38] It was to continue to be used for another 1,500 years, spreading throughout Baluchistan both over the Indus plain and westward to take in the whole of the Helmand valley, Bampur and Kerman. In the northern enclaves, grey ware appeared later, towards the end of the fourth millennium B.C. at Hissar II and Sialk IV, though only in the region between Elburz and Gorgan. It consists of an undecorated pottery class with finely burnished, almost metallic surfaces more or less in the Caucasic-Anatolian tradition. With the advent of the first elements of state formation, the only change undergone by

[35] Stein, 1937.
[36] De Cardi, 1970, pp. 268–9; Lamberg-Karlovsky and Tosi, 1973, pp. 42–4; Tosi, 1974*b*, pp. 147–62.
[37] De Cardi, 1965.
[38] Lamberg-Karlovsky and Tosi, 1973, pp. 39–40.

pottery production consisted of an increased reciprocal borrowing of shapes and decorations between the more rapidly developing regions. This is the case of Shahr-i Sokhta, where the ordinary pottery production about 3000 B.C. included southern Turkmenian, Baluchi and southern Iranian types.[39]

The more radical transformations occurred when the pottery ultimately lost its symbolic and ideological value at the time that an urban order became fully internalized in about 2600 B.C. The behaviour of the urban enclaves in north-eastern Iran and the Helmand valley can now be clearly distinguished from those having remained at the level of oases composed of rural villages with market tendencies towards nomadic animal husbandry throughout the southern strip. While painted decoration virtually died out in the former, or else was reduced to a few summarily executed motifs, it persisted in the south and in Baluchistan throughout the third millennium B.C. At Shahr-i Sokhta III the sharp drop in painted decoration coincided with the introduction of the fast wheel and the structuring of pottery production into large centres composed of 50–100 kilns. Furthermore, the reorganization of production on a semi-industrial scale paved the way for the technological improvements that were to make third-millennium pottery a standardized and fully functional product.

The production of all the southern countries during the second half of the second millennium B.C., from Shahdad to Yahya IVB, from Bampur IV–VI until the Kulli culture in Pakistan Makran, continued with the naturalistic motifs of the fourth millennium B.C., albeit by then perhaps highly stylized. The vast majority consists of friezes depicting running goats and stylized representations of plants. The painted decoration pottery tradition was nevertheless approaching the end and, in about 2000 B.C., seems to coincide with the appearance of direct interference from the Indus civilization. A rearrangement of the economy of the population structure also appears to have occurred as an effect of such upheavals.[40]

During the Early Bronze Age, the territorial organization of the proto-urban societies of eastern Iran was characterized by very powerful tendencies towards demographic concentration which had no equivalent in other western Asian regions. The disparity between rural villages and the centre in each enclave increased during the first half of the third millennium B.C. While the average size of the smaller villages remained that of the Chalcolithic settlements of the fifth and fourth millennia B.C. (between 0.8 and 1.2 ha), the hegemonic centres increased out of all proportion. The most typical case is certainly that of Sistan, where Shahr-i Sokhta grew from the 15–17 ha, of Period I (3200–2800 B.C.) to 150 ha in

[39] Amiet and Tosi, 1978, pp. 21–3; Biscione, 1984.
[40] Lamberg-Karlovsky, 1973, p. 43. Costantini, 1984*a*.

Period III (about 2400 B.C.) At this time the next settlement in the Helmand delta in order of size was barely 4 ha in area, while the other forty so far located range between 0.5 and 2 ha. During the same time-span, the increase in size of Mundigak was equally astonishing, rising from 6–8 ha in Period III to 55–60 ha[41] in Period IV despite its highly excentric position with respect to the Kandahar plain, where most fertile farmland is found.[42] In the two enclaves on the Helmand, the maximum increase in area achieved by the main centres by the mid-third millennium B.C. is thus almost identical, that is, seven to eight times their area at the end of the Chalcolithic, some 400 years earlier. The growth of Shahdad was equally great, at least according to the preliminary observations of the few surface reconnaissances carried out so far.[43] The development that took place in the Damghan plain at the turn of the third millennium B.C. reflected a third type of situation: Hissar declined from the 12–15 ha reached in Period I during the fourth millennium B.C. to 7–8 ha immediately after the mid-third millennium. However, this decrease in area was accompanied by a marked tendency to demographic concentration. In a recent survey only two protohistoric settlements were located, both of which were no greater than 1 ha in area.[44] As in all piedmont oases in eastern Iran and southern Turkmenistan, the urban agglomeration here was even stronger, achieving the concentration of both population and non-rural activities into a single centre capable of directly managing also most of the agricultural resources over a radius of 10–12 km.

However, there is no need to explain all settlement growth in terms of population density, considering that our object of archaeological observation concerns surfaces and not people. Growth in the size of urban centres is not solely related to the concentration of rural populations but also to the increase in the number of specialized functions. Ceremonial infrastructures, administration organization, the stockpiling of agricultural produce, and craft activities are but some of the more apparent in the archaeological record. Each one called for the allocation of new areas to be added to or superimposed on the existing residential quarters, thus materially characterizing the hegemony of the centre over the territory. In the case of Shahr-i Sokhta, the process continued for the whole of the first half of the third millennium B.C. Until 2600 B.C. the craft activity production centres were scattered throughout the residential areas and agricultural villages. Five hundred years later the latter occupied 30–39 ha in the western and southern quarters of the city. At the same time, the area of the graveyard, which was always kept rigidly separate from the inhabited part, grew by some 21 ha. If we consider also the ceremonial and palace structures, still

[41] Casal, 1961, p. 76, Fig. 3.
[42] Snead, 1978; Jarrige and Tosi, 1981, pp. 118–21.
[43] Meder, 1979, pp. 80–1, Fig. 27; Salvatori and Vidale, 1982, pp. 5–10, Fig. 1.
[44] Dyson and Howards, 1989.

somewhat incompletely identified, as well as the gaps left in the gradually abandoned blocks, the alleged population increase would be reduced considerably. Hissar is an even more striking example of such a segregative use of space at the beginning of the third millennium B.C. In Period II, almost a third of its total area was allocated to craft production, particularly the smelting of copper from the nearby deposits in the Damghan hills. A similar pattern has been observed at Shahdad where copper-smelting and bead-making surface spreads account for nearly a quarter of the whole site.[45]

The numerous craft activities involved the manufature of ornaments, instrumental goods and domestic commodities. Pottery production and copper-smelting are therefore found side by side with large areas covered with wasters from the production of beads and other ornaments made of lapis lazuli and turquoise at Shahr-i Sokhta and Hissar,[46] soap-stone at Tepe Yahya,[47] chalcedony, quartz and flint at Shahr-i Sokhta,[48] limestone and soap-stone again at Hissar. It is interesting to observe how the production areas of the more exotic semi-precious stones such as lapis lazuli and turquoise were rigidly separate from those in which ornaments made of local materials were produced. At Shahr-i Sokhta this separation continues also in the burial context, with graves of stone-cutting craftsmen buried with their tools and specimens of their products.[49] On the basis of the surface spreads of wasters, most of these workshops can be assumed to have occupied no more than one or two rooms or courtyards with comparatively few infrastructures in which a set of stone and wooden tools differing very little from the Neolithic tradition were used almost exclusively. The innovation lay not so much in the technology as in the organization of the production forces, reaching the definitive separation of specialities from the domestic sphere. Only the pyrotechnological activities, mostly pottery-making and metal-working, were destined to become actual factories with large numbers of workmen organized in several hierarchical levels. With the advent of urbanization, this gave birth to the craftsmen's quarters at Hissar, Altyn-depe, Shahdad and Shahr-i Sokhta[50] and also to sites of 1–2 ha in areas dedicated more specifically to individual activities detached from the hegemonic centres.

The organization of craft activities during the period of the early eastern Iranian state therefore shows a tendency towards a level of territorial integration that breaks with the normal microregional patterns of the Chalcolithic enclaves. That this areal expansion of craft activities should be evaluated more in terms of a shift of functions than population

[45] Salvatori and Vidale, 1982, Figs. 12.
[46] Tosi and Piperno, 1973; Bulgarelli, 1979; Tosi, 1974*b*.
[47] Kohl, 1975.
[48] Bulgarelli and Tosi, 1977.
[49] Piperno, 1976.
[50] Tosi, 1977, p. 57; Mariani, 1984; Tosi, 1984.

growth emerges also from a second consideration: an over-extended transplant of farmers from the rural hinterland would have entailed a reduction in the number of labourers generating primary surpluses just when economic take-off was about to be boosted to the full.

The process of urban expansion is assumed to have taken place in two stages. In the earliest stage (3000–2600 B.C.), a pre-existing trend towards the reorganization of certain manufacturing processes accelerated the reallocation of specialists outside the confines of the house. Craftsmen's workshops in eastern Iran and Afghanistan contributed to dwelling settlements that had already developed into centres of riverine enclaves during the fourth millennium B.C. and where the volume and quantity of commodity production had been high throughout the Chalcolithic period. Essentially it originated as a change in the distribution of activities and took place in those enclaves in which the majority of the population was already concentrated in the primary centre (e.g. Hissar, Shahdad or Mundigak) and where no further demographic expansion was possible without full integration into larger systems. Each of these sites had been a main regional centre all through the fourth millennium B.C. on the same scale as Altyn and Namazga in southern Turkmenistan. V. M. Masson has determined the area extension of Altyn-depe during the Namazga II period as around 12 ha towards the end of Period I, and in Mundigak during Period III. In conclusion, the changes in the proto-state societies in eastern Iran took place gradually throughout the first half of the third millennium B.C., basically remaining the same as the models having developed inside the pre-state Chalcolithic institutions. The effects of accumulation and of the new social order have been seen to emerge in the subsequent phase between 2600 and 2400 B.C., which corresponds to Period III of the Shahr-i Sokhta sequence in Sistan, to Mundigak IV in Arachosia and to Namazga V in southern Turkmenistan.

In addition to the areal increase in the central parts of each regional system, and to the reorganization of the production forces, these effects are found in the rise of monumental architecture according to the requirements of the new urban élites. The few monumental buildings of the Bronze Age so far found in eastern Iran have features in common that, besides allowing them to be distinguished from domestic architecture, are not found in any other cultural area in western Asia. Generally speaking, they were more than 1,000 m^2 in area, compared with the 80–150 m^2 of contemporary private houses. Probably in order to ensure that they would dominate the rest of the city, the monumental buildings were situated on high ground. In the specific context of a protohistorical settlement, the most suitable sites are the elevations left by the accumulation of structures and debris from earlier periods. By means of buildings made entirely of mud-bricks and articulated into scalar blocks redefining the slopes, whole hillsides were incorporated in a solid retaining

construction. Such terrace substructures have been identified in Tepe A at Mundigak[51] and in the 'temple' in Sector 7 of Altyn-depe, [52] while the largest is possibly the one at Turang-tepe, which has a front 80 m long.[53]

Their construction can be dated between 2500 and 2300 B.C. and is in the phase of most rapid expansion of the urban centres and of the most extensive territorial integration corresponding to the latter part of the Early Bronze Age. The internal part of the platforms consisted of a close-knit network of large blocks of masonry that, by relieving the counterthrusts, enabled the structure to fit in with the uneven ground morphology of recently accumulated soils. The foundation masonry actually penetrated inside pre-existing buildings, so that the new substructure cut across the buried walls. The same type of anchoring system is found at Shahr-i Sokhta during the second half of the third millennium B.C., both in the Phase 5 'House of the Foundations' of the East Residential Area[54] and in the large enclosured building of Phase 4–3 in the Central Quarters (Fig. 4). [55]

The use of mud-bricks was exclusive, with the sole exception of the building on Tepe G at Mundigak, laid on rough limestone foundations.[56] It could conceivably be a more peculiarly 'Baluchi' feature not only for reasons of geographical proximity, but also because of the abundant stone available in the narrow valley of the Kushk-i Nakhod.

The characteristic by means of which the monumental architecture of the Bronze Age can be identified most easily nevertheless consists of the way the façades were treated, which more than anything else set these stately buildings above the rank of common dwellings. This treatment consisted of elaborate mud-brick relief decorations in a masonry cladding laid over the façade of the terraces or on the front of the building. In Tepe A at Mundigak the remaining façade consists of two low stepped platforms. The decoration on the front of both of these consists of a sequence of circular half-pillars, standing 1.6 m above ground-level and surmounted by a frieze of bricks arranged in step-side triangles. The same step-sided triangle motif, so common in prehistoric iconography reappears in the shapes of the pilaster strips decorating the platforms of the temple of Altyn-depe.[57] At Turang-tepe the elements were square pilasters. Also at Mundigak, the large building on Tepe G (Fig. 5) has a façade decorated with a tight network of triangular pilaster strips.

[51] Casal, 1961.
[52] Masson, 1970, 1981, pp. 56–64.
[53] Deshayes, 1975, 1977, pp. 108–11.
[54] Tosi, 1983, pp. 112–15.
[55] Salvatori, 1979.
[56] Casal, 1961, p. 63, Fig. 36 Plate XXI A.
[57] Masson, 1981, Plate III 2.

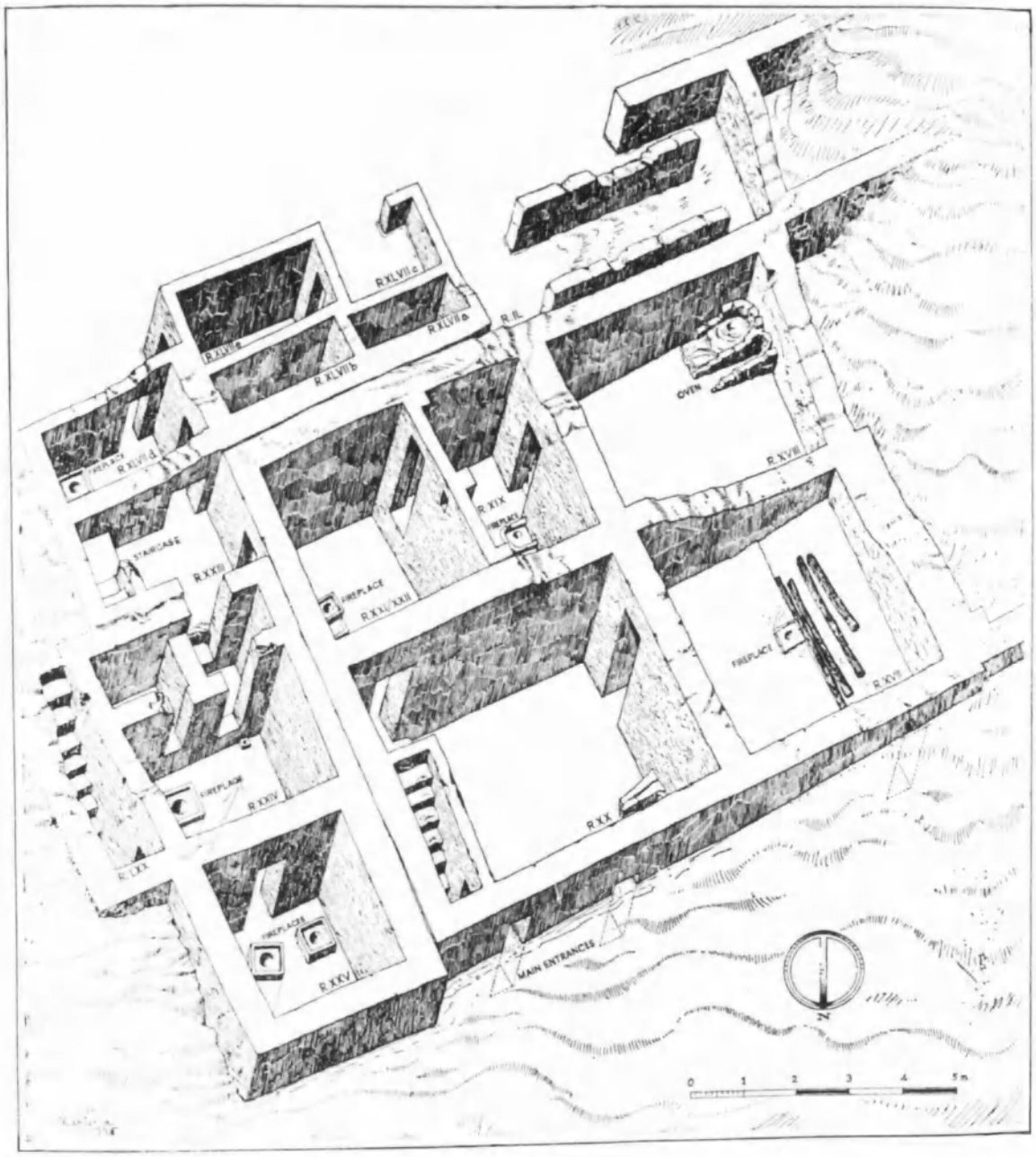


FIG. 4 Shahr-i Sokhta: isometrical view of a house.

In terms of relative cultural sequence the construction of these monumental compounds may well have coincided with a new stage in socio-political development. While the first state structures emerged between 3200 and 2800 B.C., and are visible in specialist sectors such as information and administration, a later phase (between 2800 and 2400 B.C.) saw the construction of the actual urban structures themselves in small territorial cells some 500–100 km^2 in area, that is, only slightly larger than the pre-urban concentrations of the

fourth millennium B.C. The large public buildings constructed in roughly the same period in larger centres, whether shrines or palaces, were most likely the effect of one or more extensive political projects by some of the ruling élite. The need for a sumptuous ceremonial organization reflects that increased control over the rural resources and production forces which also becomes visible in the contemporary foundations of the craftsmen's quarters and the repopulation of the deltaic plains in Sis-tan and Arachosia.

It is possible that in the second half of the third millennium B.C. larger political systems were coming into being throughout eastern Iran and Afghanistan as evidenced by new aspects of cultural identity between distant enclaves of the same region. The strong cultural connections of the reduced town of Hissar III A–B with the rich Gorgan plain 80 to 150 km to the north suggest that the Damghan valley might have been integrated around the mid-third millennium B.C., as an enclave mediating between the larger centres in the Gorgan farmlands and the copper, lead and gold ore sources around the edge of the Kavir desert. Perhaps the most striking case of political integration possible occurred in the Helmand valley between the two population poles of Sistan and Arachosia. A correspondence test carried out on the natural resources of the two centres of Shahr-i Sokhta and Mundigak has revealed the emergence of a higher degree of interdependence about half-way through

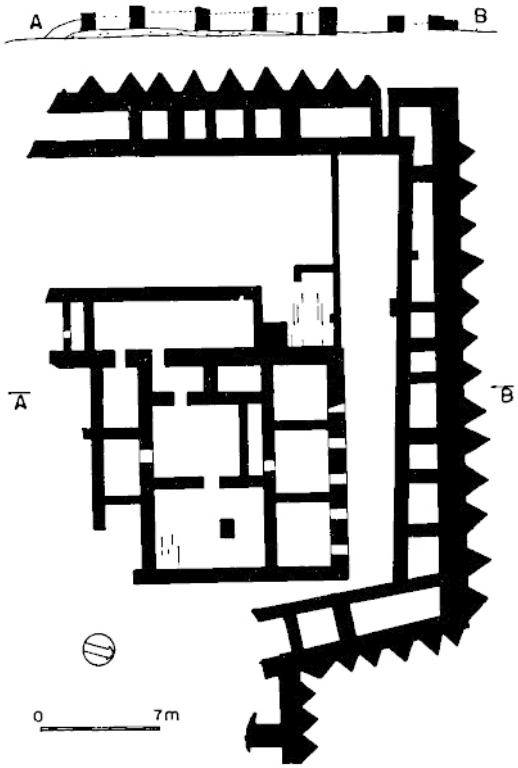


FIG. 5 Mundigak G, plan and section of a temple.

the third millennium B.C., [58] when Phases 5–3 at Shahr-i Sokhta are morphologically the same as those of Mundigak IV 1–3. This is the period of greatest territorial expansion in both regions and the first monumental structures to see the light of day all belong to this period. The process of integration probably took place during the third quarter of the third millennium B.C., with the result that the embryonic Iranian and middle Asian states of the Early Iron Age were set up between Kerman and Bactriana, from the Caspian to the Helmand. Furthermore, the timing and stages of this process apparently corresponded to, or just preceded, those of the Indus civilization. The latter, towards the end of the third millennium B.C., achieved the greatest degree of territorial integration of the whole pre-Achaemenid world with the entire north-western plainland of India and Pakistan being united in a single material complex.

Nothing is yet known about the town-planning aspects of the cities of the Bronze Age. Not enough excavation work has been carried out in these vast agglomerations of dwellings to be able to define the structures of the quarters or even the organization of the street networks. They all share the absence of perimeter walls and fortifications so characteristic of those of the Syro-Mesopotamian region. A city gate with a partitioned carriage way has been found in Area 8 at Altyn-depe dating back to the period of greatest expansion,[59] though it is still doubtful whether there were any continuous city walls. The majority of the streets consisted of narrow, winding, unpaved lanes whose level was rapidly raised by accumulated refuse from the houses. The settlement of population was virtually uncontrolled and the residential quarters emerge from the excavations as a somewhat heterogenous system. The impression is that the organization of the urban space was influenced by pre-existing buildings and social relations of the Chalcolithic Age. Turang-tepe, Hissar, Shahdad and Mundigak developed according to the fabric of the fourth millennium B.C. Obviously planned interventions are evident only after 2500 B.C. with the setting up of the first monumental structures.

The third millennium B.C. dwellings consisted of mud-brick buildings formed by rather asymmetrical groups of square rooms. The basic ground-plan was rectangular in shape and covered an area of 90–150 m^2 laid out around a courtyard from which the only door providing access to the exterior opened towards the east. The roofs were flat and supported by a frame consisting of five or six parallel poplar trunks built into the tops of the walls and covered with interwoven tamarisk branches on which the roof itself was laid. The latter was composed of woven rush matting covered with a layer of clay mixed with large quantities

[58] Jarrige and Tosi, 1981, p. 139; Ciarla, 1981, pp. 55–8.
[59] Masson, 1981, p. 33, Fig. 10.

of straw. At Shahr-i Sokhta access to the ground floor was through the external wall or from one side of the internal courtyard.

Furthermore, all the service structures inside the dwellings were made of unbaked clay and bricks – box containers, hearths, square raised fireplaces, horseshoe-domed ovens for breadmaking, sloping bases of grindstones. The same forms were used in eastern Iran throughout the Bronze Age and certainly until the Achaemenid period.[60] The dwellings had virtually no wooden furniture or wall niches. The problem of food preservation was solved by using mobile containers of all shapes and sizes: fibre baskets, cloth or leather bags, and pottery, stone and wooden vessels. The exceptionally good preservation of Shahr-i Sokhta has often allowed the discovery of vessels still with their contents of perishable material *in situ*. Grain, which formed the staple diet, was preserved in large pottery jars with a capacity of up to 20 kg of seeds. Store-rooms packed with jars are rare and it is quite possible that from around 3000 B.C. the long-term storage of foodstuffs was mainly provided for by the central administration who removed them from the control of individual families and concentrated them in centralized stores in which they were subject to written registration for the purpose of redistribution.

In the autarchic regime prevailing in all the early stages in eastern Iran, food supply was naturally based on the consumption of local products. Generally speaking, the agricultural production of the third millennium B.C. was based on wheat and barley species that had been selected locally during the Neolithic or in any case prior to 5000 B.C. During the accelerating pre-state phase of the fourth millennium B.C., the palaeobotanical finds of Tepe Yahya V and Hissar I attest to a definite increase in hexaploid grain forms compared with both barley and the tetraploid form. This points to a gradual reorganization of agriculture towards the selection of higher yield species.[61] Although the date palm was apparently used from the sixth millennium B.C. (cf. Yahya VI and Mehrgarh II: Costantini, personal communication), the first capital-intensive fruit-tree cultivation dates back to the end of the fourth millennium B.C. The earliest and main representative is the grapevine, which appears in the archaeological record during the final Chalcolithic at the same time as the first proto-Elamite tablets.

At Shahr-i Sokhta, the vegetable foodstuffs consisted of both wild and cultivated plants.[62] The latter obviously included the domestic species of wheat (*Triticum aestivum*) and barley (*Hordeum vulgare* var. *nudum*), though fruits such as grapes and melons (*Cucumis melo*) were also eaten. Evidence of wild plants consists of the identification of

[60] Genito, 1982.
[61] Costantini, 1984*a*..
[62] Costantini, 1977.

seeds of two Polygonaceae and one Chenopodiaceae species (*Chenopodium album*), which could also be used for making low-quality flour, while the abandoned remains of swamp rushes point to the use of cat-tail shoots (*Typha angustifolia*). The staple diet presumably consisted of graminaceous plants eaten in the form of bread and porridge, which every dwelling had the necessary equipment to prepare, that is, ovens, hearths and grindstones with collecting basins of clay. The large quantities of grape seeds found indicate that grapes were normally consumed in the cities. Although there is no direct evidence, it may reasonably be assumed that there was a flourishing production of grape wine and barley beer. The smart-looking balloon goblets used at Mundigak and Shahr-i Sokhta during the period of maximum urban expansion were presumably designed for drinking fermented beverages.

Vegetable oil could be extracted from linseed and even grape seeds, although the main source of protein was animal husbandry, hunting and fishing. Niche-packing conditions allowed the simultaneous exploitation of several different environments and gave access to a broad spectrum of natural resources. Sheep, goats and bovines in different proportions together always accounted for more than 90 per cent of animal bones in the Early Bronze Age sites. During the third millennium B.C., hunting on the alluvial plain was restricted to a few types of gazelle and the onager (*Equus Hemionus*), by now restricted to the edges of the desert.[63] The wild-animal remains found at Tepe Hissar were more abundant owing to the vicinity of the highland forests of the Elburz mountains. At Sistan a considerable contribution to the food supplies was nevertheless made by hunting owing to the abundance of bird life in the swamps. As many as forty-one bird species have been identified among the osteological finds at Shahr-i Sokhta, more than 95 per cent of which are, however, marsh birds such as the coot (*Fulica atra*) and anseridae.[64] Moreover, thousands of eggshell fragments belonging to six different species have been gathered and identified; marsh birds are by far the most frequent.[65]

This state of equilibrium between the various ecological niches inside each proto-urban enclave is not representative of a new order but marks the final expansion of the Chalcolithic economy. Towards the end of the third millennium B.C., at the same time as the crisis affecting the whole basin, new cultivars and domestic animals developed in other regions of Asia and Africa and were introduced into Baluchistan, Oman and eastern Iran. These consisted of new summer-crop cereals, rice, sorghum and millet[66] and the first pack animals, such as horses, asses and camels.[67] From this stage on, the countryside began to

[63] Compagnoni and Caloi, 1977; Compagnoni, 1978*a* pp. 105–18, 1978*b* pp. 119–28.
[64] Cassoli, 1977.
[65] Spröde, 1977.
[66] Cleuziou and Costantini, 1981.
[67] Meadow, 1983.

resemble the present-day one. As far as the primary economy is concerned, the proto-urban societies, though perhaps partly preparing the well-ordered and more flexible agriculture of the second millennium B.C., still had their material bases determined by the same range of Neolithic resources as had been expanded during the Chalcolithic.

The best-known protohistoric graveyards in the area are to be found at Shahr-i Sokhta and Tepe Hissar. Smaller groups of graves and isolated burials have been explored also at Mundigak, Turang-tepe and in various parts of southern Iran. In the general forms of the funerary ritual a fairly high degree of uniformity exists throughout all these regions, including Baluchistan and southern Turkmenistan. Burials always consisted of inhumation without any prior exposure, the body being laid on one side with arms and legs flexed. The offerings consisted mainly of personal ornaments, pottery and other objects of everyday use, arranged around the body starting from the head and the feet. While at Hissar graves were dug in uninhabited areas of the settlement, between the ruins of abandoned dwellings, in the Helmand area they were kept quite separate from the other areas of the city and confined to cemetery areas of ever-increasing size. The Shahr-i Sokhta graveyard, for instance, reached an area of 21 ha.[68]

Graves often contain mud-brick masonry structures dividing them into two halves: one half for the body and the other for the offerings. There are also fairly frequent cases of actual circular or square chambers. The former are better-known as *tholoi* and were used in southern Turkmenistan from the beginning of the fourth millennium B.C., mostly for multiple burials.[69] At Shahr-i Sokhta the same structures were used in the early third millennium B.C., reaching a diameter of 3 m with thirteen burials arranged in successive depositions. Also square chambers were built as multiple tombs to accomodate successive depositions.[70] The most typical examples are the Period III graves of Tepe C at Mundigak[71] identical to the somewhat later grave 11 of Altyn-depe.[72] The graves partitioned by a small brick wall are perhaps the reflection of an even older morphology of Baluchistan, and not of middle Asian, origin. In fact, specimens identical to those of the third millennium B.C. have been found in the earliest aceramic Neolithic layers of Mehrgarh, more than 3,000 years earlier.[73]

A more complex type of grave has a pit opening into an underground chamber dug in the clay. At Shahr-i Sokhta it has been found to have been used for multiple burials

[68] Piperno and Tosi, 1975; Tosi, 1976.
[69] Sarianidi, 1959; Masson, 1977, Fig. 3.
[70] Piperno and Salvatori, 1983, p. 175, Fig. 3a–c.
[71] Casal, 1961, pp. 44–5, Plate X 13D.
[72] Masson, 1981, p. 52, Fig. 16.
[73] Lechevallier et al., 1982.

accompanied by richer grave goods.[74] The shape closely recalls that of the later catacomb graves of southern Siberia and Soviet Central Asia, though it is too early to say whether there is a common ideological background behind this convergence. The good state of preservation of the organic remains at Shahr-i Sokhta has made it possible to analyse the contents of vases found in the graves, much of which consisted of the remains of both cooked and raw food. Kids and lambs had also been well documented as early as the Neolithic at Mehrgarh.[75]

The variability of burial types recorded in the Helmand valley graveyards is related neither to the wealth of furnishings nor to age or sex. In view of the presence at Shahr-i Sokhta of morphologies typical of both the southern Turkmenian Chalcolithic and the Baluchi Neolithic-Chalcolithic, the new urban configuration of cultural tradition is more likely to have been influenced by a convergence of customs and traditions flowing from the two poles. On the other hand, the signs of economic inequality are clearly expressed in the differing degrees of richness of the grave goods. A recent comparative analysis carried out on a sample of 300 Period I–III graves (3200–2300 B.C.) at Shahr-i Sokhta has indicated that the furnishings can be divided into three main groups according to number and quality of objects.[76] This other variability axis is not determined by differences in sex or age, but on both a chronological factor and on an assumed social stratification. The richer graves are those mostly dated around Phases 4 and 3. This 'richness' is evaluated according to the number of pottery vases and metal objects, two aspects of the technology in rapid expansion after 2500 B.C., and the reorganization of the production forces that coincides with the maximum expansion of the urban areas. This increased availability of goods at all levels is particularly apparent in the extremely rich graveyard of Shahdad, dated to the second half of the third millennium B.C.[77] The evidence accumulated here from hundreds of graves points to a high-level metal-working industry with much in common with the quality productions of Hissar IIIB and Bactria in the Middle Bronze Age.

It is still not possible to define the political entities in eastern Iran which governed one of the largest centres of civilization in Asia during the second half of the third millennium B.C. Elements of social complexity are all present in the archaeological record, even though systematic research has been carried out for only a few decades. The most impressive discoveries will be made in the future. What is certain is that this congeries of centres and states had a considerable and lasting effect on the whole of southern Central Asia and

[74] Piperno, 1977, p. 123.
[75] Lechevallier et al., 1982.
[76] Piperno, 1977, 1979.
[77] Hakemi, 1972.

along the coasts of the Indian Ocean, as is attested by the extensive convergence linking eastern Iran to the Oman peninsula throughout the third millennium B.C. To what extent they influenced the social development of the ancient world is a question that cannot be answered until systematic research has also been carried out on the second millennium B.C. linking the Early Bronze Age civilizations. Unfortunately, in the light of what has been discovered so far, we know only that after reaching its peak the urban civilization suddenly collapsed. It lost all its features of centrality and most of the cities were sharply reduced or abandoned in the space of a few years. However, the disappearance of cities does not necessarily imply the dissolution of the state organization. We have seen how the process of state formation began at least five centuries before the phase of rapid expansion of the cities. This gap indicates that some caution must be observed in considering the two phenomena as interdependent. Urbanism is one but not the only outcome of a social order based on the state, which appears to hold for Central Asia. Its success in the Early and Middle Bronze Ages nevertheless had lasting effects and we should soon be able to examine them in the historical context of the earliest Iranian and Indian societies.

Our knowledge of the Chalcolithic and Bronze Ages in Afghanistan is confined to the excavation of three sites in southern Afghanistan: Mundigak, Said Qala and Deh Morasi Ghundai. Mundigak is situated in a mountainous region about 55 km north-west of modern Kandahar located in the upper drainage of the Kushk-i Nakhod river, which is roughly parallel to the Arghandab river near Kandahar. As with most areas of Afghanistan, this region is arid. The site of Mundigak comprises a series of mounds.

Casal's[78] sequence at Mundigak remains the primary reference point for the Bronze Age in Afghanistan. This sequence has been supplemented by limited excavation of Said Qala-tepe[79] and Deh Morasi Ghundai.[80] The results of excavation clearly indicated seven major occupation periods. From a chronological point of view these represent a time-span of approximately 3,000 years, from the beginning of the fourth to some time in the second millennium B.C. During this time Mundigak developed from a small agricultural village (Periods I–III) to a major urban centre (Periods IV–V), to be abandoned during the Iron Age.

The first mud-brick habitations were encountered in Phase I 4–5. At the end of Period I foundations made of *pisé* and sometimes mixed with stone were started. In Period II the notable features are deeper foundations, mud-brick walls and rectangular rooms, divided into two rooms, one smaller than the other. Period IV is basically different from the

[78] Casal, 1961.
[79] Shaffer, 1971.
[80] Dupree, 1963.

previous periods, being very impressive and without parallel in the prehistory of Afghanistan as described earlier.

From the point of view of architectural structures there is no greater change between Periods IV and V than there was between IV and III. However, some difference can be traced in the ceramics of the two periods.

Among all the materials which have been found at Mundigak, the ceramics are of prime importance. The pottery is buff-red ware predominantly wheel-made (90 per cent). However, in Phase I 5 wheel-made pottery had decreased significantly in frequency (80 per cent, I = 70 per cent). Vessel forms were limited to straight-angular or curved-wall bowls in Phase I 2–3, and to only straight-sided vessels in Phase I 4–5. Painted globular jars appeared for the first time. The basic decorative pattern for Period I consisted of black geometric motifs on a red background. All pottery in Period II was made of a buff-red paste; however, handmade pottery had coarse tempering materials added.

Period III also had two variants in wheel-made pottery, undecorated and decorated. The vast majority of decorated pottery is of a single basic type with two variants. Both variants are of buff-red paste with self- or sand-tempering. Zoomorphic and anthropomorphic figurines are represented in Period III. All figurines found at Mundigak are highly stylized, in a standing position and predominantly female with prominent breasts.

Period IV had the final occurrence of figurines in any significant quantity. It is necessary to note here two points about the Period IV figurines. First, considering the horizontal area of excavation in contrast to that of previous periods, the quantity of figurines seems very small. Secondly, according to available data, these figurines are clearly absent from both ‘Palace’ and ‘Temple’ structures. Most zoomorphic figurines were highly stylized representations of humped cattle and several were found with painted decorations including a polychrome or appliqué collar. Anthropomorphic figurines were highly stylized with pinched faces, prominent breasts, appliqué eyes, winged arms, broad lips and a rather flat profile. Two very fine examples of female figurines modelled in the round in the style usually referred to as ‘Zhob’ were located in Period IV.

For the first time, metal artefacts were found in Phase I 2 and increased in frequency and variety throughout the sequence. The earliest example was a flat blade which might have had a hafting tang. The most frequent metal artefact found throughout the Mundigak sequence was a simple type of bronze point or punch with a circular cross-section. This was first identified in Phase I 4 and easily replaced the bone awl/punch in Period IV. In Period III, a tanged lozenge-shaped point and, in Period IV, a tanged oval-shaped point were introduced. Among the rare metal artefacts of Mundigak were a large lance head and knife.

The first examples of 'luxury' metal artefacts were located in Phase II 3. These included pins, one with a double-voluted end while the other had a flattened, perforated end. The greatest number and variety of 'luxury' type objects were found in Phase IV 1. These are as follows: concave discs (mirrors), double-voluted, lozenge-shaped and broad, flat-headed pins, handles for disc-mirrors and buckles. It is important to mention that in two instances smelted iron decorative buttons were found on objects of Period IV. Three important metal artefacts have been found in Phase III 6, being the only examples, two socket-hole axes and an adze; from analysis of some of these metal artefacts it is clear that the metal of the early Mundigak period was a very low-tin bronze. Tin accounted for only about 1 per cent, iron 0.15 per cent, the remaining material being copper. The artefacts had a tin content of almost 5 per cent, the highest recorded at Mundigak.

Sheep, goat, cattle, ass, horse and dog are among the domesticated animals, and ibex, gazelle and lynx were the wild animals identified initially in Period I. The remains of domesticated and wild animals, with the addition of wild birds of prey, were found in Period II. The first cereal remains identified at Mundigak come from the same period with the addition of domesticated wheat.

The second Bronze Age site, Said Qala, is located approximately 96 km south-east of Mundigak near Kandahar city, very close to Deh Morasi Ghundai. The site was first tested by Fairservis; however, the major excavations were conducted by J. G. Shaffer some twenty years later. Four prehistoric occupations were identified at Said Qala, all being contemporary with Mundigak III 5 to IV 1. The initial occupation at the site, Period I, is known only from the lowest 3 m of the deposit. Small rectangular mud-brick house structures, similar to those at Mundigak, were found throughout the first three occupations. Three C14 dates for Said Qala are basically contemporary with the end of the third millennium B.C., and all recovered cultural materials indicate that all occupations at Said Qala are essentially equivalent to those of Mundigak Phases III 5–6 to IV 1.

The ceramics of Said Qala recorded by Casal are equivalent to Phase III 5 to IV 1 of Mundigak except for a complete absence of zoomorphic motifs. Two varieties of hand-made pottery can be distinguished on the basis of their surfaces, though both have chaff tempering and the same vessel forms as those described for Mundigak hand-made pottery. From the site of Said Qala only rarely were a few sherds of Quetta ware found. A few sherds of a black-on-red slipped pottery of Kili Gul Muhammad and Faiz Muhammad grey ware were also found from the same area. A small percentage of hand-made pottery with chaff or crushed rock temper was found in all occupations, and it occasionally occurred with basket impressions. In Period II there was little change in the wheel-made pottery, and such changes as occur parallel those of Mundigak III 5 to IV 1. Bowls change

from angular-wall to an S-shaped wall form. Floral motifs are found on Said Qala pottery, but zoomorphic motifs as mentioned above completely absent. Cattle figurines are found throughout Periods I–IV. These figurines are similar to the types occurring at Mundigak. A single example of a possible bird figurine was also found.

Bronze artefacts are confined to the end of Periods II–IV. Among the functional artefacts sickles, blades, lozenge-tanged points and punches were identified. Luxury items in the form of pins were found in Periods II–IV. A single example of a bronze handle was also located. In general the artefacts are very similar to those found at Mundigak. The samples of fauna and flora have not been analysed so far, but there is no doubt that Said Qala exploited domesticated sheep, goat and cattle as well as wheat and barley.

The third Bronze Age site is Deh Morasi Ghundai, situated 16 km to the south-west of Said Qala, and about half its size. Deh Morasi is later than Said Qala and represents a Mundigak IV type occupation.

The major occupation at Deh Morasi occurred in Period II which is divided into three phases. The only significant architectural feature found in Period II was a small (45 × 28 cm) mud-brick structure, trapezoidal in shape, directly associated with a terracotta female figurine, a copper tube and seal, goat bones and horn, a utilized magnetite nodule and pottery. The entire feature was surrounded by prepared clay floor. L. Dupree interpreted this structure as a ‘household shrine’.

Prehistoric pottery has been located in all subsequent occupations at the site, all of which are comparable to that identified in Mundigak IV 1. But Period I contained only crude hand-made chaff-tempered pottery, samples of which were found at both Mundigak and Said Qala throughout most occupations. With the exception of crude hand-made pottery, all are wheel-made in a buff-red paste with sand or self temper. Decorated motifs are almost entirely confined to geometries which are very similar in their overall style to those of Mundigak III 5–6 to IV 1. Bowls and beakers are predominant vessel forms. From the point of view of form, they are confined primarily to vessels with S-shaped walls, and some beakers have pedestal bases. Special-function or intrusive-type pottery was located at Deh Morasi Ghundai. The zoomorphic motif of Deh Morasi IIb is the same as in the Quetta ware. Zoomorphic figurines were confined to leg fragments in Period IIb. The female figurine found in association with the ‘shrine complex’ of Period II is a classic example of the ‘Zhob’-style figurine found in a Period IV context at Mundigak.

Deh Morasi metal artefacts were limited to copper (Periods IIa–IV). In Period II two hollow tube and handle fragments associated with the ‘shrine complex’ were found. Several fragments of simple pins were located in IIb–c and one fragment of a copper seal with a geometric motif was found in Period IV.

As indicated above, an establishment of proto-urban and early-urban culture occurred in southern Afghanistan and in neighbouring Iran in the third millennium B.C. In all probability, the largest settlement, Mundigak, served the function of a regional capital. A monumental building with a façade consisting of a sequence of semi-circular pilasters is tentatively regarded as the residence of a local ruler. There exist clear indications of cultural links with areas of early agricultural tribes in the south of Soviet Central Asia and, particularly, with the neighbouring communities in northern Baluchistan and the Indus valley where the formative process of the Harappan civilization was actively under way. There are reasons to suggest that the large centres in the Indus valley imported copper ore and lapis lazuli from Afghanistan; the semi-precious stone was cherished throughout the Ancient East for the magic properties ascribed to it. Lapis lazuli was imported into Mesopotamia and Egypt from the beginning of the second half of the fourth millennium B.C., reaching Troy in Asia Minor. Lapis lazuli from Afghanistan reached areas far to the west through multiple exchanges; whereas direct cultural and economic links existed with neighbouring communities in eastern Iran, Soviet Central Asia and Baluchistan. This is probably related to the emergence of the settlement of Shortugai on the southern bank of the Amu Darya (Oxus) river.

The site contains typical elements of the Harappan Civilization ranging from pottery to seals. In all probability, this was a trading factory situated along the meridional trade route, which held its importance down to the Middle Ages. The concentration of population, specialization of production, regular trade and exchange greatly facilitated the development of urban tendencies. In the course of the third millennium B.C. Mundigak, the largest centre in southern Afghanistan, turned into an urban-type settlement.

Important changes occurred in this area during the second millennium B.C. At that time, as in other centres of Central Asia, there was a general decline of the proto-urban culture. By contrast, a highly developed culture appeared at the same time in the north; it was studied in detail by the Soviet-Afghan expedition in the 1970s. Dozens of sites belonging to settled agriculturalists and stock-breeders clustering in five or six oases were discovered in a limited space between Daulatabad and Mazar-i Sharif. The sites were situated along the beds of small rivers. They clustered inside the deltaic plains in the areas flanking the desert where the flood-water could be easily used for irrigation. One may suggest that small canals were used for the same purpose. Tilling was carried out by wooden ploughs; a picture of a bull drawing a carriage was engraved on the surface of a silver vessel. Each oasis possessed a centre distinguished from common villages by the presence of a rectangular or square fortress up to 1 ha in size. The fortress was surrounded by mud-brick walls with towers, circular at the corner, and semicircular along the perimeter (Dashly I, Gardai I).

High standards both in culture and technology were typical of these Bronze Age examples. Pottery of uniform shapes was made on the wheel and fired in vertical kilns situated near the settlements. The prehistoric potters produced vessels of austere shapes with no ornamental patterns. As in other regions, the painted pottery disappeared with the advent of the period of craft specialization and with a decline in the early agricultural tradition of applied art. There are indications of various activities performed by metallurgists, smiths and jewellers. We may distinguish various axes, sickles, mirrors and pins, with heads depicting various animals. The considerable number of arms is noteworthy; there are swords, spears and battle-axes. The occurrence of fortresses and arms indicates an uneasy epoch of hostilities and conflicts. This was a factor that accelerated an institutionalization of power and a crystallization of a military élite.

Probably, production of bronze filigree seals, often anthropomorphic or therimorphic, became an independent branch of industry. There exist also stone seals with various figures, some with wings, a theme obviously of Mesopotamian origin. Seated female figurines, with bodies carved in a dark serpentine and heads in a light-coloured marble, are seen as masterpieces of prehistoric art. These figurines bear an unmistakable reflection of artistic standards which originated in distant Mesopotamia (Fig. 6).

This culture from the north of Afghanistan spread equally to south Uzbekistan and to south-west Tajikistan, where its local variant (Sapalli-type complexes) was represented. Its numerous features go back to the Altyn-depe civilization in south Turkmenistan, whence communities belonging to a highly developed urban-style civilization were spreading to the east in the course of the second millennium B.C. At the same time, this culture reveals unmistakable Mesopotamian and Elamite elements. Grey ware pottery, not typical of Altyn-depe indicates connections with the Iranian Hissar culture. Glyptics seem to denote links with both western Asia and Harappan traditions. The time-span in question featured an amplification of cultural contacts and of intraregional links.

Up to now no large sites that could be interpreted as remains of urban settlements have been found in northern Afghanistan. The prevailing settlement pattern indicates small communities, each one representing an independent social unit, situated at short distances from one another. At the same time, we should note the occurrence of isolated large monumental structures which, beyond any doubt, performed specific functions common to a cluster of sites or even for northern Afghanistan as a whole. Two such structures were excavated at Dashly 3. A circular fortress was situated in the centre of a square structure, each side of which was 130–150 m long. The occurrence of a shrine inside the fortress with an altar against the wall, validates a suggestion that this was a ceremonial centre, probably a temple with numerous services, repositories, granaries, dwelling-houses for priests and auxiliary

FIG. 6. Female figurine in stone. (Courtesy of P. Amiet.)

personnel. The second rectangular structure, 84 × 88 m, features a central courtyard, which contained various repositories and a small house with altar niches. Numerous pilasters decorated the outer walls. It was suggested that this was of a ceremonial temple character but, judging by its planning the residential portion of the hypothetical temple was not present. Probably, it was a temple devoted to a different divinity, as in Mesopotamia, where

temples devoted to a supreme god and to his divine spouse were often situated side by side. At any rate, there is no doubt that we are dealing with a clearly indicated ceremonial and administrative centre of the Bronze Age. We may suggest that the supreme power was of a theocratic nature as was often the case in the formative stage of emerging civilizations, where the supreme military chief also performed priestly functions.

The possibility cannot be ruled out that among prehistoric burials excavated, not by professional archaeologists but by amateurs, there were tombs that belong either to the priesthood or to a civic élite. It was not by chance that numerous artistic items, among them objects in bronze, silver and gold, originated from these tombs. The Fullol hoard, which contained a variety of gold and silver vessels with highly artistic decoration, is representative in this respect. Hence, one may conclude that the development of a civilization of an ancient oriental type was actively under way in northern Afghanistan in the course of the second millennium B.C. None the less, the natural and cultural environment here was different from that in the south of the country in the third millennium B.C. This cultural stratum was of principal importance for the ultimate development of the areas referred to in written sources as Bactria.

CONCLUSION

The Bronze Age was an important stage in the history of Iran and Afghanistan. In the aftermath of a decisive leap forward in food-production which took place in the Neolithic, there occurred an active accumulation of economic, cultural and intellectual potentialities. Several centres of early agricultural cultures arose, inside which there occurred an intensive development of exquisite painted pottery, samples of which may be seen as first-class masterpieces of prehistoric applied art. The stable surplus product obtained by irrigated culture, and the technical progress primarily due to the development of metallurgy, metal-processing and thermotechnics, led to a concentration of population and the emergence of large proto-urban and early-urban type settlements. As a result, a proto-urban civilization emerged in Iran and Afghanistan in the course of the Bronze Age. Among its regional centres, the best-explored are Hissar in north-western Iran, Mundigak in southern Afghanistan and Shahr-i Sokhta in Sistan (which is sometimes labelled by its explorers as the Helmand civilization). The discovery of highly developed centres of Bronze Age proto-urban civilization in Iran, Afghanistan and southern Soviet Central Asia was an outstanding achievement of archaeology from the 1950s to the 1970s. As a result, it has been proved that great urban civilizations of Mesopotamia and the Indus valley were separated not by backward tribes, but by local proto-urban and early-urban civilizations, which contributed in their

own way to the development of world culture. This was an important achievement of the peoples of the pre-Achaemenid Age, and it was archaeology that brought to light these brilliant cultures.

At the same time, the Bronze Age illustrates an active development and strengthening of cultural ties, which was one of the prerequisites of its outstanding accomplishments. Intraregional interactions amplified. Results of these interactions are clearly indicated in the spheres of production, material culture and the arts of all important centres: in Shahdad, Hissar and Shahr-i Sokhta (Iran), in Mundigak (southern Afghanistan), and in Altyndepe (southern Soviet Central Asia). Traditions common to the whole subregion came into being. This took shape in the production of elegant and varied vessels carved in marble and chlorite, as well as of flat metal button seals with an eye on the back. An independent origin of several traditions proper to this subregion, and to Bactria in particular, became obvious only recently; earlier they were erroneously regarded as imported from Elam or Mesopotamia. At the same time, there are irrefutable proofs of links with these ancient civilizations of western Asia, as well as of a creative use thereof, often on a selective base, by means of adoption of cultural models and standards. Propagation of these items was much facilitated by the spread in Iran of proto-Elamite communities featured by a specific cultural assemblage which included cylindrical seals and clay tablets with pictographic inscriptions. None the less, we should clearly stress that these links, which enriched the local traditions, were not the determinants of the development of local Bronze Age civilizations of early urban type.