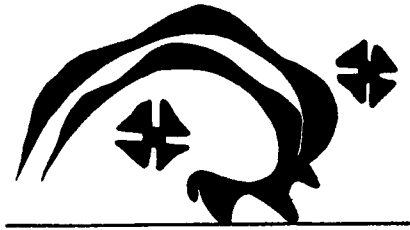


THE ORIENTAL INSTITUTE OF THE UNIVERSITY OF CHICAGO
STUDIES IN ANCIENT ORIENTAL CIVILIZATION

THE
COMPARATIVE STRATIGRAPHY
OF EARLY IRAN

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THE
COMPARATIVE
STRATIGRAPHY OF
EARLY IRAN



BY DONALD E. McCOWN

THE ORIENTAL INSTITUTE OF THE UNIVERSITY OF CHICAGO

STUDIES IN ANCIENT ORIENTAL CIVILIZATION · NO. 23

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PREFACE

This study formed the basis for a doctoral dissertation prepared under the aegis of Professor A. T. Olmstead, whose helpful interest proved ever stimulating. The writer was fortunate to be able to present this material to Professor Henri Frankfort's seminar in comparative stratigraphy and to profit in the discussion from many valuable suggestions made by Professor Frankfort and the members of the seminar. He also wishes to thank Professor J. A. Wilson and Dr. T. G. Allen for accepting this work for publication. Mrs. Albert R. Hauser has contributed greatly to the clarity and usefulness of this study in the process of editing. To be gratefully acknowledged is the help of Mr. Carl Dinella, an artist of Work Projects Administration Official Project No. 665-54-3-257, in preparing part of the drawings for the text figures. Mr. Walter Romig also assisted in preparing the illustrations.

DONALD E. McCOWN

ORIENTAL INSTITUTE
June 1941

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SUGGESTIONS TO THE READER

As the title indicates, this is not a primer of Iranian archeology but a study of the divisions of the excavated sites into phases and periods and of the temporal relationship of these phases and periods in Iran to one another and to the established Mesopotamian sequence.

The following remarks may aid the reader in the use of the text figures. These are composed of paired rows of compared objects or designs, each row headed by the name and often the level of the site or of the area from which the examples come. Provenances and published sources are given immediately contiguous to each figure. When an object from one site is compared with two or more objects from elsewhere, it is centered above or below those to which it relates. The superimposed objects or designs are considered to have traits in common. In the case of designs occasionally this may not appear obvious, for not only design elements but also compositions are compared when it seems pertinent to do so. In a few comparisons the similarity may not be apparent because the similar elements are hidden in very different compositions. It must be remembered that sometimes the validity of the comparisons cannot be judged adequately by the illustrations here presented. Each trait compared had generally to be represented by one illustration, though usually each illustration stands for a whole class, all the individual examples of which vary at least slightly. In other words, if a comparison does not seem valid the reader should study the whole range of the trait concerned in the original publications before he forms a final judgment.

The objects and designs used as illustrations do not, of course, represent all the traits of the sites considered. Nor are all the traits which might be compared between two sites illustrated, but only those which are most significant for cross-dating or for revealing cultural relationships.

The notes on the text figures may be omitted by the reader whose interest is general, though they do explain the figures and include observations on some traits not represented in the figures. The notes have freed the text of much specialized discussion, for they are of a technical nature, providing the detailed proof of the equations made—the range and frequency of the traits considered. They have been made as concise as possible without, I trust, loss of clarity. Occasionally discussion of compared elements has been omitted when their equation seems obvious and their range is limited to the periods covered by the respective text figure; when they are unique at the two sites compared and thus their range and frequency are completely uncertain; or when the significance of the comparison seems uncertain.

THE COMPARATIVE STRATIGRAPHY OF EARLY IRAN

Recent excavations in Iran have made available a greatly increased volume of material which has significantly augmented the knowledge of the early periods of that land. One of the most important of these is the excavation at Tepe Siyalk, close to modern Kashan (see map). Exemplary work has revealed here the most complete series of strata for earliest Iran. The sequence of remains in Fars also is beginning to unfold. With this new information a detailed study of the comparative stratigraphy of the various excavated sites is at last possible. Table II shows the correlations which have resulted from this study. The following pages will soon reveal, however, the necessity of much further work in this field before certainty as to many points is obtainable. The few excavated sites in Iran are far apart. Secondly, the considerable difference between the cultures of the northeast with red pottery and that of the west and southwest with buff wares does not facilitate comparisons.

THE EARLIEST CULTURES OF NORTHEASTERN IRAN

The fine sequence at Siyalk deserves primary consideration. Here, two mounds, the northern with the oldest two strata, the southern with the latest two strata, are located close to the eastern base of the mountain chain bordering the western side of the central desert of Iran.

SIYALK I

The excavation of but a limited area (apparently not over 10×15 m.) of Siyalk I, the earliest level, precludes much generalization as to the character of this period. In the 12 meters of deposit, divided into five phases according to the architecture and burials, a minimum of twenty-five occupational levels may be counted (Ghirshman, '38, Pl. XXXVI). At the one other site, Chashmah Ali (at Rayy) near Tehran, where similar and perhaps earlier remains have been excavated, in the lower part of level I A a much thinner deposit indicates only occasional habitation at this time in the portion of the site investigated.¹

A complex prior history is indicated for the earliest pottery at Siyalk. Found used together are a slipped light-toned coarse ware, which is sometimes polished, a fine slipped or coarse red ware, and probably a black ware (*ibid.* pp. 11 f., 14, 16).² Although the relation of these wares to one another and to later pottery from other sites cannot be settled certainly until more material from the culture represented by Siyalk I is available, it is of interest to examine specific problems in this connection. To do so the development of the ceramic industry in this level must be briefly viewed.

In the lowest third of the deposit of Siyalk I the light ware occurs painted with simple patterns inside the rims, but the red ware is at first unpainted and is finer than the light ware (*ibid.* pp. 14 f.). Despite some improvement in the firing of the red ware by the time of I 3 (3d phase of Siyalk I), the ware itself is apparently coarser and is sometimes polished like the light ware. Beginning in I 2 the red ware is painted with designs characteristic of the light ware. Not until I 4 do designs distinctive of the red ware appear, with a preference shown for

¹ I wish to thank Dr. Erich Schmidt for generously permitting me to look over the records and some of the material from this site, as well as for verbal information.

² The light ware is commoner than the red, if we may judge from the published material.

hatching rather than crosshatching.³ In Siyalk II a ceramic specialization results in the production of a usually finer red ware only which is a more developed form of that of Siyalk I.

These facts suggest that in Siyalk I we have two originally distinct ceramic industries, with the light-toned pottery coming under the gradually increasing influence of the red ware. A greater significance is given the distinctness of these two wares by the new features of Siyalk II, when red ware exclusively is used after a transitional phase (see below). It seems likely, therefore, that the two wares of Siyalk I typify two different cultures. Thus in Siyalk I we recognize a mixture of a plain red ware with a painted light ware; during phases 1-4 design typical of the red ware perhaps was formulated in some neighboring area by bearers of a red-ware culture under the influence of light-ware design; about the time of Siyalk I 4 the red-ware culture began to influence the light-ware culture of Siyalk I ceramically and perhaps non-ceramically (appearance of stone beads and bracelets and possibly copper pins; *ibid.* pp. 20, 16); by the time of Siyalk II the red-ware culture was predominant and had eliminated the use of light ware. This picture of development, whose tentative character is due mainly to its deduction from only one site, cannot be accepted as proved until confirmed by evidence from other excavated sites.

The relation of the light ware and design of Siyalk I to the buff wares of the west and southwest is much more uncertain. With the exception of material from the lowest level of Tepe Giyan (see p. 13) the existence of any buff ware with straw temper is uncertain, elsewhere the earliest buff pottery being a fine ware, which is absent in Siyalk I. The forms too show no associations. There is some similarity in design, most significant being the use of zigzags, dovetailed triangles (Fig. 12:79 and *ibid.* Pl. XLI A 11), and a herringbone pattern with barred lines (Fig. 12:100), but the evidence is too scanty and the dissimilarities are too great to permit any conclusion.⁴ The flourishing bone industry of Bakun B I (see p. 23) suggests a stage of development similar to that of Siyalk I (*ibid.* p. 20), but the pottery of the southern site is too coarse (Schmidt, '39, p. 124) to be comparable with that of Siyalk.

SIYALK II

Above Siyalk I lies the second stratum, which is approximately 7 meters thick. It is divided into three substrata by architecture and burials, but the three building levels are in the main well separated by debris (Ghirshman, '38, Pl. XXXVII). Starting with Siyalk I 4 and ending with II 1 a gradual transition occurs between periods I and II. Then II 2 and 3 show little development. Many of the features of Siyalk I continue, but superimposed on this tradition suddenly appear new traits: handmade bricks, concave-based whorls, and a new repertoire of pottery designs. Contact with other parts of the Iranian Plateau is attested for the first time, by the use of turquoise and Persian Gulf shells in necklaces.

³ Fig. 13:84 and Ghirshman, '38, Pls. XLIII B 9, 14, XLIV A 15. Only three examples of hatching on light ware are shown (*ibid.* Pls. XLIII A 2 from level I 3, XLIV A 13 from I 4, XLIV D 1 from I 5). The last is more typically a red-ware design used in Siyalk II (Fig. 1:16). The designs of Fig. 13:84 and *ibid.* Pls. XLIII B 14, XLIV A 15 are equally typical in Siyalk II (Fig. 6:11[?], 18, and *ibid.* Pls. XLVII A 10, XLIX B 12).

⁴ The uncertainty of relationship between the light ware of Siyalk I and the buff wares of the west and southwest is increased by a possible relationship of certain buff-ware designs to red-ware designs from Siyalk II. This may be the result of contact with buff-ware variants already in Iran, or due to a carry-over from Siyalk I. In connection with the latter possibility we must re-emphasize the fact that the only published material for the culture of Siyalk I is from this one site. It is to be expected, on the analogy of later Iranian painted-pottery cultures and despite the antiquity of this period, that other sites with a Siyalk I type of civilization will show dissimilarities due to divergence alongside basic associations. The ceramics from Siyalk I are probably some distance from representing first attempts at pot-making.

THE EARLIEST CULTURES OF NORTHEASTERN IRAN

3

The pottery is a more developed form of the red ware of Siyalk I. The shapes of the high cups (*ibid.* Pl. XLV S.1552) and open bowls (*ibid.* Pl. XLVI S.1747) are foreshadowed in the red ware of Siyalk I (*ibid.* Pl. XXXIX S.1647), but new are bowls with inverted rims (seen only in fragments; *ibid.* Pls. XLVII A 14, XLIX B 17, C 1) and thickened and modeled rim profiles (*ibid.* Pl. XLIX A 2, C 2, and numerous examples from the surface and possibly later than II 3). The deeper bowls of Siyalk II (Fig. 5:9) possibly derive from the light-ware type of Siyalk I (*ibid.* Pl. XXXVIII S.1513).

The design of Siyalk II 1 is definitely transitional, but by the time of II 2 the repertoire permits little comparison with that of the light ware of Siyalk I.⁵ Animal patterns of both crude and highly decorative forms suddenly appear.⁶

The appearance of the new features enumerated makes it certain that in Siyalk II new cultural elements had been implanted on a tradition from Siyalk I. Fortunately the certainty of a gradual change from Siyalk I to II assures that there is no stratigraphic gap and therefore that what is new in Siyalk II did not develop from the basis of Siyalk I.⁷

CHASHMAH ALI I A AND SAVAH

In the upper part of Chashmah Ali I A the Siyalk II type of culture is found showing considerably more variety and vigor in pottery design. Perhaps this indicates that Chashmah Ali lay closer to the center of this civilization. Our picture of it will be much broadened with the publication of the material from this site. Remains of the same culture have been found near Savah (Przeworski, '36, Fig. 28).

EARLY ANAU I

On the border of the plateau lies another site, Anau, which must be considered now. At this point the stratification of the first period at Anau need not be discussed in detail (see p. 12), for information concerning the lower 38 feet of the 50-foot deposit is extremely limited (Pumpelly, '08, pp. 101 f. and Pl. 7). In Anau I A (i.e., the lower strata, located below datum) occur fine light brown or rarely reddish cups, handmade and well fired, with thin mat black or brown paint on thin unburnished light brown or light red slips.⁸ Also in I A (*ibid.* p. 129)

⁵ New geometric designs include unjoined elements (Chirshman, '38, Pl. XLIX C 16-17), joined ovoids or circles (*ibid.* Pl. XLVI S.1747), joined diamonds in multiple zones with minor zones (Fig. 1:5 and *ibid.* Pl. XLVIII C 5), joined(?) band-diamonds (*ibid.* Pls. XLVIII C 9, LI B 9-10), reversing triangles (Fig. 6:17), spirals (*ibid.* Pls. XLVII D 9, XLVIII C 6), known in true running form in Chashmah Ali I A, a comb pattern (Fig. 11:81), oblique bands (Fig. 1:14) or rows of triangles (Fig. 1:16), panels such as Fig. 6:18, vertical zones of elements (Fig. 6:19 and *ibid.* Pl. LI B 2), a radial interior pattern (*ibid.* Pl. XLVI S.1737), and oblique (*ibid.* Pl. XLVIII B 3) or filled (Fig. 5:11) checkers.

⁶ The hatching of the bodies of the crude, geometric type (*ibid.* Pls. XLIX D 3, L A 2, 6) may indicate that they are an invention of the makers of the red pottery, whose delight in hatching has already been noted (pp. 1 f.). The more decorative, linear type (*ibid.* Pls. XLVII B 11, XLIX D 5), which is best known from Chashmah Ali, may well be, however, the result of external influence (cf. p. 5). If the latter style came from other parts of Iran, it must have been derived from the buff-ware culture; but this is uncertain because of the absence of animal design in the lowest third of Giyan V and the rarity of such design in the Bakun B II stage. Some support, however, is found for this possibility in the linear character of the Samarra animal design. We shall see that the close relationship of the Samarra culture to that of Bakun B II leads us to expect that a civilization with basic relationships to that of Samarra arrived in Fars at about the same time that the Samarra culture appeared in northern Mesopotamia (pp. 35 f.). How much the different aspects of the buff-ware culture and those of Siyalk II influenced one another is uncertain at present. It is likely that publication of the Chashmah Ali material will help solve this problem.

⁷ The possibility of the discovery of a red-ware culture contemporaneous with but not subordinate, as at Siyalk, to the Siyalk I type of culture is to be watched for in future work in Iran.

⁸ Pumpelly, '08, pp. 101 and 130-32. I was privileged to examine in the Peabody Museum some of this pottery, the ware of which ranges from light brown to light red.

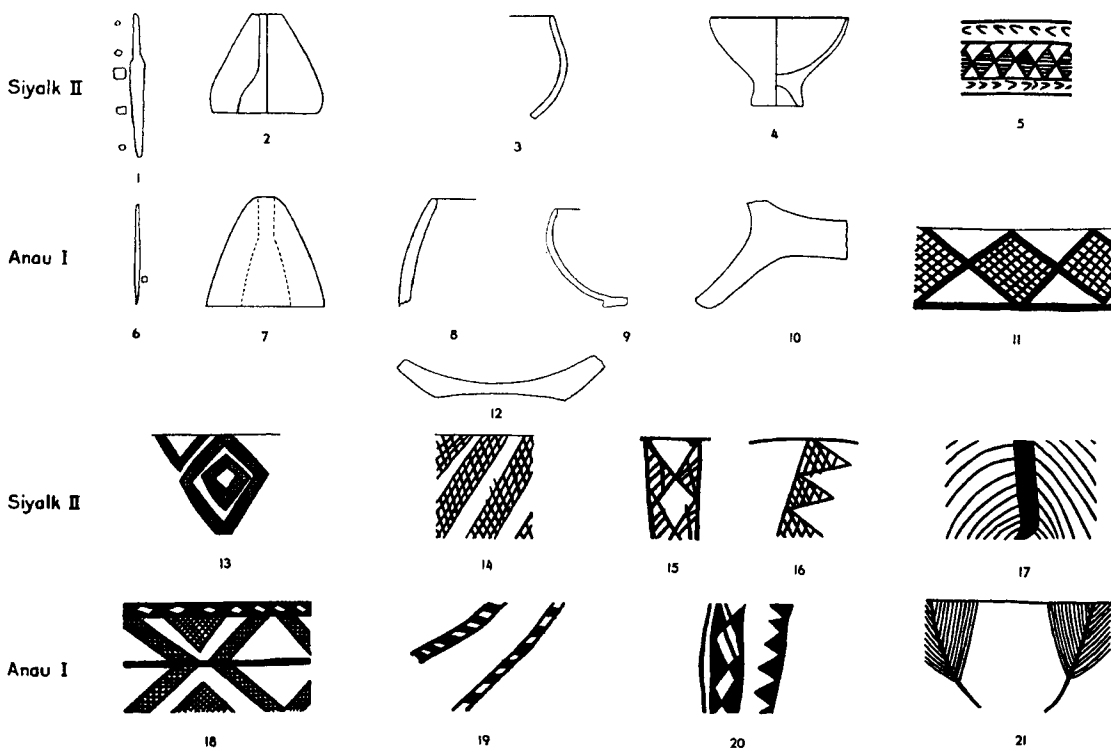


FIG. 1.—Siyalk II and Anau I

1. Ghirshman, '38, Pl. LII 46, Siyalk II 3
2. *Ibid.* Pl. LII 1, Siyalk II 1
3. *Ibid.* Pl. XLVII C 13, Siyalk II 1
4. *Ibid.* Pl. XLVI S.1737, Siyalk II 2
5. *Ibid.* Pl. L A 12, Siyalk II surf.
6. Pumpelly, '08, Fig. 241, +18-20'
7. *Ibid.* Fig. 341, Anau I A or B
8. *Ibid.* Fig. 104, Anau I A
9. *Ibid.* Fig. 55, Anau I B
10. *Ibid.* Fig. 65, +8-18'
11. *Ibid.* Fig. 83, Anau I B
12. *Ibid.* Fig. 105, Anau I A
13. Ghirshman, '38, Pl. XLVIII C 9, Siyalk II 2
14. *Ibid.* Pl. XLVIII B 8, Siyalk II 2
15. *Ibid.* Pl. XLVII B 4, Siyalk II 1
16. *Ibid.* Pl. XLIX A 20, Siyalk II 2
17. *Ibid.* Pl. L C 2, Siyalk II surf.
18. Pumpelly, '08, Fig. 106, Anau I A
19. *Ibid.* Fig. 89, Anau I B
20. *Ibid.* Fig. 94, Anau I B
21. *Ibid.* Fig. 85, Anau I B

NOTES ON FIGURE 1

An awl with square cross section is known from Anau I (No. 6). Awls of Siyalk I are round in section (Ghirshman, '38, p. 16), but in II the sections are usually in part rectangular (No. 1).

Concave-based whorls are typical of Anau I-III (Pumpelly, '08, pp. 163, 166). They are found in Siyalk II (No. 2), in Bakun B II, and at Hissar at the end of I and the beginning of II (Schmidt, '37, pp. 53, 117).

Of the pottery only Nos. 8, 12, and 18 are from Anau I A; the other comparisons must be made with material from Anau I B, which, except for absence of the fine cups, is not supposed to differ from that of I A. This needs confirmation, however, for in the considerable length of time which the accumulation of 50 feet of deposit should represent some development and change in style should be represented.

The stage of the technique of pottery-firing in Anau I A, which approaches regular control, seems the same as that in Siyalk II and more advanced than that in Siyalk I.

Bowls with inverted rims (No. 3) are not known at Siyalk before II. A bowl closely comparable to one from Anau I (Pumpelly, '08, Pl. 20:1) was found in the upper part of Chashmah Ali I A. Ring bases are unusual at Anau and were found in coarse ware only (No. 10 and *ibid.* p. 126).

Minor design zones are not used in Siyalk I, being a new feature of Siyalk II (No. 5 and Ghirshman, '38, Pl. XLVIII A 7), as is the design of No. 13, which is known in Chashmah Ali I A and at Shir-i-Shiyan also (Schmidt, '37, Pl. II BT3). At Anau joined diamonds (No. 11) occur only on fine ware with carmine-red to violet slip (Pumpelly, '08, p. 128). At Siyalk a bordered zone of diamonds first appears in II (Ghirshman, '38, Pl. XLVIII A 7). Vertical zones of elements are not typical at Siyalk before II (No. 15).

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but more specifically in I B (i.e., the middle strata, situated from datum to +25 ft.) occur another fine light or reddish brown painted ware, differing from that of the fine cups in having at least two usually burnished slips colored brown to red and whitish to yellowish green, a coarse straw-tempered ware of buff or reddish tones with similarly colored slips, and a coarse red-slipped variant of the fine ware (*ibid.* pp. 124–26). These wares are reminiscent of those of Siyalk I and II and indeed are related to them, although the fine brown or reddish wares have not been contaminated by the straw-temper technique.

The pottery of Anau I A is at the stage of that of Siyalk II while showing a tradition of the Siyalk I type of culture, although here light-surfaced ware was not eliminated as it was in Siyalk II. The pottery forms of Anau I, with the possible exception of a deep bowl (*ibid.* Pl. 20:1) which may have evolved from a Siyalk I type of culture, are different from those of Siyalk I. Perhaps at Anau the forms of the light ware were modified in the direction of those of the red wares, or the light-ware culture which influenced Anau I A was sufficiently divergent from that of Siyalk I so that most of the forms are dissimilar.

In Anau I there are various elements not found at Siyalk before the second period (Fig. 1:6–9, 11, 18–21). Anau I A is cross-dated with Siyalk II by the shape of the fine cups (Fig. 1:8, 12), the design on one (Fig. 1:18), and the presence of concave-based whorls (Fig. 1:7). The culture of Anau I A certainly seems peripheral to that of Siyalk II. The absence of animal design at Anau is additional evidence that this element in the culture of Siyalk II is due to external influence from a style of painting different from that of Siyalk I (see n. 6).

SIYALK III

Returning to Siyalk to follow the line of development, we discover that due to the shift of the settlement from the north to the south mound, which Ghirshman ('38, pp. 79 f.) attributes to some sort of calamity, only part of the transition between the second and third periods may be followed. At this time a village near Qumm seems to have been deserted.⁹

The depth of deposit of Siyalk III is approximately 8 meters. Of eight sublevels, all except the top and bottom are distinguished by architecture and burials. These sublevels are considerably thinner than those of the previous two periods. Only III 6 and 7 show sure architectural continuity, with the walls of 6 reused in part in 7. Siyalk III 5 shows traces of destruction (*ibid.* p. 42), and the space between the walls of 5 and 6 suggests some discontinuity in at least this portion of the site (*ibid.* Pl. LIX). Ghirshman (*ibid.* p. 58) considers that the settlement of 7b fell before an attack and was burned.

The first three substrata of Siyalk III show certain connections with Siyalk II. Skeletons still show traces of red stain, which, however, colors the head only rather than all the bones as in I and II (*ibid.* p. 43). Tanged (*ibid.* Pl. LXXXIV S.240) and thin (Fig. 9:34) awl types could well have developed from a Siyalk II implement (*ibid.* Pl. LII 48). Crystal drills are still used (*ibid.* Pl. XCVI 59). The pottery is still handmade and apparently predominantly a red ware with red slip. Deep bowls (*ibid.* Pl. LXII S.415), shallow footed bowls (Fig. 2:11), and bowls with inverted rims (*ibid.* Pl. LXII S.394), the last disappearing after III 1, are found in similar forms in Siyalk II. Most of the designs are less certainly derivative from those of Siyalk II, although vertical lines on ring feet certainly stem from the same type of decoration on the lower parts of vessels in Siyalk II.

⁹ Ghirshman, '38, pp. 91 f. I have, however, seen a sherd from this site which almost certainly bears one of the voluted plants typical of Siyalk III (see Fig. 2:11).

At the same time new features appear in Siyalk III 1-3. Molded bricks may have developed from the handmade type of Siyalk II. Development seems much less likely with knob-ended pins (*ibid.* Pl. LXXXIV S.402), flat-headed needles (*ibid.* Pl. LXXXIV S.1801), and seals (Fig. 2:7). New are chamois-colored slips (*ibid.* p. 45), a cup form (*ibid.* Pl. LXII S.395) which disappears after III 3, a jar type (*ibid.* Pl. LXII S.1693), and high-footed pots (Fig. 2:9 and *ibid.* Pl. LXIII S.1817).¹⁰ The design differs considerably from that of Siyalk II. However, a striking new design (*ibid.* Pl. LXXXVI C) composed of vertical elements—usually scroll plants, snakes, or joined diamonds with “horned” apexes—separating horizontal rows of headed chevrons is paralleled in composition in the upper part of Chashmah Ali I A. There the same loose arrangement of vertical motives and horizontal rows of elements is known. The plant form (*ibid.* Pl. LXII S.654) could have developed from the various spirals known in Chashmah Ali I A and Siyalk II. This design, then, possibly developed from the Siyalk II type of culture during the transitional stage between II and III which is unrepresented at Siyalk. To be recognized, then, is the continuation of a part of the cultural tradition of Siyalk II with which new traits were fused.

With the appearance of cast tools and ornaments of new and distinctive forms in Siyalk III 4 and 5 the real Copper Age is reached. At the same time the potter's wheel appears along with increasing use of stamp seals and replacement of red by buff slips on the pottery.¹¹ Two new pottery forms also appear: a cylindrical beaker (Fig. 10:102) and a cauldron (*ibid.* Pl. XIV 1, 3). Animal design is commoner in III 4, if we may judge from the published sherds, and even more so in III 5. New designs include rows of unjoined circles which may have fringed edges (Fig. 10:101) and intersecting zigzags with dotted apexes (Fig. 8:10).

In Siyalk III 6 the ware is usually grayish in color, and the surface is usually no longer slipped (*ibid.* p. 45). A new deep and narrow bowl with ring base (Fig. 10:112) appears. Many of the earlier designs continue, but patterns first seen in III 5 seem to be favored.¹² A large number of new designs which are perhaps more typical of III 7 appear in III 6.¹³ In general the designs of III 6 show less contrast with those of III 5 than do those of III 7, for in III 7 the new designs of III 5 and particularly 6 are predominant. A comparison of the vessel forms of III 5 and 7 produces the same impression. Three main divisions are suggested for Siyalk III by this evidence: 1-3, when connections with Siyalk II were disappearing, 4-5, and 6-7b. In most features there is a considerable difference between III 1 and III 7. Siyalk III certainly represents a period of great change.

¹⁰ Ring-footed pots do occur in the upper part of Chashmah Ali I A, where an unbroken transition from the stage of Siyalk II to that of III may exist.

¹¹ Until Iran is better known archeologically, there is no means of deciding whether casting and the wheel were local inventions or came from some other region. If our cross-dating with Mesopotamia is correct, however, the culture of Siyalk III shows the earliest known use of open-mold casting and the potter's wheel. At Siyalk there is a transition from handmade to hand-turned to wheelmade pottery. The culture with buff pottery hand-turned its pottery through its latest stages. It is, then, possible that in some aspect of the culture of Siyalk III the knowledge of hand-turning, which could have derived from the buff-ware culture, inspired the invention of the potter's wheel.

¹² A design composed of three narrow zones differently filled, which was characteristic of III 4-5 (Ghirshman, '38, Pl. LXIV S.1821), appears to be less common in III 6. Two zones, the lower frequently filled with unilateral ladders separated by vertical zigzags (Fig. 4:21), seem more common. A surer banding of the lower edge of the design zone appears in III 6 but is commoner in III 7 (*ibid.* Pl. LXXI S.1759). Vertical line-groups as field dividers appear to be more usual in III 6 (Fig. 7:6) than in III 5. Diamonds assume more importance in III 6, and it is interesting to note the reappearance of hatched loop-chains (Fig. 4:25) and patterns produced by crosshatching (*ibid.* Pl. LXXXI A 2).

¹³ For the first time panels are flanked by identical vertical zones (Fig. 7:14). Other new designs are the joined triangles and the peculiar panel of Fig. 10:113, the truncated zigzag of Fig. 8:9, and checkered (Fig. 4:19) or diamond-filled (*ibid.* Pl. LXIX S.158) panels.

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CHASHMAH ALI I B

Chashmah Ali I B follows a stage corresponding to Siyalk II. Subject to the publication of material from this site, it is likely that the presence of designs such as hand-linked human figures and headed chevrons (see Mecquenem, '28, Figs. 24, 26) and the absence of leopard designs place the end of the painted pottery about contemporary with Siyalk III 5.¹⁴

HISSAR I

The close similarity of the remains of the first period of Tepe Hissar to those of Siyalk III is abundantly clear. At Hissar the presence of fewer architectural levels, however, permits less sharp subdivision than was possible in Siyalk III. Hissar I A has minimum and maximum thicknesses of 1.3 and 2.5 m. respectively (Schmidt, '37, Figs. 27, 31), and Hissar I B minimum and maximum depths of 1.3 and 2.3 m. respectively (*ibid.*). Architectural discontinuity between I B and C is evidenced for certain areas (*ibid.* p. 33). Hissar I C is apparently not over 1 meter thick, although a rebuilding of it seemed to exist (*ibid.* p. 29, sublevel 2a). The total depth of deposit of Hissar I is some 3 meters less than that of Siyalk III.¹⁵

Figures 2-4 present the evidence for the correlation of the sublevels of Hissar I and those of Siyalk III. That the ceramics of Hissar I A derive from the Siyalk II type of culture is indicated by the forms of the footed bowls and pots, the ware, and the absence of the wheel. The simple designs, however, have little in common with those of Siyalk II. In their preference for verticality they are closest to the provincial Anau I design. The most distinctive pattern of Hissar I A, the unilateral ladder (Fig. 2:3), does not appear at Siyalk before III 2 or 3, although a possibly related but simpler, more branchlike element (Fig. 10:83) is known in III 1 or 2. Vertical line-groups, however, appear on ring feet in Hissar I A (Fig. 2:4) as in Siyalk III. The presence of stamp seals (Fig. 2:2) and probably molded bricks (*ibid.* p. 36) in Hissar I A would also place it not earlier than Siyalk III 1 or 2. The absence of deep bowls in Hissar I suggests lack of the Siyalk I type of culture in the tradition from which the culture of Hissar I sprang.¹⁶

At the time of Hissar I B the culture of the two sites shows close relationship (Fig. 3). In Hissar I B graves handmade and wheelmade vessels are found together (*ibid.* p. 42), while in Siyalk III 2-3 the pottery is hand-turned and in 4 the wheel is used (see pp. 5 f.). In Hissar I B the ground color of the pottery becomes brown, light brown, or buff (*ibid.* p. 44), while in Siyalk III 4 chamois-colored slips are usual (Ghirshman, '38, p. 45). A Hissar I B cup form and design (Fig. 3:2) are found at Siyalk also (Fig. 3:6), though not after III 3 (*ibid.* pp. 45 f.). The peripheral character of the Hissar I culture is demonstrated by the fact that almost all the designs of Hissar I B are paralleled at Siyalk but the reverse is not true. Hissar I B began as early as Siyalk III 3 and lasted contemporaneously with III 4 and perhaps overlapped III 5.

¹⁴ Leopard designs were rarely found, however, at Murtazagird near Rayy. At Siyalk hand-linked humans appear to be commonest in III 5 (*ibid.* Pls. LXXV, LXXX), while the headed-chevron design is apparently less usual after that phase. Apparently spotted-leopard designs appear at Siyalk before the end of Chashmah Ali I B and before they do at Hissar.

¹⁵ The lower two substrata of Hissar I were penetrated only between the walls of the upper two sublevels (Schmidt, '37, pp. 23, 33), but enough different areas of the mound were tested so that as much is known of its lowest substrata as of Siyalk III.

¹⁶ It has already been pointed out (pp. 3, 5) that the deep bowls of Siyalk II-III plausibly derive from those of Siyalk I. If it is true that there was no Siyalk I type of component in Hissar I, the absence of red ochre burials in even the earliest stage of Hissar may indicate that this burial practice is a trait of the light-ware element of Siyalk I which was taken over in Siyalk II.

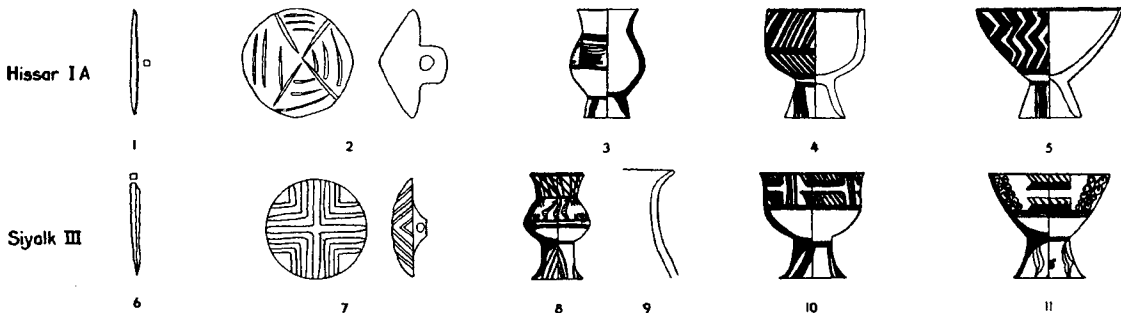


FIG. 2.—Hissar I A and Siyalk III

1. Schmidt, '37, Pl. XVI H 3743
2. *Ibid.* Pl. XV H 2051
3. *Ibid.* Pl. III H 1522
4. *Ibid.* Pl. III H 2046 (actually somewhat smaller than No. 10)
5. *Ibid.* Pl. III H 3446
6. Ghirshman, '38, Pl. LXXXIV S.402, Siyalk III 1
7. *Ibid.* Pl. LXXXVI S.417, Siyalk III 1
8. *Ibid.* Pl. LXIII S.412, Siyalk III 2
9. *Ibid.* Pl. LXXVII B 11, Siyalk III 1 or 2
10. *Ibid.* Pl. LXIV S.227, Siyalk III 3
11. *Ibid.* Pl. LXIII S.369, Siyalk III 2

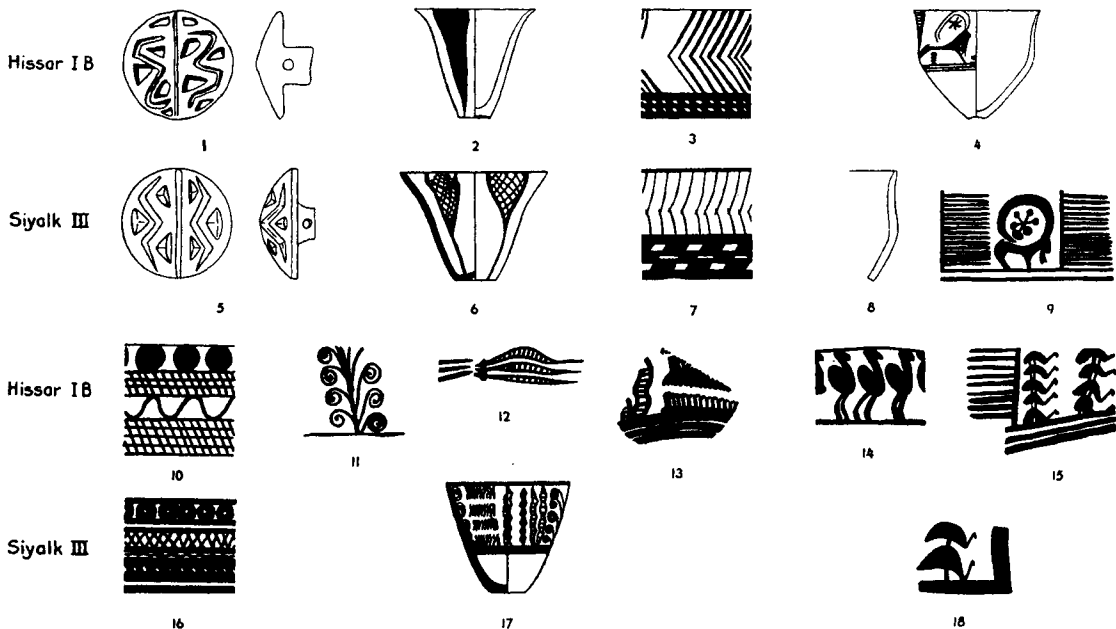


FIG. 3.—Hissar I B and Siyalk III

1. Schmidt, '37, Pl. XV H 3829
2. *Ibid.* Pl. IV H 2091
3. *Ibid.* Pl. IV H 2060
4. *Ibid.* Pl. V H 3464
5. Ghirshman, '38, Pl. LXXXVI S.232, Siyalk III 4
6. *Ibid.* Pl. LXIV S.1782, Siyalk III 3
7. *Ibid.* Pl. LXIV S.228, Siyalk III 4
8. *Ibid.* Pl. LXXVI B 21, Siyalk III 1
9. *Ibid.* Pl. LXXX A 12, Siyalk III 4 or 5
10. Schmidt, '37, Pl. IV H 3066
11. *Ibid.* Pl. V DG 69, 6.5.32
12. *Ibid.* Pl. V DH 36, 14b
13. Schmidt, '33, Pl. LXXXVIII H a5a
14. Schmidt, '37, Pl. VI DH 46, 8g
15. *Ibid.* Pl. VI DH 44, 10, 3
16. Ghirshman, '38, Pl. LXXVIII C 5, Siyalk III 4
17. *Ibid.* Pl. LXIII S.397, Siyalk III 2
18. *Ibid.* Pl. LXXVIII B 8, Siyalk III 3 or 4

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Again in Hissar I C close connection is to be seen with Siyalk III (Fig. 4). It is uncertain whether Siyalk III 5 is contemporaneous with Hissar I B or C. That the latter alternative is more likely is suggested by the facts that metal tools which probably were cast are first known at Hissar in I C and that leopard designs, which are not uncommon in Siyalk III 5, do not appear at Hissar until the end of I C (Schmidt, '37, p. 48). There would have been a considerable lag in the appearance of these traits at Hissar if Siyalk III 5 was contemporaneous with Hissar I B. There is no doubt, however, of the contemporaneity of Hissar I C and Siyalk III 6, although the evidence does not permit a precise equation of the end of Hissar I C with a particular stratum of Siyalk III. Much of the design of Hissar I C seems to continue styles current in I B or Siyalk III 4-5 which were given up at Siyalk in the last three phases of III. There are, nevertheless, certain resemblances of form and design between Hissar I C and

NOTES ON FIGURE 3

The exterior buttresses of a building in Siyalk III 4 (Ghirshman, '38, p. 41 and Pl. LX) are of considerable interest. The same feature is to be seen on walls of Hissar I C (Schmidt, '37, pp. 32 f. and Fig. 26).

In Siyalk III 4 are found rectangular bricks with dimensions ($10 \times 22 \times 45$ cm.) differing from those of the earlier part of Siyalk III. At Hissar bricks with almost identical dimensions occur in I B and continue in use until the end of I (*ibid.* pp. 32, 36).

Hissar burials are from the beginning richer than those of Siyalk, where too few are known to prove a consistent custom in orientation as at Hissar.

The plano-convex-headed pins of Siyalk III 4 (Fig. 4:10) are much like those of Hissar I B-C (Fig. 4:4), though at Hissar the long-stemmed type of Siyalk III 5 (Ghirshman, '38, Pl. LXXXIV S.1774) is unknown.

Metal instruments which appear to be cast (Fig. 4:3) are first seen at Hissar in I C. This is one reason for suggesting that I B does not overlap Siyalk III 5, for cast tools first appear at Siyalk in III 4 and it seems unlikely, in view of the close association of Hissar I B and Siyalk, that such an important improvement in technique as casting would not appear at about the same time at both sites.

In Hissar I B and Siyalk III 4 two seals (Nos. 1, 5) with identical design, more distinctive than the usual chevron-filled quartered-circle pattern, were found. Rectangular flat-faced seals occur in Hissar I B (Schmidt, '37, Pl. XV H 4708). At Siyalk an approximation to this form is first seen in III 5 (Ghirshman, '38, Pl. LXXXVI S.246). There are so few seals from either Siyalk III or Hissar I A-B that we can merely note the existence of certain forms and designs as they are shown to appear.

A cup form (Nos. 2, 6) which in contrast to a Siyalk III 1 form usually has a wider mouth is apparently unknown at Siyalk after III 3 and at Hissar after I B. On it is always found the same design. The absence of this pattern and the difference in shape of a cylindrical beaker from Siyalk III 4 (Fig. 10:102) make doubtful the suggested connection between these two forms (Ghirshman, '38, p. 46).

Another cup shape (No. 8) is found at Siyalk from III 1 through 7. The absence of rim diameters for the Siyalk sherds makes comparison with the Hissar cup form (No. 4) uncertain, for in Siyalk III 4-5 many small bowls have the sinuous profiles of such small cups (*cf. ibid.* Pl. LXVI S.1769).

Footed bowls with vertical but slightly concave rim sides (Schmidt, '37, Pl. IV H 4719) are first seen at Siyalk in III 3 (Fig. 2:10), though the Hissar specimen cited is most closely paralleled in III 6.

A checkered or hatched band as the lower border of a design zone is found in hatched form in Chashmah Ali I A and Siyalk III 1 (Ghirshman, '38, Pl. LXXVI B 24). A diagonally checkered form is first shown at Siyalk from III 4 (No. 7) and continues through III 7. It is found in both Hissar I B (No. 3) and C. The chevron design of Nos. 3 and 7 is seen at Siyalk from III 4 to 6 and at Hissar in I B and C (Schmidt, '37, p. 46).

Multiple zones differently filled, with the lower two usually of less interest than the top zone (No. 16), are first shown at Siyalk in III 2 or 3 (Fig. 13:47) and last in III 6 (Ghirshman, '38, Pl. LXXXI A 14). The banding thereafter is different, and such narrow zones are all filled with the same design (*ibid.* Pl. LXXI S.1759). No. 10 is the only example from Hissar.

Rows of unjoined circles are to be seen at Siyalk from III 4 (No. 16) to the end of III. No. 10 shows the sole example from Hissar.

Ibexes between unilateral ladders (No. 9) appear at Siyalk from III 2 or 3 (Fig. 10:85) through III 5. Thereafter ibexes are impaneled differently. In contrast at Hissar the former type is found in I B (No. 4) and C.

Headed chevrons (No. 17) seem less common at Siyalk by III 5, though they last through III 7 (*ibid.* p. 49). At Hissar they occur in I B mainly (No. 13).

Birds are first shown from Siyalk in III 3 or 4 (No. 18). At Hissar they have nearly disappeared in I C (contrast Schmidt, '37, p. 48 and Pl. XII DH 45, 30a).

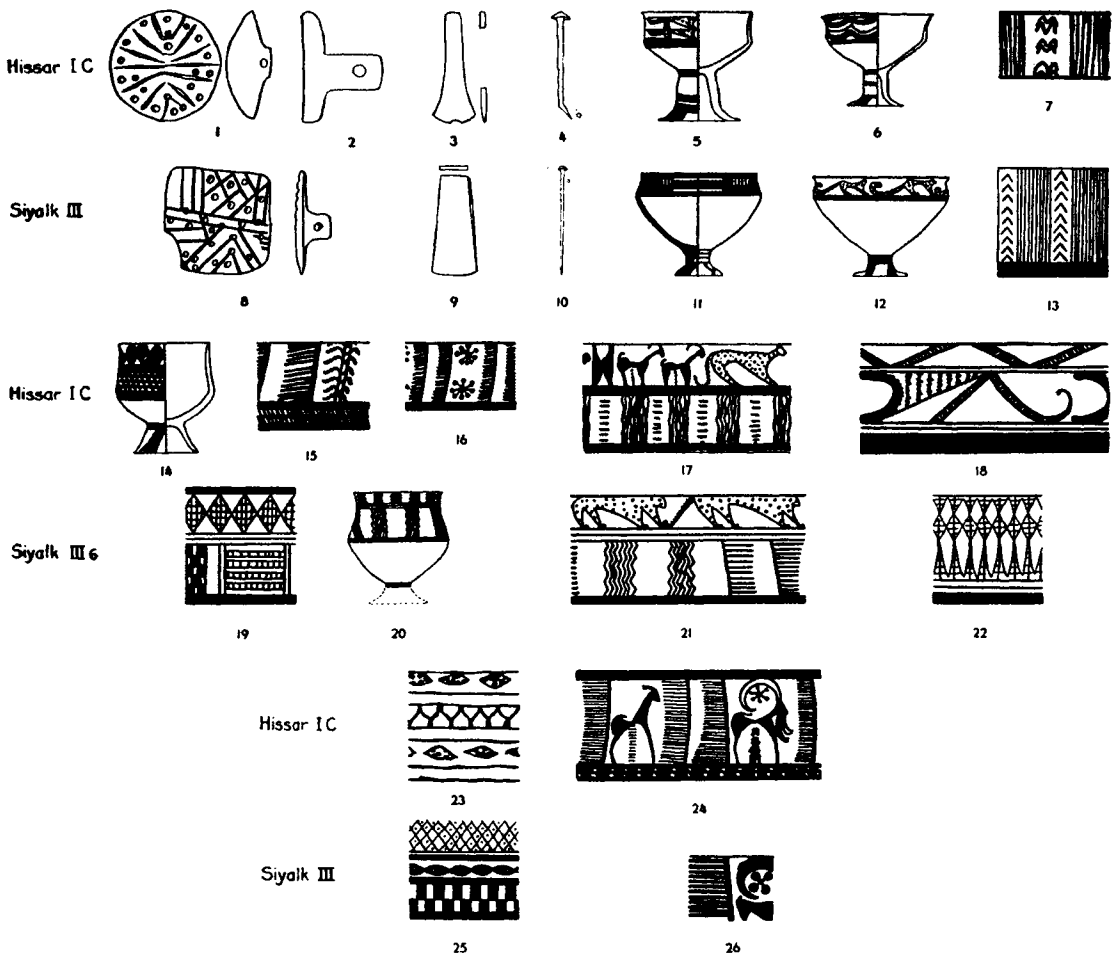


FIG. 4.—Hissar I C and Siyalk III

1. Schmidt, '37, Pl. XV H 3428
2. *Ibid.* Pl. XV H 4376
3. *Ibid.* Pl. XVI H 4176
4. *Ibid.* Pl. XVI H 2972
5. *Ibid.* Pl. VIII H 4478 (somewhat smaller than No. 11)
6. *Ibid.* Pl. IX H 4527 (somewhat smaller than No. 12)
7. *Ibid.* Pl. IX H 4501
8. Ghirshman, '38, Pl. LXXXVI S.129, Siyalk III 6
9. *Ibid.* Pl. LXXXIV S.183, Siyalk III 5
10. *Ibid.* Pl. LXXXIV S.168, Siyalk III 4
11. *Ibid.* Pl. LXX S. 118, Siyalk III 7
12. *Ibid.* Pl. LXVII S.137, Siyalk III 6
13. *Ibid.* Pl. LXIX S.147, Siyalk III 6
14. Schmidt, '37, Pl. IX H 3046 (smaller than No. 20)
15. *Ibid.* Pl. XI H 4695
16. *Ibid.* Pl. VIII H 4383
17. *Ibid.* Pl. VII H 3366
18. *Ibid.* Pl. VIII H 5136
19. Ghirshman, '38, Pl. LXVII S.139
20. *Ibid.* Pl. LXVII S.69
21. *Ibid.* Pl. LXVII S.152
22. *Ibid.* Pl. LXIX S.67
23. Schmidt, '37, Pl. IX H 4365
24. *Ibid.* Pl. X H 802
25. Ghirshman, '38, Pl. LXXXI B 8, Siyalk III 6
26. *Ibid.* Pl. LXXX C 19, Siyalk III 5

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Siyalk III 7, but most of the new forms and designs of Siyalk III 6-7 (which probably derived from various aspects of the buff-ware culture; pp. 24 f.) are absent from Hissar.¹⁷ We may merely say with reasonable certainty that Hissar I C ended toward the end of Siyalk III and not before the end of III 6.

¹⁷ This may be due to the peripheral position of Hissar and the filtrative or selective process which resulted in the absence at Hissar of so many traits of Siyalk III. At the same time the relationship of Hissar I C and Siyalk III 6 is intimate enough to suggest the necessity of some alternative explanation for the absence in Hissar I C of the new designs and forms typical of the latter part of Siyalk III. It is possible that Hissar I C ended before Siyalk III 7 as the result of a gradual infiltration of people making the gray ware of Hissar II and that the transitional stage of Hissar II A was ended at the same time as Siyalk III by an overwhelming invasion of the peoples of Hissar II B (cf. p. 50). This is pure hypothesis, for our equations with Mesopotamian periods suggest that Hissar II covered a long period of time, from early in the Uruk period to the end of the Jamdat Nasr period (see p. 51). It is possible that the graves of Hissar II give an impression of continuity which is absent architecturally. In Hissar II, then, the peculiar archeological situation may exist in which a transitional period from I to II (II A) is represented, followed by II B burials but no architecture and then by the architecture of II B and its contemporary burials. On this basis this theoretical explanation of the end of Hissar I and Siyalk III in relation to the coming of the gray ware would be possible.

NOTES ON FIGURE 4

Though the evidence is inconclusive because of the rarity of Siyalk III and Hissar I B seals, it is worth noting that rectangular flat-faced seals are to be seen in Siyalk III 5 and Hissar I B but appear to be commoner in III 6 and I C (Ghirshman, '38, Pl. LXXXVI; Schmidt, '37, Pl. XV). Plano-convex seals are first known at Siyalk in III 6 (Fig. 7:8) and are paralleled by the conoid form of Hissar I C (*ibid.* Pl. XV H 2954). Drillwork is first to be seen on seals of Hissar I C (No. 1) and Siyalk III 6 (No. 8).

The appearance of concave-based whorls in Hissar I C (*ibid.* p. 53) suggests influence from a site like Anau or from a surviving Siyalk II type of culture (see Fig. 1).

Like that of Siyalk III 6 (see p. 6) the pottery of Hissar I C assumes grayish tones (*ibid.* p. 48).

Certain forms are first seen in Hissar I C and Siyalk III 6 or are commoner in these levels than in Hissar I B and Siyalk III 5. Footed pots of bowl-like form with straight or concave vertical rim sides appear in Hissar I C (No. 14 and *ibid.* Pl. IX H 3385) and Siyalk III 6 (Nos. 20-21). They occur in Siyalk III 7 also (see Ghirshman, '38, Pl. LXXI) but are foreshadowed in Siyalk III 3 by footed bowls (Fig. 2:10) and beginning in Siyalk III 4 by sinuous-profiled bowls without the characteristic sharp break (*ibid.* Pl. LXVIII S.180). Footed bowls with concave vertical rim sides (Nos. 5-6, 11) are first seen in Hissar I C and Siyalk III 6, though the Hissar rims are less inverted than those at Siyalk. Splaying ring feet occur in Siyalk III 5 (*ibid.* Pl. LXVIII S.173), but more examples are shown in III 6, where they are lower (No. 12 and *ibid.* Pl. LXVII), while most of the examples are from III 7. They appear in Hissar I B (Schmidt, '37, Pl. V, upper left-hand corner and H 2063) but are commoner in I C (Nos. 5-6). Stemmed feet are first known in Hissar I C (*ibid.* Pl. VIII H 4593) and in Siyalk III 6 (No. 12), where only a tendency toward stems is observable, but are more common in Siyalk III 7 (Ghirshman, '38, Pls. LXX S.116, LXXI S.111, a beaker of the type of Pl. LXXIII S.94 with stemmed foot).

Forms found in Siyalk III 6-7 but not in Hissar I C include deep narrow bowls (III 6—Fig. 10:112; various forms in III 7—e.g. *ibid.* Pl. LXXIII S.94); ring bases (III 6—Fig. 10:112), though disk bases are found on cups in Hissar I C and II A (Schmidt, '37, Pls. XI H 3413, XXII H 4676) and one ring base occurs in Hissar I B (*ibid.* Pl. IV H 3467); and angular-profiled feet (III 6-7—No. 11 and Ghirshman, '38, Pl. LXXXI C 10, a ridge of a footed beaker). At Hissar such profiling appears in the gray ware of II A only (Schmidt, '37, Pl. XXIII H 2890).

Two broad zones of design (Nos. 17, 21) first appear at Siyalk in III 5 and are more often seen in III 6-7 (see p. 6, n. 12). Different types of animals in a zone (No. 17) are first seen at Siyalk in III 4 or 5 (Ghirshman, '38, Pl. LXXIX D 4). Leopards (No. 21) are first shown at Siyalk in III 4 or 5.

Truncated band-ziggags, which at Siyalk are seen first in III 6 (Fig. 8:9) and then increasingly in III 7, are not shown at Hissar before I C (No. 18).

Multiple narrow zones, unless all filled with the same element, are used at Siyalk less frequently in III 6 (No. 25) than previously (see p. 6, n. 12). Three narrow zones, with the top and bottom zones identical and different from the center zone (No. 23), are first seen at Siyalk in III 4 or 5 (Fig. 10:104).

A lower border of one line or more and a broad band below (Nos. 18, 22) is first attested at Siyalk in III 6 and appears more commonly in III 7.

Vertical line-groups as field-dividers (Nos. 7, 13), though seen as early as III 3 at Siyalk, are first shown in number in III 6 (e.g. Fig. 7:6).

The unilateral ladder is to be seen without ibexes (Nos. 16, 20) in Hissar I C but rarely before Siyalk III 4 or 5 and always without them thereafter, though it is quite common with ibexes in Hissar I C (e.g. No. 24).

At Siyalk joined diamonds are more frequent in III 6 (e.g. No. 19) than in previous phases. No. 14 is the only published example from Hissar I.

LATE ANAU I

Anau I A has been equated with Siyalk II (p. 5), but the relative position of Anau I B remains to be determined. A minimum of the stratification of Anau I B (datum to +25 ft.) is known from the terraces and a section of Komorof's trench (Pumpelly, '08, Pl. 1). In this section is to be seen a series of walls representing building strata at the same levels on either side of the trench. One building level lies below a burned level at +13-14 feet. Another lies directly above the burned level, possibly a second before another distinct level at +20 feet, and still another at +25 feet. Thus from +8 to +25 feet there are at least four or five building levels, the upper of which correspond to the occupational levels determined in the various terraces.

A relative date for the end of Anau I cannot be determined with any degree of precision, nor can any correlation between I B and the sublevels of Hissar I or Siyalk III be made, since the remains of Anau I B must be treated as a unit. Copper pins with pyramidal and plano-convex heads are known in Anau I B (*ibid.* Figs. 238, 240) and in Hissar I B-C (Schmidt, '37, Pl. XVI). Copper spiral beads occur in Anau I B (Pumpelly, '08, Fig. 237) and apparently in the upper half of Giyan V (Contenau-Ghirshman, '35, p. 66 and Pl. 37, to right of No. 21). This slight evidence and the fact that Anau I ended with the appearance of a culture characterized by red and gray unpainted pottery (Pumpelly, '08, pp. 132-37) would place this change as roughly contemporaneous with the end of Hissar I.¹⁸

A comparative study shows that the culture of Anau I is much more peripheral to the highland culture of northeastern Iran than is that of Hissar I, that the development of Anau I throughout is on the basis of a culture close to that of Siyalk II (see Fig. 1), and that it was unaffected by the influence apparent throughout Siyalk III and Hissar I.¹⁹ Nor did Anau I ever make the transition to the true Copper Age or use the potter's wheel.

SUMMARY

The cultures of northeastern Iran have now been considered. That this is a distinct cultural province will be apparent after a study of sites with buff pottery in the west and southwest. Here we may mention the differences in pottery ware and design as shown by the elements used and the feeling for composition, the differences in seal patterns and forms, and the absence of human figurines in the northeast in contrast to their presence in the south and southwest. Furthermore, burials in the northeast are inside the settlements, while those in the west and southwest seem to have been outside. The remains of the three successive periods discussed are sufficiently different to be considered as representing three distinct cultures, not merely three stages of development in the same civilization. To be sure the second period shows a heritage from its predecessor, as does the third period, but, despite the continuity, new cultural traits are present and create significant differences in each period. For convenience henceforth the remains of Siyalk I will be referred to as the "Siyalk culture"; those of Siyalk II, the upper part of Chashmah Ali I A, Savah, and Anau I A as the "Chashmah Ali culture";

¹⁸ See p. 58 and Field-Prostov, '40, p. 328, where Soviet excavators are reported to place Anau II well before 3000 B.C.

¹⁹ That the buff-colored coarse ware of Anau I (see p. 5) derived from the Siyalk I type of tradition and does not represent the change from red to buff coloring of the Siyalk III pottery (see p. 6) is confirmed by the great rarity of buff-colored ware in the painted pottery of the Gurgan Plain (see pp. 54 f.).

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and those of Siyalk III, Chashmah Ali I B, and Hissar I as the "Hissar culture."²⁰ It is possible to use these three terms as denoting periods in northeastern Iran, but in the development of the buff-ware culture these divisions do not hold good. What length of time these periods occupied is impossible to estimate, but it probably was considerable.²¹

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With the excellent sequence in the northeast it is necessary to cross-date the strata of the other excavated sites in Iran. We know that in the Chashmah Ali period shell was obtainable from the Persian Gulf (p. 2), so it is reasonable to hope for evidence of contact between the northeast and the west and southwest at least as early as this period.

GIYAN V

The site closest to the northeastern area is Tepe Giyan near Nihavand. Here remains of the buff-ware culture were found in the fifth level (counting from the top), the lowest 11 meters of deposit. Unfortunately the stratigraphy is amorphous, since almost no architecture was found; so there are no building levels with which to correlate the observable changes in material culture. Differences in ceramic forms and designs suggest the presence of one sublevel (Giyān V A) in the lowest meter of deposit at -18-19 meters, another (V B) at -14-18 meters, a third (V C) at -10-14 meters, and a terminal phase (V D) at -8-10 meters, in which had been dug the graves of Giyan IV.

The earliest pottery, in Giyan V A, is chamois-slipped coarse (with straw temper) or fine ware (Contenau-Ghirshman, '35, p. 62; Ghirshman, '36, p. 23), with the latter sometimes red-slipped (Ghirshman, '38, p. 94). The design is typically south and west Iranian in character;²² the forms in general are unparalleled in Iran. A few comparisons of form and design may be made with Siyalk II (Fig. 5),²³ the most significant of which is provided by a sherd from a flat-based vessel with vertical groups of lines descending to the base (Fig. 5:4), a style which is typical in the Chashmah Ali culture only (Fig. 5:9).

The next substratum at Giyan (V B) shows certain distinct differences from V A. Houses of V B were built of pisé and sometimes on stone foundations (Contenau-Ghirshman, '35, p. 63). Metal and obsidian are first shown to occur (Ghirshman, '36, p. 24). The pottery shows a significant change, the buff ware apparently being for the most part no longer slipped (Ghirshman, '38, p. 94; Contenau-Ghirshman, '35, p. 63), but red-slipped ware was still found (Contenau-Ghirshman, '35, p. 63). Few of the designs characteristic of V A are to be seen,

²⁰ The Chashmah Ali culture was found at Chashmah Ali prior to its discovery at Siyalk. Priority of discovery at Hissar and the absence of an earlier period there favors the use of its name for the third culture despite the peripheral character of the civilization at this site.

²¹ Ghirshman's dates for Siyalk ('38, p. 89), admittedly approximate, are certainly too low. The method used can be roughly accurate provided only that the building levels can be shown to follow one another continuously. This is true of only two sublevels of Siyalk III. Siyalk I and II together and Siyalk III each consist of eight building levels; but those of I and II are usually well separated by debris. Therefore it is more likely that I-II occupied a longer space of time than III than that they lasted only as long as III.

²² Note Figs. 10:45, 11:48, 88, and Contenau-Ghirshman, '35, Pl. 42:15, which find their closest analogues at Bakun A (see Langsdorff-McCown, '42) and B and are paralleled rarely, if at all, in the rest of Iran. The sherds from Giyan are unnumbered on each plate of Contenau-Ghirshman, '35. The subsidiary numbers here given may be arrived at by counting from left to right and from top to bottom. Thus Pl. 42:15 refers to the sherd at the extreme left of the third row from the top on Pl. 42.

²³ Practically no objects other than pottery appear to have been found prior to the latter part of V B at Giyan.

although the new patterns are typical of the buff-ware culture, and there are more specific similarities to the design of Fars than previously. The designs and forms show certain similarities to those of Siyalk II (Fig. 6), which, with the presence of red-slipped pottery, suggest contemporaneity with Siyalk II and perhaps III up to its third phase.

In many respects Giyan V C is merely a development of V B, for numerous designs are common to both strata. The paint of V C, however, is often vitreous and shiny as in Siyalk III (Ghirshman, '38, p. 48). Red-slipped pottery is not mentioned as occurring in Giyan V C, seals of various forms are used, and a metal ax and a chisel, which probably were cast, are present. Many of the new designs of V C are known to the south and in Fars, where they are more typical than at Giyan, if any conclusions may be formed as to the relative frequency of particular features from the published Giyan material. Some of these designs which are typical in Fars are unknown at Siyalk until after the middle of III, and we suspect that such patterns may have appeared at both Siyalk and Giyan at approximately the same time.

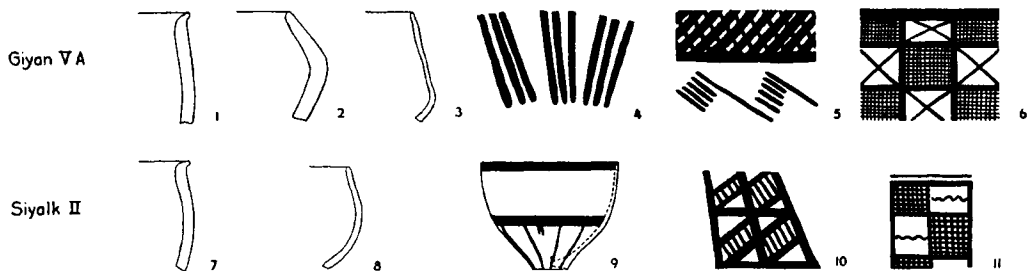


FIG. 5.—Giyan V A and Siyalk II

1. Contenau-Ghirshman, '35, Pl. 41:13
2. *Ibid.* Pl. 42:12
3. *Ibid.* Pl. 41:1.
4. *Ibid.* Pl. 42:14
5. *Ibid.* Pl. 40:11
6. *Ibid.* Pl. 41:13

7. Ghirshman, '38, Pl. LI A 1, Siyalk II surf.
8. *Ibid.* Pl. XLVII C 13, Siyalk II 1
9. *Ibid.* Pl. XLV S.1394, Siyalk II 1
10. *Ibid.* Pl. LI D 3, Siyalk II surf.
11. *Ibid.* Pl. LI D 16, Siyalk II surf.

NOTES ON FIGURE 5

The chamois-colored slip of Giyan V A may indicate an original connection with the light ware of Siyalk I (see p. 2).

Bowls with inverted rims are known at Siyalk in II and III 1 only and at Giyan in V A-B. Profiled rims, though shown twice from Siyalk I (Ghirshman, '38, Pl. XLII A 5, D 1), are most usual at Siyalk in II (Fig. 6:8, from II 1; *ibid.* Pl. XLIX A 2, from II 2). The rim forms here compared (Nos. 1-3, 7-8) are shown at Giyan from V A-B only, though differently modeled rims occur in V C (Contenau-Ghirshman, '35, Pl. 48:2).

Series of vertical lines extending from the lower edge of the design zone to the base of a vessel (No. 4) are typical of the Chashmah Ali culture only (No. 9). No. 4 is the only example from Giyan, though two other sherds (*ibid.* Pl. 42:11, 17) may well show this feature. In the Hissar culture such lines are found on ring feet only.

Filled checkers with crossing diagonals (No. 6) are known in Chashmah Ali I A. They occur in Fars also (Fig. 10:31), and it may be influence from that region which results in their appearance at Siyalk in III 5 (Ghirshman, '38, Pl. LXXX C 14). They are not uncharacteristic in the Halaf culture (see Fig. 11:9, notes). Filled checkers are first shown at Siyalk in II (No. 11) and occur sporadically in Siyalk III. At Giyan they are limited almost entirely to V A-B.

Overall patterns are known from Siyalk II but probably not from III. True overall designs are shown at Giyan in V A only (Fig. 11:86 and Contenau-Ghirshman, '35, Pl. 42:4), though in V C certain areas may be filled with dots.

The Maltese square is to be seen in Siyalk II possibly (Ghirshman, '38, Pls. XLIX A 4, LI B 3, 15) and otherwise not until the end of Siyalk III, when influence from the west and southwest seems to be strong.

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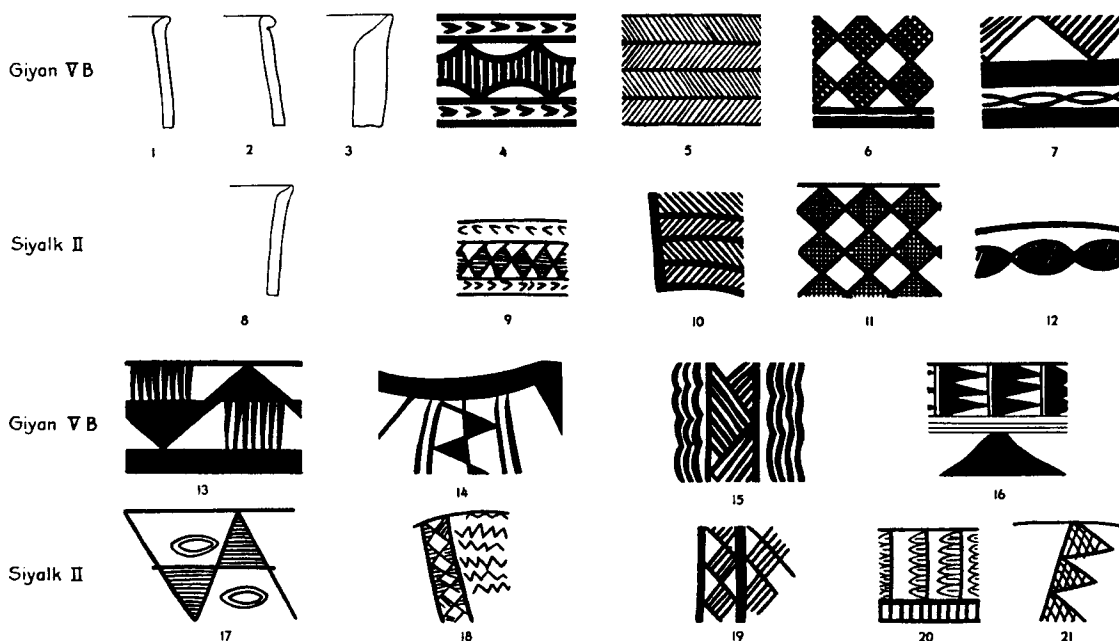


FIG. 6.—Giyan V B and Siyalk II

1. Contenau-Ghirshman, '35, Pl. 43:1, —17–18 m.
2. *Ibid.* Pl. 44:1, —16–17 m.
3. *Ibid.* Pl. 43:10, —17–18 m.
4. *Ibid.* Pl. 44:9, —16–17 m.
5. *Ibid.* Pl. 43:4, —17–18 m.
6. *Ibid.* Pl. 44:15, —16–17 m.
7. *Ibid.* Pl. 43:7, —17–18 m.
8. Ghirshman, '38, Pl. XLVII D 10, Siyalk II 1
9. *Ibid.* Pl. L A 12, Siyalk II surf.
10. *Ibid.* Pl. L C 17, Siyalk II surf.
11. *Ibid.* Pl. XLIX C 5, Siyalk II 3
12. *Ibid.* Pl. L B 16, Siyalk II surf.
13. Contenau-Ghirshman, '35, Pl. 45:10, —15–16 m.
14. *Ibid.* Pl. 44:17, —16–17 m.
15. *Ibid.* Pl. 43:2, —17–18 m.
16. *Ibid.* Pl. 44:16, —16–17 m.
17. Ghirshman, '38, Pl. XLIX B 16, Siyalk II 2
18. *Ibid.* Pl. XLIX A 8, Siyalk II 2
19. *Ibid.* Pl. LI D 4, Siyalk II surf.
20. *Ibid.* Pl. XLIX B 2, Siyalk II 2
21. *Ibid.* Pl. XLIX A 20, Siyalk II 2

NOTES ON FIGURE 6

Rims are less inverted in Giyan V B than in Giyan V A, but profiled rims of V B (Nos. 1–3) are similar to those of V A and compare with those of Siyalk II (No. 8 and Fig. 5:7).

Minor design zones (Nos. 4, 9) at Giyan are typical of V B only and at Siyalk of II only (Ghirshman, '38, Pl. XLVIII A 7, from II 1).

Herringbone patterns (Nos. 5, 10) occur in Giyan V C as well as V B and in Siyalk II (Fig. 11:22) but not in Siyalk III. They are found in Siyalk I also.

Zones of joined diamonds (Nos. 6, 11) are first attested at Giyan in V B and at Siyalk in II. The more unusual, suspended form, possibly shown in Giyan V A (Contentau-Ghirshman, '35, Pl. 40:17), is known in Bakun B II and in somewhat different and perhaps not comparable form in Chashmah Ali I A.

Loop chains (Nos. 7, 12) appear in Giyan V B and Siyalk II and are to be seen in Giyan V C and after the middle of Siyalk III.

Reversing triangles (Nos. 13, 17) with or without fill are first seen at Siyalk in II and at Giyan in V B.

Vertical zones inclosing columns of joined elements (Nos. 14–15, 18–19) are shown from Giyan V B and Siyalk II. This form of field divider or panel is known also in Giyan V C (Fig. 13:168 and *ibid.* Pl. 50:25) and at the end of Siyalk III.

No. 16 is perhaps a variant of another design from Giyan V B (*ibid.* Pl. 45:8), while No. 20 may show the same element as No. 21. The comparison is uncertain but interesting.

See Fig. 5, notes, for distribution of filled checkers.

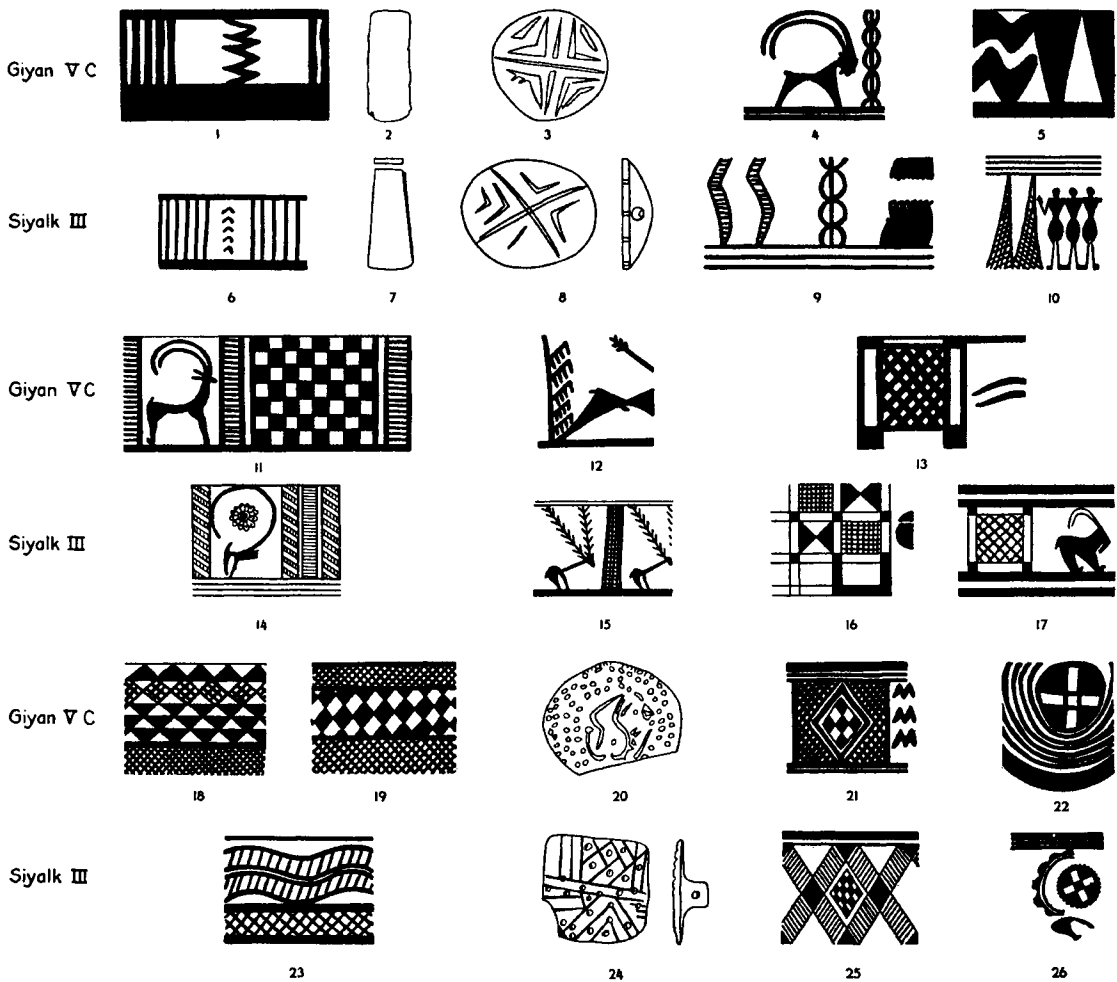


FIG. 7.—Giyan V C and Siyalk III

1. Contenau-Ghirshman, '35, Pl. 47:13, —13–14 m.
2. *Ibid.* Pl. V 1, —13 m.
3. *Ibid.* Pl. 38:41, —13 m.
4. *Ibid.* Pl. 51:3, —12–13 m.
5. *Ibid.* Pl. 49:16, —12–13 m.
6. Ghirshman, '38, Pl. LXVII S.142, Siyalk III 6
7. *Ibid.* Pl. LXXXIV S.183, Siyalk III 5
8. *Ibid.* Pl. LXXXVI S.85, Siyalk III 6
9. *Ibid.* Pl. LXXVII B 8, Siyalk III 1 or 2
10. *Ibid.* Pl. LXXX D 10, Siyalk III 5 or 6
11. Contenau-Ghirshman, '35, Pl. 49:1, —12–13 m.
12. *Ibid.* Pl. 51:22, —12–13 m.
13. *Ibid.* Pl. 51:7, —12–13 m.
14. Ghirshman, '38, Pl. LXXXI B 5, Siyalk III 6
15. *Ibid.* Pl. LXXXI A 9, Siyalk III 6
16. *Ibid.* Pl. LXXXIII A 8, Siyalk III 7 or 7b
17. *Ibid.* Pl. LXX S.119, Siyalk III 7
18. Contenau-Ghirshman, '35, Pl. 49:19, —12–13 m.
19. *Ibid.* Pl. 52:9, —11–12 m.
20. *Ibid.* Pl. 38:34, —11.5 m.
21. *Ibid.* Pl. 53:15, —11–12 m.
22. *Ibid.* Pl. 53:16, —11–12 m.
23. Ghirshman, '38, Pl. LXXIX B 18, Siyalk III 4 or 5
24. *Ibid.* Pl. LXXXVI S.129, Siyalk III 6
25. *Ibid.* Pl. LXXXI D 10, Siyalk III 7
26. *Ibid.* Pl. LXXXIII A 3, Siyalk III 7 or 7b

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The available material permitted no exact equation of the end of Giyan V B with Siyalk. The existence of a metal ax of Copper Age form at -13 meters (Fig. 7:2) and the appearance of stamp seals with the quartered-circle design (Fig. 7:3) at the beginning of Giyan V C suggest an equation of the beginning of V C with one of the first phases of Siyalk III. Associations of the upper part of Giyan V C are with the latter part of Siyalk III (Fig. 7). Hence it seems likely that at Giyan, as at Hissar, a thinner deposit than that at Siyalk represents the temporal range of most of Siyalk III.

NOTES ON FIGURE 7

It would be highly desirable to know whether the ax of Giyan V C (No. 2) was cast. Its form, however, suggests that true understanding of the properties of metal which distinguishes Copper Age from Chalcolithic metal work. It seems reasonable to assume that such a useful discovery would spread quickly from one culture to another if the two were already in contact and located in areas not too far apart. A chisel, which also appears to be cast, was found in Giyan V C at -11 m. (Contenau-Ghirshman, '35, Pl. 37:17).

Stamp seals with quartered-circle design (Nos. 3, 8) are not very useful for cross-dating once they have appeared. We would expect their first appearance, however, to occur at roughly the same time in not too widely separated areas. Though known in Hissar I A, at Siyalk they first occur in numbers in III 4. At Giyan the earliest example comes from the lowest quarter of V C, and there are many more examples thereafter. Domed seals, which are commoner than any other type in Giyan V C, first appear at Siyalk in III 5-6 and seem not to be a characteristic feature of the Hissar culture. Seals with the design in part drill-cut (Nos. 20, 24) are most often seen at Giyan in the upper part of V C and at Siyalk were first found in III 6.

The vessel forms of Giyan V C and Siyalk III do not permit much comparison. If the sinuous-profiled sherds of Giyan (*ibid.* Pls. 50:10, 51:18, 54:14) are from bowls and not beakers (such as Fig. 12:104) they may show some connection with the sinuous-profiled bowls of Siyalk III 4-5 (Ghirshman, '38, Pl. LXVI).

Comparison of the pottery design of Giyan V C and Siyalk III requires care. Increasing influence of the buff-ware culture on Siyalk III resulted in the appearance there of more and more patterns which had long been known in buff-ware design. Designs which are known throughout the buff-ware culture and show little modification in the course of time are of little value in cross-dating with a particular phase of Siyalk III in which such a design first occurs. Designs in this category include joined hourglasses in Siyalk III 1 (Fig. 10:79) and perhaps Giyan V A (Contenau-Ghirshman, '35, Pl. 40:17), suspended joined diamonds in Siyalk III 6 (Fig. 10:128) and Giyan V B (Fig. 10:49) through V D (*ibid.* Pl. 58:25), joined lateral triangles in Siyalk III 6 (Fig. 10:113) and Giyan V B-C (Fig. 10:46 and *ibid.* Pl. 47:1), firm lower banding of the design zone in Siyalk III 6 but more often in III 7 or 7b and rarely in Giyan V B but commonly in V C, diamonds with negative lentoids in Siyalk III 7 or 7b (Fig. 10:135) and Giyan at -14-15 and -10-11 m., superimposed birds in Siyalk III 3 or 4 (Fig. 10:100) and Giyan V B (Contenau-Ghirshman, '35, Pl. 45:21).

One of the few characteristics of Giyan V C design which is rare at other buff-ware sites, dotted fields (e.g. Fig. 9:4), is unknown in Siyalk III unless there is a connection with the dot-filled cross-net pattern (Fig. 11:84), which is known continually after Siyalk III 4.

Hatched lower borders, the only diagnostic feature of Siyalk III design (No. 23) found in Giyan V C (Nos. 18-19), are known from the beginning (Ghirshman, '38, Pl. LXXVI B 24) to the end (*ibid.* Pl. LXXXII B 15) of Siyalk III.

The caduceus, which is very typical in Fars, is first present at Siyalk in III 1 or 2 (No. 9) and is known also from III 3 or 4 (*ibid.* Pl. LXXVIII B 1) and Giyan V C (No. 4 and Contenau-Ghirshman, '35, Pl. 51:18).

All the other designs compared here do not appear at Siyalk before III 5.

Vertical line-groups as field dividers are commonest at Siyalk in III 6 (No. 6) and are first seen at Giyan from the lower part of V C (No. 1 and *ibid.* Pl. 47:9-10) or possibly V B (*ibid.* Pl. 45:9). They are known in Fars also.

Groups of joined triangles as field dividers are first shown from Siyalk in III 5 or 6 (No. 10) and from Giyan in V C (No. 5, Fig. 10:54, and *ibid.* Pl. 49:17) and are typical in Susa I. Single triangles are used similarly earlier at Giyan (*ibid.* Pl. 45:9).

Panels flanked by vertical lines or identical zones appear in Siyalk III 6 (No. 14) and III 7 (Ghirshman, '38, Pl. LXX S.155) and in Giyan V C (No. 11 and Contenau-Ghirshman, '35, Pl. 49:2). This style is commoner on Ubaid ware (where generally plain lines substitute for zones) than on the buff ware of Iran (see Fig. 13:113, notes [p. 41]).

Other designs whose points of appearance at the two sites are noted include fringed horns of deer in Siyalk III 6 (No. 15) and Giyan V C (No. 12), which occur in Fars also (Fig. 10:59); rectangular panels with corners suspended by squares in Siyalk III 7 (Nos. 16-17) and Giyan V C (No. 13) and at Bakun A (Fig. 10:117, 119), used as diamonds in Bakun B II and A III-IV; checkered diamonds in Siyalk III 7 (No. 25) and Giyan V C at -11-12 m. (No. 21), such internally divided elements being very common in Fars (Fig. 13:45) and in Susa I also (Fig. 9:26); Maltese square within a circle in Siyalk III 7 or 7b (No. 26) and Giyan V C at -11-12 m. (No. 22).

The top stratum of Giyan V shows continuity with V C, but in it appear many pottery forms and designs typical of the Hissar culture (Fig. 8). The appearance of these must be placed close to the end of Siyalk III, because of the association of the upper part of Giyan V C and Siyalk III 6 or 7. This sudden change is marked enough to suggest a movement of peoples from the area of the Hissar culture into the region of Giyan. It is natural to connect this with the disturbances attendant on the appearance of gray ware in the area of the Hissar

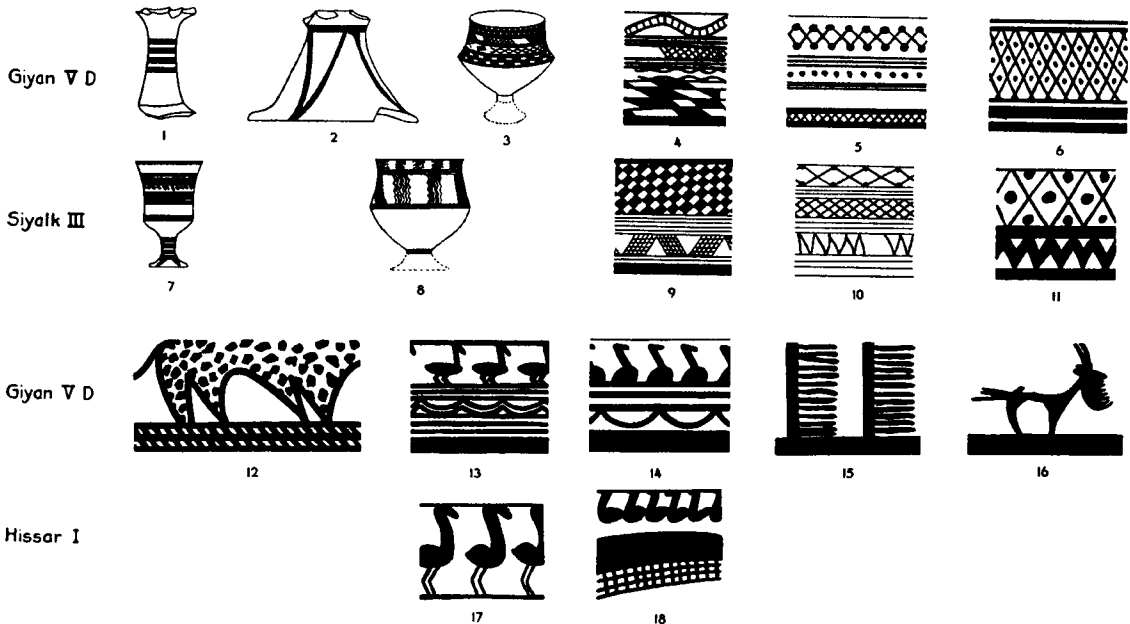


FIG. 8.—Giyan V D and the Hissar culture

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| 1. Contenau-Ghirshman, '35, Pl. 58:17, —7.5–9 m. | 10. <i>Ibid.</i> Pl. LXIV S.248, Siyalk III 4 |
| 2. <i>Ibid.</i> Pl. 58:18, —7.5–9 m. | 11. <i>Ibid.</i> Pl. LXXVIII C 4, Siyalk III 4 |
| 3. <i>Ibid.</i> Pl. 37:11, —8.5 m. | 12. Contenau-Ghirshman, '35, Pl. 57:5, —9–10 m. |
| 4. <i>Ibid.</i> Pl. 58:22, —7.5–9 m. | 13. <i>Ibid.</i> Pl. 59:19, —7.5–9 m. |
| 5. <i>Ibid.</i> Pl. 58:20, —7.5–9 m. | 14. <i>Ibid.</i> Pl. 60:5, —7.5–9 m. |
| 6. <i>Ibid.</i> Pl. 58:23, —7.5–9 m. | 15. <i>Ibid.</i> Pl. 58:15, —7.5–9 m. |
| 7. Ghirshman, '38, Pl. LXXI S.1771, Siyalk III 7 | 16. <i>Ibid.</i> Pl. 59:14, —7.5–9 m. |
| 8. <i>Ibid.</i> Pl. LXVII S.69, Siyalk III 6 | 17. Schmidt, '33, Pl. LXXXVIII H a23 |
| 9. <i>Ibid.</i> Pl. LXIX S.66, Siyalk III 6 | 18. <i>Ibid.</i> Pl. LXXXVIII H a67 |

NOTES ON FIGURE 8

High-footed vessels (No. 1), splayed ring feet (No. 2) with designs as at Siyalk or Hissar, and stemmed bowls (No. 3), which do not appear at Siyalk before III 6 or 7 (Nos. 7–8), are found in Giyan V D.

The following designs of Giyan V D are more typical of the whole Hissar period than of its end. Truncated zigzags (Contenau-Ghirshman, '35, Pl. 57:6) are not present at Siyalk after III 6. Leopards (No. 12), ibexes staling (*ibid.* Pl. 57:3) or with typical beards (No. 16), and bulls (Herzfeld, '33b, Pls. VI 3 and XXIII 1, which though unstratified should be from Giyan V D) are animals characteristic of the Hissar culture; their typical "skid" position contrasts with the bounding attitude of the ibexes known at Giyan from the middle of V B through V C. Unilateral ladders (No. 15), dotted net patterns (No. 6), and apex-dotted intersecting zigzags (No. 5) are all typical of Siyalk III. Compositions of the type of No. 4 are rare in Siyalk III after 5.

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culture (see n. 17).²⁴ As a result the end of the painted wares of Giyan V would fall sometime between the end of Siyalk III 6 and the end of Siyalk III, or even somewhat later.

At Giyan the earliest culture (V A) is at least in some respects very different from that which follows it and would seem to represent a different aspect of the buff-ware culture. Giyan V B does not develop directly out of V A, although a part of the ceramic tradition of V A may continue or both may have a few forms and designs in common. From V B onward there is a continuous unbroken ceramic and probably cultural development. There is influence, however, from the Chashmah Ali culture in V A-B, from the south and Fars in V C, and from the Hissar culture in V D.

The material discovered by Stein at Chigha Pahn in the plain of Kuh-i-Dasht though unstratified as published (Stein, '40, pp. 261-66) affords interesting parallels to material from Giyan V. Most of it fits into the Giyan sequence from not earlier than V B. Particularly interesting are designs of the Hissar culture which appear to correspond to those of Giyan V D (*ibid.* Pls. XI 4-6, 9-10, XII 5-6, 14-15). The design shown *ibidem*, Plate XII 14, may be an exception, for elsewhere it is limited to the time of mid-Siyalk III (though see n. 24).

SUSA I

Susa provides the geographically nearest excavated and published material comparable with that of Giyan V. Here in the lowest levels of at least two of the mounds, in layers in places 3-4 meters thick, are found remains of Susa I. For our purpose this is an unstratified deposit in which the cultural development cannot be traced.²⁵ This precludes any temporal equation of the beginning or the stages of this culture with other sites. The end of the culture of Susa I should, however, be determinable relative to other sites. It is of extreme interest that in the preliminary report on the excavations of 1929-33 de Mecquenem becomes convinced that a usually unpainted red ware with burnished red slip occurs with the painted buff pottery of at least the upper part of Susa I.²⁶ From the description this red ware seems to be the same as that which follows the painted pottery at Bakun A (p. 48).

The developed form of the pottery ovens, the stage of the metallurgy, and the forms of the seals indicate that the end of Susa I is to be placed sometime during the period of the Hissar

²⁴ That the new features in Giyan V D come not from Siyalk or Hissar but from some other variant of the Hissar culture is suggested by the apparent rarity of certain of the new designs of Giyan V D at the end of Siyalk III and in Hissar I. For example, in Siyalk III 7 or 7b obliquely checkered lower bands (Fig. 8:4) are rare and dotted nets (Fig. 8:6) are of different form. In Hissar I C the former design is rare and the latter absent. In form and design the seals of Giyan V D (Contenau-Ghirshman, '35, Pl. 35:2-4) resemble those of Hissar I C (Schmidt, '37, Pl. XV H 3047; '33, Pl. XCI H 987) more closely than those of Siyalk III.

²⁵ In a deposit of such thickness there is room for at least two or three building levels, and as much change is likely as is found in the ceramics of Bakun A I-IV (see Langsdorff-McCown, '42, pp. 59 f.). Earlier stages of the culture of Susa I are to be anticipated showing the same relation to Susa I that the remains of Bakun B II do to Bakun A: in the pottery painting many similarities in composition and design elements but less sophistication in the earlier style (p. 23).

²⁶ Mecquenem, '34, pp. 183, 188, 204. It is unfortunate that we do not know whether the red ware occurs from the base of Susa I or only higher up. Although it does seem to have been found at the very bottom of the first sounding of the Acropolis (*ibid.* p. 183), it is nevertheless difficult to believe that, if the first settlement at Susa was founded by people using both red and painted buff pottery, vessels of this red ware would not have been found in the tombs of the necropolis. Although the description (Mecquenem, '12, p. 136) of a painted vessel probably from the necropolis (Pottier, '12, Pl. XIX 10) might suggest such red pottery, more likely it is only an underfired piece with a resultant reddish tone (cf. n. 60). It is doubtful too whether the splendid, if somewhat limited, design would not have been affected, as was the design of Hissar II A. We may thus suspect that the red ware was not present from the beginning of Susa I (but cf. Tepe Band-i-Bal and Tepe Buhallan; p. 23).

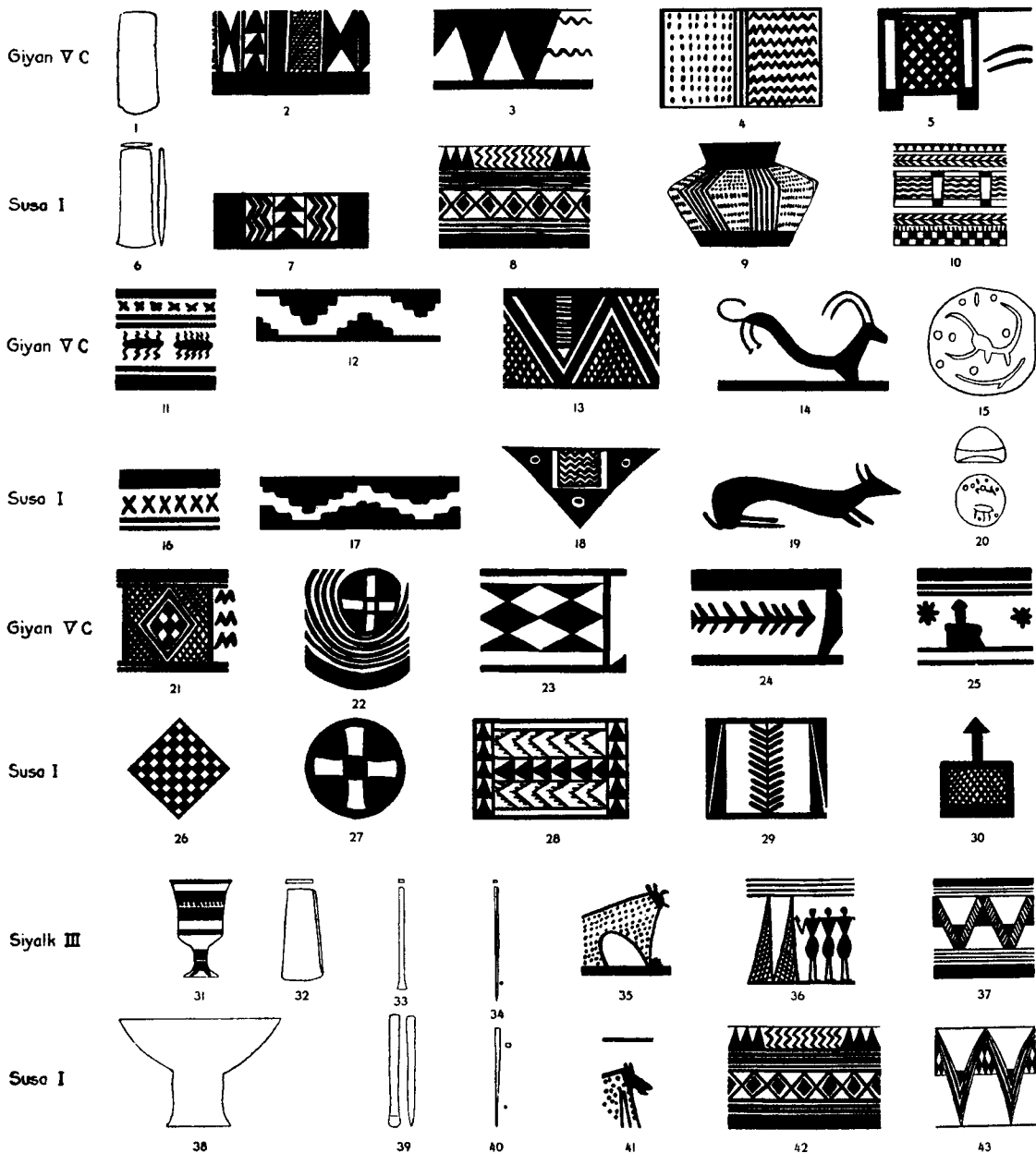


FIG. 9.—Giyan V C and Susa I, Siyalk III and Susa I

1. Contenau-Ghirshman, '35, Pl. V 1, —13 m.

2. *Ibid.* Pl. 47: 14, —13–14 m.3. *Ibid.* Pl. 49: 10, —12–13 m.4. *Ibid.* Pl. 49: 22, —12–13 m.5. *Ibid.* Pl. 51: 7, —12–13 m.

6. Morgan, '12, Fig. 27

7. Pottier, '12, Pl. XXII 3

8. *Ibid.* Pl. XX 49. *Ibid.* Pl. XXI 210. *Ibid.* Pl. XLII 3

11. Contenau-Ghirshman, '35, Pl. 51: 10, —12–13 m.

12. *Ibid.* Pl. 50: 26, —12–13 m.13. *Ibid.* Pl. 53: 14, —11–12 m.14. *Ibid.* Pl. 64, lower right, —11.25 m.

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| 15. <i>Ibid.</i> Pl. 38:27, —11 m. | 29. <i>Ibid.</i> Pl. V 2 |
| 16. Pottier, '12, Pl. V 3 | 30. <i>Ibid.</i> Pl. IX 8 |
| 17. Morgan, '00, Pl. XVIII 15 | 31. Ghirshman, '38, Pl. LXXI S.1771, Siyalk III 7 |
| 18. Pottier, '23, I C a, Pl. 9:15 | 32. <i>Ibid.</i> Pl. LXXXIV S.183, Siyalk III 5 |
| 19. Pottier, '12, Pl. III 5 | 33. <i>Ibid.</i> Pl. LXXXIV S.1698, Siyalk III 7 |
| 20. Morgan, '12, Fig. 25 bis | 34. <i>Ibid.</i> Pl. LXXXIV S.1700, Siyalk III 1 |
| 21. Contenau-Ghirshman, '35, Pl. 53:15, —11–12 m. | 35. <i>Ibid.</i> Pl. LXXX D 1, Siyalk III 5 or 6 |
| 22. <i>Ibid.</i> Pl. 53:16, —11–12 m. | 36. <i>Ibid.</i> Pl. LXXX D 10, Siyalk III 5 or 6 |
| 23. <i>Ibid.</i> Pl. 52:7, —11–12 m. | 37. <i>Ibid.</i> Pl. LXXXI D 14, Siyalk III 7 |
| 24. <i>Ibid.</i> Pl. 53:17, —11–12 m. | 38. Pottier, '12, Pl. XII 1 (not as tall as No. 31) |
| 25. <i>Ibid.</i> Pl. 55:21, —10–11 m. | 39. Morgan, '12, Fig. 31 |
| 26. Pottier, '12, Pl. XIII 6 | 40. <i>Ibid.</i> Fig. 30 |
| 27. <i>Ibid.</i> Pl. XIII 7 | 41. Pottier, '12, Fig. 128 |
| 28. <i>Ibid.</i> Pl. X 5 | 42. <i>Ibid.</i> Pl. XX 4 |
| | 43. <i>Ibid.</i> Pl. VII 6 |

NOTES ON FIGURE 9

Unfortunately there are no microphotographic studies of the Susa I metal objects to prove that they are cast. From their forms it seems likely that they were cast, since they show that their makers fully appreciated the metallic qualities of copper. We would not expect to discover this state of metallurgy previous to the time of Siyalk III 4–5. The end of Susa I is, therefore, after this point. The axes and particularly the chisels of Susa I (Nos. 6, 39–40) show associations with Siyalk III (Nos. 32–34).

Only a few seals may be ascribed with some certainty to Susa I. Two (No. 20 and Mecquenem, '34, Fig. 19) are plano-convex and show drillwork and resemble seals of Siyalk III 6 (Fig. 7:24) and Giyan V C (No. 15 and Fig. 7:20). Representative designs on seals are found in Susa I and at Giyan, though not in the Hissar culture except for one example at the end of Hissar I. In Susa I the quartered-circle design appears on seals (Morgan, '12, Fig. 20; Mecquenem, '38, Fig. 1:3) as at Giyan. If such elaborate seals as those shown in Mecquenem, '34, Figs. 19 and 46 really are to be attributed to Susa I, this would suggest that Susa I did not terminate before the end of Giyan V C or that these seals were imported from northern Mesopotamia.

Comparison of the ceramics of Susa I and Giyan V produces evidence of significant associations from V A onward. Since this discussion must be limited to determining the relative position of the end of Susa I, all such associations cannot be considered in detail. They merely demonstrate the basic connection of Susa I and Giyan V as aspects of the buff-ware culture. To be noted are some similarities in design between Susa I (No. 29 and Pottier, '12, Pl. VII 4) and Giyan V (Fig. 13:91 and Contenau-Ghirshman, '35, Pl. 45:9) which are not shared with Fars. Significant parallels with Susa I in design appear in the first part of Giyan V C. Giyan designs compared here are not known before V C. Dotted fields (No. 9) first appear in the beginning of V C (No. 4) and continue into V D. This again places the end of Susa I not before V C. Various peculiar forms of paneling (Nos. 23, 28) are more typical of Susa I than of other sites. A queer ibex from Giyan V C (No. 14) contrasts strongly with the usual Giyan animal style, and its similarity in style to the dogs of Susa I (No. 19) suggests inspiration from that culture. No. 25 is the only example of this peculiar symbol outside Susa I (No. 30).

The long-necked birds of Giyan V D (Fig. 8:13–14) appear at a time when we suspect an invasion of the Hissar culture. That they are necessarily of the Susa I type is certainly questionable. They are just as likely, if not more likely, inspired by the long-necked birds of the Hissar culture (Fig. 8:17–18). It is noteworthy that bent legs are almost unknown and certainly uncommon in Susa I but are found at Siyalk (Ghirshman, '38, Pl. LXV S.1292) and Hissar (Fig. 8:17). The legless form, though unknown at Siyalk, does appear at Hissar (Fig. 8:18). Therefore it is not safe to assume that there was any contact between Susa I and Giyan after the time of Giyan V C.

Various points of similarity between Susa I and Siyalk III which have already been mentioned (see 1st paragraph and p. 22) indicate that Susa I existed up to or after Siyalk III 5 but give no relative point for its later limit. The ceramics help but little. The presence of a leopard design in Susa I (No. 41) again shows that its end must correspond to a later phase than Siyalk III 4 or 5. It must be noted that this design, as far as is known, arrives at Chashmah Ali and Hissar after its appearance at Siyalk and seems to have spread to these other centers about the time of Siyalk III 6. The absence of other diagnostic patterns of the Hissar culture in Susa I is evidence against explaining the presence of the leopard design at Susa as we did the arrival of elements of the Hissar culture in Giyan V D (see p. 18).

The beaker form first seen in Siyalk III 6 (Fig. 10:112) is not entirely dissimilar to a Susa I form (Fig. 13:214) but also is closely comparable with a possibly earlier deep bowl from Bakun A. Cylindrical-footed bowls of Susa I (No. 38 and Pottier, '23, I C a, Pl. 10:3, 8; Mecquenem, '34, Fig. 39) might suggest contact with the stemmed type of Siyalk III 6–7 (No. 31), though the difference in foot and body forms makes this comparison somewhat dubious. Such feet, however, either straight or splaying, are not known from Bakun A.

Only two patterns more typical at Susa (Nos. 42–43) than elsewhere appear at Siyalk, in III 5 or 6 (No. 36) and 7 (No. 37).

culture (see Fig. 9). Furthermore, according to the evidence given in Figure 9, Susa I did not terminate before Siyalk III 5 or Giyan V C. How much later it came to an end is a more difficult question. The answer depends on comparisons with Giyan. Susa I shows the most contact with Giyan V C, after which new points of comparison do not certainly appear. A direct interpretation of this evidence would place the end of Susa I at the end of Giyan V C. If, however, the contact at the end of V C is to be explained as the result of the end of Susa I and the displacement of at least some peoples of that culture, Susa I may have ended during the earlier part of Giyan V C and shortly after the middle of Siyalk III. The latter alternative finds some confirmation on the basis of trends observable in Siyalk III (pp. 24 f.).

TEPE MUSYAN AND OTHER SITES IN KHUZISTAN

The other sites of modern Khuzistan are either unstratified or insufficiently published. The remains of Tepe Musyan and neighboring sites show a regional variant of the buff-ware culture apparently more closely connected with Susa and Fars than with Giyan.²⁷ It is of interest that Siyalk III shares with the Musyan area certain designs not typical elsewhere,²⁸ although the unstratified character of the Musyan material precludes explanation. Some of the published Musyan pottery, on comparison with that of stratified sites, may tentatively be placed as contemporaneous with Siyalk III 1 and even Siyalk II. It is important to remember that the Musyan aspect is not to be considered as older or younger than Susa I. Both buff-ware variants may reasonably be assumed to have had a long period of development beginning at least as early as the time of Siyalk II (see below for a necessary qualification of this statement as it applies to the remains found at Susa and not to the culture represented by Susa I).

The brief character of the reports on Tepe Duvaishyah, Tepe Jafarabad, and Tepe Juwi (Mecquenem, '28, pp. 113-15; '34, p. 205; '35, pp. 102 f.), all in the neighborhood of Susa, does not permit these sites to be placed in the relative stratigraphy of Iran. Jafarabad should afford valuable information when more material is made available and an evaluation is possible of the excavator's suggested stratification (Mecquenem, '35, p. 102): coarse ware with purely geometric design said to resemble that of al-Ubaid and Eridu (which need mean no more than that it has buff-ware designs), Musyan-type pottery, and then that of Susa I type (lower to higher strata respectively). This sequence suggests that earlier stages of Susa I than those known at Susa are to be found in a different region (see Ghirshman, '36, p. 26).

Only descriptions of the stratification and a few sketches are available from Tepe Band-i-Bal and Tepe Buhallan (Mecquenem, '38, pp. 68-70). Detailed publication of their remains should prove important. The above-mentioned stratification of Jafarabad is confirmed at Band-i-Bal by the discovery of sherds with designs typical of Musyan (*ibid.* Fig. 5:3) close to virgin soil and above them a level containing Susa I pottery. Unusual pottery (*ibid.* Fig.

²⁷ The geometric design of the Musyan area shows most similarity to that of Susa and Fars. At Musyan the bounding ibex, typical of Giyan V B-C (see Fig. 8), is known (Gautier-Lampre, '05, Fig. 233) and, as at Giyan, has no element inside the horns. The designation "Susa I bis" for the type of pottery and design found in the Musyan area, doubtless used originally to denote the similarity between the Susa I and Musyan aspects of the buff-ware culture, seems now ill-advised and is not used in this discussion. The culture of the Musyan area is not in the direct line of development of that of Susa I.

²⁸ Intersecting zigzags with dotted apexes at Musyan and Tepe Khazinah (*ibid.* Fig. 169) and beginning in Siyalk III 4 (Fig. 8:10), dotted nets at Muradabad (*ibid.* Fig. 165, right) and beginning in Siyalk III 2 or 3 (Fig. 11:84), a peculiar combination of three rectangles at Khazinah and Musyan (*ibid.* Figs. 166, 168) and Siyalk III 7 (Ghirshman, '38, Pl. LXXXI C 11), separate groups of joined diamonds at Musyan (Gautier-Lampre, '05, Fig. 170, left) and Siyalk III 7 (Fig. 10:136).

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6:1-4) found with Susa I pottery at Buhallan shows some indications of relationship to Bakun A I-IV (see Langsdorff-McCown, '42, Pls. 70:15, 28:2, 2:7). As yet we cannot evaluate the enigmatic but interesting occurrence of bowls of black and red wares throughout the layers of both Band-i-Bal and Buhallan. Until it is known whether the red ware is the same as that of Susa I and in what forms it occurs the obvious comparison to Uruk pottery is at best uncertain.

TALL-I-BAKUN AND OTHER SITES IN FARS

Again it is a considerable distance to another area where remains of the buff-ware culture are known. The stratigraphy of this culture in Fars rests on work at the twin mounds of Bakun, close to Persepolis. At Bakun B in the lower stratum (B I) occur very crude, half-baked, handmade, unpainted light brown pottery and many flint and bone tools. Above these appears the first painted pottery in a layer (B II) less than 1 meter thick which has been disturbed by Muslim burials. Tall-i-Sang-i-Siyah (Stein '36, pp. 180 f.), and three sites near Madavan—Tall-i-Siyah (*ibid.* pp. 183 f.), Tall-i-Rigi (*ibid.* pp. 186 f.), and Tall-i-Sakau (*ibid.* pp. 188 f.)—similarly produced unpainted coarse ware below painted pottery of the Bakun B II type.²⁹ At Tall-i-Sakau and possibly Tall-i-Siyah pottery of the Bakun A I-IV type also occurred.

There is no material elsewhere comparable with that of Bakun B I, whose whole culture is so simple that it might be Neolithic or epi-Neolithic. Furthermore, no transition was apparent between B I and B II. The painted pottery of Bakun B II, although not unsophisticated, is far less mature than that of Bakun A I-IV, of which it is an earlier stage. The use of reversing triangles with simple fill (cf. *ibid.* Pl. XXII 60), other reversing elements (cf. *ibid.* Pl. XXII 16), suspended joined diamonds (cf. *ibid.* Pl. XXII 41), joined diamonds with side fill (cf. *ibid.* Pl. XXIII 1), filled zigzags (cf. *ibid.* Pl. XXII 35), and a peculiar type of diamond (cf. *ibid.* Pl. XXII 17), is the basis for an elaborate development in the Bakun A I-IV stage. Unfortunately a gap between the B and A mounds breaks the sequence, so that at present we may merely recognize the existence of an earlier and a later stage of the Fars aspect of the buff-ware culture.

In the main the position of Bakun B II in the Iranian relative stratigraphy depends upon that of Bakun A. Yet, despite our inadequate knowledge of Bakun B II, the absence of seals (cf. p. 6) and the similarity of the pottery design to that of the Samarra culture (see p. 35) suggest contemporaneity in part with the Chashmah Ali culture,³⁰ which is temporally equated with the Halaf period (see p. 33 and n. 44).

The break in sequence between Bakun B II and Bakun A precludes tracing of the changes between the two mounds. That the differences are to a large degree due to development rather than to external influence seems likely. One of the more marked changes is in the animal style, where the less flowing forms of Bakun B II are replaced by a type with sweeping line in Bakun A.

Bakun A, although divided into four phases (A I and A II cannot be separated), shows no very pronounced change between levels I and IV, when the painted buff ware is replaced by plain red ware (Bakun A V). Levels I-IV possess, however, various cultural features so far

²⁹ No pottery of the Bakun B II type is illustrated from Tall-i-Rigi.

³⁰ Open-beaked birds and spirals from Tall-i-Rigi near Khusu (Stein, '36, Pl. XXV 2, 28), where none of the published designs needs to be as late as Bakun A, indicate possible relationships to Chashmah Ali I A and Siyalk II. Compositions based on meanders (*ibid.* Pls. XXIII 45, XXVIII 8) are typical of Bakun B II and unusual at Bakun A. Outside Fars the best parallels are in Giyan V A (Figs. 10:45, 12:71).

unknown in the Bakun B II stage. The presence of seals, molded bricks, and a developed type of pottery oven and the rarity of bone implements suggest that Bakun A I-IV is contemporaneous with the Hissar culture. Painted lines descending from the design zone to the base on some vessels may indicate contact with the Chashmah Ali culture (see p. 13 and Fig. 5:9),³¹ as does possibly the red burnished cooking ware. We may, then, expect that Bakun A begins not very long after the end of the Chashmah Ali period.

Certain features are shared by Bakun A I-IV and Siyalk III. The form of their convex-faced button seals and the fact that both sites use the quartered-circle design on them (although elaborated quite differently) suggest a common origin for these two features in both civilizations. The "skid" position of animals in the pottery design also is shared. The differences between the artifacts of the Hissar culture and those of Bakun A I-IV are the natural result of the basic differences between Bakun B II and the Chashmah Ali culture.

The absence of cast metal instruments in Bakun A I-IV would indicate that it had not made the transition to the Copper Age, which occurred at Siyalk in III 4 and 5 (see p. 6), and suggests that Bakun A IV ended before Siyalk III 5. Until a cemetery of this Bakun A culture is found, however, this conclusion must remain suspect.³²

Comparison of the pottery designs and forms of Bakun A I-IV and Siyalk III shows a gradual increase in similarity which reaches its climax after III 5. In Bakun A I-IV appear only two designs which probably derived from the Hissar culture.³³ One of these apparently could not have derived after Siyalk III 5. The greatest number of distinctive designs is shared first with Siyalk III 4 or 5. Then, beginning with Siyalk III 5 and increasing in 6-7, other designs, showing similarity in both composition and content, are shared (Fig. 10 and notes).

This may be explained in three ways. The early part of Siyalk III was strongly linked to Siyalk II, although significant changes had occurred during the break in sequence (see pp. 5 f.). The pottery of Siyalk III changed gradually from the red-ware basis of the Chashmah Ali culture and approached ever closer that of the buff-ware culture. At first the slip was retained, though buff in color, and then it was given up in favor of unslipped grayish ware (see p. 6). This seems to be most adequately explainable as due to increasing influence of the buff-ware culture on what still remained of the Chashmah Ali culture at the beginning of Siyalk III. The same influence may be detected in pottery design. Up to Siyalk III 4 or 5 there is a gradual increase in similarity to buff-ware design,³⁴ which suggests normal relations between

³¹ In Bakun A I-IV the pottery does not have lines on the ring feet as it does in the Hissar culture. The presence of vertical lines on the lower body of some of the earliest vessels of Bakun A is thus most likely a sign of contact with the Chashmah Ali culture. Zones of design on the feet of Bakun A vessels may, because of their rarity, denote contact with the Hissar culture, although this is a simple and natural form of decoration.

³² Cf. the situation in Susa I (Mecquenem, '34, p. 205), although in contrast metal objects were not uncommon in the Bakun A village. A Bakun A dagger which may come from level IV (Schmidt, '39, p. 123) looks less developed because of the absence of a well defined tang than one from Siyalk III 2 (Ghirshman, '38, Pl. LXXXV S.312). However, part of a copper celt which appears to be cast was found at Tall-i-Rigi near Kamalabad in a level above the middle of the mound (Stein, '36, p. 128 and Pl. XXX 31). This level should be contemporaneous with Bakun A I-IV, since the pottery of Tall-i-Rigi is of the Bakun A I-III and possibly B II stages. The evidence of this celt thus suggests that Bakun A IV should be as late as Siyalk III 4 or 5.

³³ One (Fig. 10:65-66) seems to disappear in the Hissar culture after Siyalk III 5 and Hissar I B. The other (Fig. 10:67) has too long a range in the Hissar culture to be useful for comparative purposes.

³⁴ It may be suspected that the new animal design of Siyalk III, very different from that of Siyalk II, derives from the buff-ware culture. In Bakun B II there are already birds similar to the humpbacked type with low-joined neck of Siyalk III (Fig. 10:100).

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Siyalk III and Fars, whence many of the elements denoting contact with the buff-ware culture seem to derive. The flood of buff-ware designs, many from Fars and Khuzistan, in Siyalk III 5-7 indicates more than normal contact. It may well be connected with a movement of peoples, due to the advent of the plain-red-ware culture known from Bakun A V, which resulted in the disappearance of the buff-ware aspect of Fars.

If this explanation of relations between Siyalk III and Fars is correct, Bakun A I-IV would cover about the same time as Siyalk III 1-4. The indications that Bakun A begins not very long after the end of the Chashmah Ali period (see p. 24) and the following negative evidence lend support to the possibility that Bakun A I-IV comes early in the Hissar period. The absence of cast metal in Bakun A I-IV has been mentioned above. The Bakun A I-IV seals do not show drillwork as do those of Giyan V C, Susa I, and Siyalk III 6-7. Nor is the Bakun paint ever lustrous as is that of Giyan V C, Susa I, and the latter part of Siyalk III. Though there is no positive evidence that Bakun A IV ended about the time of Siyalk III 4 or 5, the alternative suggestions which follow are not nearly as satisfactory.

The most obvious alternative is that Bakun A I-IV is contemporary with all of Siyalk III. This is not impossible merely because these levels at Bakun A are fewer in number and in total thickness than those of Siyalk III. The main and important objection is the difficulty of explaining how the buff-ware aspects of Fars and Khuzistan could produce such a change in the Hissar culture as they did and not show more signs than they do of contact with that culture.

To make Bakun A I-IV contemporaneous with the latter part of Siyalk III is even more difficult. In this case Bakun B II might be temporally equatable with the beginning of Siyalk III, and little contact would need to be postulated at this time. The design similarity of Bakun A I-II and Siyalk III 4 would necessarily be due to influence from the Hissar culture on Fars and the reverse as regards ware. Bakun A III-IV might then coincide with Siyalk III 6-7, mutual contact explaining the features shared, and both would end roughly at the same time. It must be admitted, however, that the influences are mainly one-sided in the latter part of Siyalk III, from Fars on the Hissar culture.

Although an argument can be made for this last possibility, the first appears considerably more probable. It seems unlikely that southwestern Iran should have had only such a primitive culture as that of Bakun B I up to the time of the Hissar period, especially since we know of possible contact between the Chashmah Ali culture and the southwest (see p. 2 and n. 31). Furthermore, the real similarity of certain features of the Samarra culture and the Bakun B II stage suggests contemporaneity, and what evidence there is would equate temporally the Chashmah Ali culture with the Samarra and Halaf cultures (pp. 33, 35).

If one accepts the possibility that the earliest buff ware of Fars (Bakun B II stage) is not earlier than Siyalk III, the same must be suspected of Giyan, since Giyan V A and B share certain distinctive designs (Fig. 10:45-46) and inverted-rim bowls with Bakun B II. In Giyan V A-B, as in Bakun A I-II (see p. 24), similarity to the Chashmah Ali culture would be explained as influence at the end of or just after that period. Giyan V B would then correspond to the first part and Giyan V C to the latter part of Siyalk III. This would eliminate the possibility that any culture was present in the western mountain areas before the latter part of the Chashmah Ali period. The assumption that in Iran the only cultures of importance antedating the Hissar period were in the northeast and that the rest of the land was uninhabited or

populated by people of such a primitive culture as that of Bakun B I would afford a highly puzzling problem.

If, however, Bakun B II is accepted as roughly contemporaneous with the Chashmah Ali period and a considerable gap is postulated between B II and A I-II, the resultant picture of relations with the Hissar culture is no more satisfactory. We have already noted (p. 24) the extreme rarity in Bakun A I-IV of designs which might have been inspired by diagnostic designs of the Hissar culture. This precludes the influence from the latter which must be assumed if Bakun A I-II is equated with Siyalk III 4-5; for if this influence is postulated certain designs (Fig. 10:69, 70, 87) shared by Bakun A I-II and Siyalk III 1 or 2 to 5 are older at Siyalk. It is then difficult to explain their origin, since they could well develop or derive from Bakun B II but scarcely from Siyalk II or III 1. It is not easy to consider the influence from the buff-ware culture on the latter part of the Hissar culture as due to mere contact of cultures existing side by side in adjacent regions, since influence in the other direction seems almost completely lacking.

Thus, despite the absence of conclusive evidence, the equation of Bakun A IV and Siyalk III 4-5 seems most satisfactory. On that basis Giyan V A and part of B would synchronize with Bakun B II and show a common tradition, with divergence having already occurred from an as yet undiscovered earlier stage of the buff-ware culture. The increasing similarity to Bakun A I-IV at Giyan during V C (from -13 to -11 m.) would then be the result of the end of the buff-ware culture in certain sections of the south and the consequent movements of tribal folk.

The cultures of Susa I and Bakun A I-IV are in part much alike (see Fig. 10) and in part unquestionably contemporaneous.³⁵ The position of the end of Susa I and that of Bakun A IV relative to Siyalk III implies that the buff-ware variant of Susa I continued to exist alongside the new culture characterized by unpainted red ware (Bakun A V) which brought the buff-ware aspect of Fars to a close.

The Musyan area, in its geometrical design and diamond-head patterns (Gautier-Lampre, '05, Figs. 172-73), is even closer to Bakun A I-IV than is Susa I; but because the Musyan material is unstratified it cannot be profitably discussed further.³⁶

SUMMARY

Stein's surveys have revealed that Fars and the region up to Tall-i-Pir, close to the Persian Gulf (Stein, '37, pp. 221-23), and well over toward Malamir³⁷ is one cultural area, with the civilization known from Bakun B II and A I-IV. Bushire deserves mention, although loose stratification and rarity of finds preclude definite conclusions. Certain fragments (Pézard, '14, Pl. IV 8-9, 17) resemble pottery of the Ubaid culture more closely than pottery of Iran, and it is not unlikely that they indicate the presence of an Ubaid settlement. If the painted

³⁵ Dot-tipped branches in Bakun A I (Fig. 10:3) suggest that Susa I is at least as old, and a unique long-necked bird from Bakun B II could be of the Susa I type. It might, however, be a Chashmah Ali form, for the bird designs of that culture are not dissimilar to those of Susa I. The distinguishing feature of the birds of the Chashmah Ali culture, which is not always present, is the open beak (Ghirshman, '38, Pl. XLIX A 23).

³⁶ Note the occurrence at Musyan of suspension jars with inner-ledge rims (Pottier, '23, I C f, Pl. 1:10-11) and cf. Fig. 13:171, from Bakun A IV.

³⁷ Resemblances to the design at both Bakun B and A are shown by sherds from Tall-i-Gird, Tall-i-Hasanach, and Tall-i-Gorepah (Stein, '40, pp. 6, 8, 79 f.), where comparisons with either the Musyan or the Susa I aspect of the buff-ware culture are at best uncertain. One sherd from the Malamir site (*ibid.* Pl. II 19) suggests comparison with Bakun A IV (cf. Langsdorff-McCown, '42, Pl. 55:1-2).

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red ware of Bushire (*ibid.* Pl. IV 21–22) is contemporaneous with the painted buff pottery and is not a firing variant, it is not unlikely that this occupation is to be placed at the end of the Ubaid period, when Uruk red ware was already present.

Around Susa lies another regional aspect of the buff-ware culture. Another buff-ware variant extends from Musyan and the Susa region as far north as southern Luristan.³⁸ New information as to the extent of the Musyan and Susa I aspects is provided by Stein's caravan trip through the Bakhtiari Hills and up the Saimarra River Valley (Stein, '40, pp. 135 f. and 203 f.). The Musyan aspect reaches from mounds in the Malamir region,³⁹ east and a little south of Susa, to Kuzagaran, just above the junction of the Kashgan Rud and the Saimarra River. Susa I pottery is found in the same area (*ibid.* Pls. II 14, VII 15–16, 20, VIII 4, 10), although apparently it is much less common than that of the Musyan aspect.

Another local aspect of the buff-ware culture is represented at Giyan, and other regional variants will certainly appear with future work.

All of these areas show variant developments of the same culture, diverging from and in part doubtless converging on the basis of a stage of the buff-ware culture which is as yet un-

³⁸ Dr. Erich Schmidt has kindly given me the opportunity to examine two stages of painted pottery from Chigha Sabz in the Rumishgan Valley (see Schmidt, '40, p. 40). I believe that this material reveals associations with the Musyan aspect and that of Giyan.

³⁹ A sherd from Tall-i-Bava Muhammad in the Malamir region (Stein, '40, Pl. III 20) is of interest since its striking similarity to certain sherds of Giyan V A (Contenau-Ghirshman, '35, Pls. 40:22, 42:27) is our only indication of remains as old as Giyan V A in Khuzistan. Neither zigzags below the main design zone nor diamonds or triangles with "arms" are found at Giyan after V A.

NOTES ON FIGURE 10

FARS AND SUSa I

No. 1. See also Langsdorff-McCown, '42, Pl. 22:22. No. 16. See also Pottier, '12, Pl. XIV 4 and Mecquenem, '28, Fig. 9:4.

No. 2. This panel type is found somewhat rarely in Bakun A I–IV (Langsdorff-McCown, '42, design VII A 1). No. 17 is the only example from Susa I, though cf. an odd type of Maltese square (Pottier, '12, Pl. XII 7). It is known from Muradabad also (Gautier-Lampre, '05, Fig. 167). Cf. also No. 31 and Fig. 13:42.

No. 3 and Langsdorff-McCown, '42, Pl. 73:1, from A I, are the only examples of this element at Bakun. No. 18 and Pottier, '12, Fig. 133 are the sole representations of this type of branch from Susa I. Tree or branch designs are known also at Duvaishah (Mecquenem, '28, Fig. 19:4), possibly in the Musyan region (Gautier-Lampre, '05, Fig. 195), and in Giyan V (Contenau-Ghirshman, '35, Pls. 48:12[?] from –12–13 m. and 58:3 from –7.5–9 m.).

No. 4. Perhaps it is chance that the rear legs are nearly horizontal. The dogs of Susa I (No. 19), however, are much closer to the animal style of Fars than the other animals at Susa. At Susa dogs which appear to be lying down are not rare. A different type (Pottier, '12, Pl. II 2) is closer to the usual style of dog at Bakun A (cf. Langsdorff-McCown, '42, Pl. 73:16). No. 4 is from a scene showing a dog above an ibex. A few other such scenes are known at Bakun, one from A I. They are found elsewhere in Fars (Stein, '36, Pl. XXII 44, 46–47) and occasionally in Susa I.

No. 5. This type of design occurs in Bakun A III–IV and elsewhere in Fars (*ibid.* Pl. XX 9). Aside from Nos. 20–21 there is only one comparable example published from Susa I (Pottier, '23, I C a, Pl. 3:16).

No. 6. This design is fairly common in Bakun A I–III. It was found in Bakun B II also, and numerous examples occur elsewhere in Fars (see Stein, '36). No. 22 is the only example known from Susa I, while another occurs at Buhallan (Mecquenem, '38, Fig. 6:3).

No. 7. Such divided elements are found in Bakun A I–IV and elsewhere in Fars (Stein, '36, Pls. XX 12, XXIII 27, XXVIII 31–32). They occur in Susa I (No. 23 and Pottier, '12, Pls. VIII 4, XVI 4; '23, I C a, Pl. 2:17, 19), and one such element is shown from the Malamir site (Stein, '40, Pl. XXVII 3).

No. 8 shows the only dot-edged vertical "snake" from Bakun. See also Langsdorff-McCown, '42, Pl. 77:8. A possible example of a vertical snake was found in Bakun A I, and another uncertain example at Tall-i-Pir near Haraj (Stein, '37, Pl. XXIX vii. 36). No. 24 and two other dot-edged examples are known from Susa I (Pottier, '12, Fig. 158; Mecquenem, '34, Fig. 9:1). Vertical snakes are common in Siyalk III 1–6, though they are never dot-edged.

No. 9 shows an element typical of Bakun A I-IV. It is probably represented in Bakun B II and is found throughout the rest of Fars (see Stein, '36, '37). It is common at Susa I (No. 25). It occurs once at Giyan, in V C (No. 77), and at Siyalk it first appears in III 7 or 7b (No. 133).

No. 10 shows the unique example of this type of "branch" design at Bakun A. It may be represented in Bakun B II (Fig. 12:55) but apparently has not been found by Stein elsewhere in Fars. It seems common in Susa I (No. 26) and is known from the Musyan area (Gautier-Lampre, '05, Fig. 191, left). Comparable is an element found at Siyalk in III 1-2 or 3 (No. 83 and Ghirshman, '38, Pls. LXXVI B 7, LXXVII C 11). The unilateral ladder, which may represent the same element, occurs in Siyalk III 2 or 3 to 7, at Chashmah Ali (Mecquenem, '28, Fig. 26:10), and at Giyan in V D only.

No. 11. Crosses occur in Bakun A I-IV. Usually those of Bakun A I-II are more elaborate, though it should be remembered in cases where an element or compositional form is missing from Bakun B II or Bakun A I-II that only a small amount of material from these levels is known. Simple crosses occur elsewhere in Fars (Stein, '36, Pl. XXIII 10, 75). At Susa crosses are commonly used in minor design zones (No. 27), as they are at Musyan (Gautier-Lampre, '05, Figs. 144, 214) and once at Giyan (Fig. 9:11).

No. 12. Such birds occur in Bakun B II and A I-IV and at Tall-i-Rigi near Kamalabad (Stein, '36, Pl. XXI 26), though the last cited has bent wings. No. 27 is the only example in Susa I.

No. 13. Panels which do not touch the borders are unusual at Bakun A (Langsdorff-McCown, '42, design VI E 2, p. 39) though found elsewhere in Fars (Fig. 12:13 and Stein '36, Pls. XXII 49, XXIV 1, XXVI 2, XXVIII 17). They are characteristic of Susa I (No. 28). At Giyan something similar is found in V C (Fig. 9:23 and Contenau-Ghirshman, '35, Pl. 49:20).

No. 14. Steps are found in Bakun A I-IV (Langsdorff-McCown, '42, p. 38) and elsewhere in Fars (Stein, '36, Pls. XXII 29, XXIII 22, 30, XXV 51, XXVI 15). They are not uncommon in Susa I (No. 29) and have been found also at the Malamir site (Stein, '40, Pl. III 12), Kuzagaran (*ibid.* Pl. VII 16; cf. No. 29), Duvasiyah (Mecquenem, '28, Fig. 19:2), and in Siyalk I 3 (Fig. 12:12).

Spread-eagle birds (No. 94) are known from Bakun A III-IV and elsewhere in Fars (Stein, '36, Pls. XXVI 51, XXVIII 44; '37, Pl. XXVIII vi.30). They are fairly well represented in Susa I (Pottier, '12, Pl. XVIII 1, 3-5), but otherwise they occur in Siyalk III 4 or 5 only (Nos. 107-8).

Geometric "birds" like those shown in Langsdorff-McCown, '42, Pl. 68:1 are found in Bakun B II and A I-IV and elsewhere in Fars (Stein, '36, Pls. XXI 25, XXIII 39). Similar types are found occasionally in Susa I (Pottier, '12, Pls. X 7, XLI 5; '23, I C a, Pls. 8:21, 11:37) and in the Musyan area (Gautier-Lampre, '05, Figs. 203-4; Pottier, '23, I C f, Pl. 2:6). Similar "birds" with bent "wings," though rare at Bakun A, are common elsewhere. They are found throughout Fars (Stein, '36, Pls. XXIII 47, XXVIII 28; '37, Pl. XXIV 91), fairly commonly in Susa I (Fig. 9:28 and Pottier, '12, Pls. III 3, XXI 9, XXII 1, 5; '23, I C a, Pls. 11:35, 12:1-2, 6, 9), in the Musyan area (Gautier-Lampre, '05, Fig. 261[?]; Pottier, '23, I C f, Pl. 3:1), throughout the rest of Khuzistan (Stein, '40, Pls. I 12, III 20, VIII 11, 15), and in Giyan V A (Contenau-Ghirshman, '35, Pls. 41:20, 42:27, 43:17, 19-22).

No. 15. This type of pot is found throughout Bakun A and elsewhere in Fars (Stein, '36, Pl. XXI 5). No. 30 is the only strictly comparable vessel from Susa I, though a similar vessel and other shapes with ledge rims occur there (Pottier, '23, I C a, Pl. 12:46; '12, Pl. X 1, 5).

Cones also are characteristic of both Bakun A and Susa I (Fig. 12:49-50), as are deep nearly vertical-sided bowls and ring bases. Such bases are lower at Susa than they often are at Bakun A. See also notes following Nos. 62 (p. 29) and 90 (p. 31).

FARS AND GIYAN V

No. 31 is the only example of this design from Bakun A. It has been found in Giyan V A (No. 44), Chashmah Ali I A, and Siyalk III 5 (Ghirshman, '38, Pl. LXXX C 14).

No. 32. Meanders are typical of Bakun B II but rare at Bakun A (Langsdorff-McCown, '42, p. 48). They are found quite commonly throughout the rest of Fars (Stein, '36, Pls. XXII 21, 72, XXIII 4, 45, XXIV 6, 9, XXV 10, 34, XXVI 7, 14; '37, Pl. XXVIII x.1; '40, Pl. I 26). Only isolated examples are known from Susa I (Fig. 12:74) and Musyan (Gautier-Lampre, '05, Fig. 225). At Giyan they occur in V A (No. 45 and Fig. 12:71) with an isolated example in V C (Contenau-Ghirshman, '35, Pl. 55:26).

No. 33. Zones of joined isosceles triangles in horizontal position are found at most sites of the buff-ware culture. They occur in Bakun B II and A I-IV (e.g. Fig. 12:45), throughout the rest of Fars, in Susa I (Fig. 13:117 and Pottier, '12, Pl. XV 1), at Musyan (Gautier-Lampre, '05, Figs. 246[?], 248), and in Giyan V B (No. 46 and Contenau-Ghirshman, '35, Pls. 44:5, 45:8, 13). At Siyalk they do not appear until III 6 (No. 113 and Ghirshman, '38, Pl. LXXXIII B 5).

No. 34. This design so far is known from Bakun A III-IV and only one other site in Fars (Stein, '36, Pl. XXI 44). It occurs also in the Musyan area (Gautier-Lampre, '05, Fig. 160 and in alternating directions in Figs. 161-63, 264) and in Giyan V B (No. 47). It is shown twice from Siyalk III 7 or 7b (No. 137 and Ghirshman, '38, Pl. LXXXIII C 5).

No. 35. The same design as No. 34, but not painted solid, is known in Bakun A III-IV. Elsewhere it is found in Giyan V B only (No. 48 and Contenau-Ghirshman, '35, Pl. 44:10).

No. 36. This type of suspended joined diamond occurs in Bakun B II and A I-IV (Langsdorff-McCown, '42, pp. 44 f.) and elsewhere in Fars (Stein, '36, Pl. XXII 41-42). At Giyan it is found in V B-D (No. 49, Figs. 7:19, 9:23, and Contenau-Ghirshman, '35, Pls. 49:20, 53:20, 55:15, 58:25). It may be represented in Siyalk III 6-7 (No. 128 and Ghirshman, '38, Pl. LXXXIII S.26).

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No. 37. Diamonds with horizontal negative lentoid inside are found in Bakun A I-IV (Langsdorff-McCown, '42, p. 44) and at Tall-i-Pir near Haraj (Stein, '37, Pl. XXVIII v.36). In Khuzistan they are known from Kuzagaran (Stein, '40, Pl. VII 23) and possibly the Musyan area (Gautier-Lampre, '05, Fig. 138, center). At Giyan they are found in V B-D (No. 50 and Contenau-Ghirshman, '35, Pls. 55:6, 56:15). They are known also from Zuhab (Mecquenem, '28, Fig. 32:19) and in Siyalk III 7b (Ghirshman, '38, Pl. LXXIII S.1696).

No. 38 may not be strictly comparable with No. 51, the only example at Giyan. Such broad loops are rare in Iran, being known in Bakun A III-IV (Langsdorff-McCown, '42, design II A 3, p. 35) and at Tall-i-Pir near Haraj (Stein, '37, Pl. XXVIII v.2). Similar broad loops are shown from Kuzagaran (Stein, '40, Pl. VII 14).

No. 39. This type of suspended joined diamond is found in Bakun A I-IV and elsewhere in Fars (Stein, '36, Pl. XXVIII 16; '37, Pl. XXIV 58). It is known otherwise from Giyan V C-D only (No. 52, Fig. 7:18, and Contenau-Ghirshman, '35, Pl. 58:9).

No. 40. This type of suspended joined diamond is known from Bakun B II probably and A III-IV. A somewhat similar design occurs in Chashmah Ali I A. No. 53 is from Giyan V C, where there is one other example (*ibid.* Pl. 55:23).

No. 41. This type of triangle is found in Bakun A II-IV, while a similar triangle probably existed in Bakun B II. It also occurs throughout the rest of Fars (Stein, '36, Pls. XXI 42, XXIII 18, XXVI 32) and quite commonly in Susa I. At Giyan it is known so far in V C only (No. 54, Figs. 9:13, 12:106).

No. 42. Such stepped triangles are known from Bakun A II and are typical in Bakun A III-IV, though they are not found dovetailed, as they are at Dih Bid in Fars (Stein, '36, Pl. XXVI 64) and at Susa I (Fig. 9:17 and Morgan, '00, Pl. XVIII 12). No. 55 is the sole example from Giyan.

No. 43. The rectangle at the left was probably a separate element as on a previously known vessel from Bakun A (Herzfeld, '32, Pl. XVI 4). This element is used as a diamond in Bakun B II and A III-IV and as a panel in Siyalk III 7-7b (No. 130 and Ghirshman, '38, Pls. LXXII S.131, LXXXII D 5). No. 56, unique at Giyan, probably shows this element in a checkered pattern. Such patterns are known at Bakun in only one example, from A III (No. 119), and at other sites in Fars (Stein, '36, Pls. XXV 49, XXVI 19; '40, Pl. I 13). A comparable form occurs in Susa I (Fig. 12:70), and two more examples occur in Siyalk III 7 or 7b (No. 132 and Ghirshman, '38, Pl. LXXXII D 1).

No. 57. Button seals of this shape are known from most parts of Iran. This type of design is much rarer. It is very characteristic throughout Bakun A and elsewhere in Fars (Stein, '36, Pl. XXX 24-25, 30; '37, Pl. XXX Har.1.6, 1.8). No. 72, from Giyan, is the only good example found elsewhere, though the curious line design of a very differently shaped seal from Siyalk III 4 (Ghirshman, '38, Pl. LXXXVI S.220) is comparable.

No. 58. The caduceus occurs throughout Bakun A, though it is quite rare in A IV. It is found throughout the rest of Fars also. Its forms in Susa I are queer (Fig. 13:122 and Mecquenem, '34, Fig. 11). In No. 73, from Giyan V C, it is used as in Fars, and there may be another example from Giyan V C (Contenau-Ghirshman, '35, Pl. 51:18). The same element is probably to be recognized in Siyalk III 1 or 2 and 3 or 4 (No. 84 and Ghirshman, '38, Pl. LXXXVIII B 1) and at Chashmah Ali (Mecquenem, '28, Fig. 24:23).

No. 59, a design known from Bakun A III-IV, is similar in idea only to No. 74, a unique example from Giyan V C. No. 74 is closer to designs from Siyalk III 6-7b (No. 138, Fig. 7:15, and Ghirshman, '38, Pls. LXXXI C 3-4, LXXXII A 12, LXXXIII A 10, D 5, 7, 9, LXXII S.1765). The comparison with the Bakun A design is nevertheless good, for in other Giyan designs the ibex horns or those of other animals are always parallel, while at Bakun A the idea of divided horns extending in opposite directions from the top of the head was natural since mouflons were so commonly drawn.

No. 60. This type of carefully done zigzag crosshatch which does not touch the borders of the design zone occurs in Bakun A III-IV, though a simpler single zigzag occurs in A I-II. Otherwise this is known from Giyan V C only (No. 75 and Contenau-Ghirshman, '35, Pls. 52:11, 53:11, 22[?], 54:10).

No. 61. This design occurs in Bakun A I-IV. No. 76, from Giyan V C, is the only other Iranian example so far published.

Nos. 62 and 77. See No. 9 (p. 28).

Ring bases are commoner than flat bases at Bakun A. They occur in moderately high form in Bakun B II and are not rare in Susa I. The only examples at Giyan occur in V C (*ibid.* Pls. 48:8, 49:13, 51:14). See also notes following Nos. 15 (p. 28) and 90 (p. 31).

What these comparisons mean as to the contemporaneity of Bakun B II and A I-IV with Giyan V depends to a large extent on the interpretation of the temporal relationships of Bakun B II and A I-IV to Siyalk II-III. Designs composed of meanders (see No. 32) provide the best evidence for contemporaneity of Bakun B II and Giyan V A, which is suggested too by comparison of these two levels with Siyalk II (see p. 23 and Fig. 5). The break between Bakun B II and A makes uncertain the correlation of Giyan V B, which may correspond to this break or part of it. For the same reason Bakun A I cannot be accurately correlated because some of the designs and other traits of Bakun A which perhaps were not known in Bakun B II may first have appeared during the break. There are, however, a number of designs at Bakun A which at Giyan do not occur before V C (see Nos. 39, 40, 58, 60, 61). The fact that a seal from Bakun A (No. 57) resembles one found at -13.1 m. in Giyan V C (No. 72) shows that this type of seal must have existed in Fars at the time that level was accumulated. Ordinarily such evidence would indicate that Bakun A I-IV was contemporaneous with all of Giyan V C. The relationship of Bakun A I-IV to Siyalk III (see pp. 24 f. and below) suggests, however, that the appearance of these elements beginning at about -13 m. at Giyan was the result of the replacement of the culture of Bakun A I-IV by that of Bakun A V.

FARS AND SIYALK III

No. 63. Dovetailed triangles occur in Bakun B II and A I-IV (Langsdorff-McCown, '42, p. 43) and at other sites in Fars (Stein, '36, Pls. XXIII 18, XXVI 32, 64). Only two examples are known from Susa I (Fig. 12:81 and Pottier, '12, Pl. XIV 3), though groups of dovetailed triangles are used between panels (Pottier, '23, I C a, Pl. 2:25). Only a few examples are known from Giyan, in V A and C (Contenau-Ghirshman, '35, Pls. 40:6, 42:4, 54:3, 6), though other elements are dovetailed in V A-C. At Siyalk this design occurs in I 3 (Fig. 12:79 and Ghirshman, '38, Pls. XLI A 11, XLII A 13) and then not until III 1 and 2 or 3 (No. 78 and *ibid.* Pls. LXXXVI A 14, LXXXVII D 5).

No. 64. Joined hourglasses are found in Bakun A I-IV (Langsdorff-McCown, '42, p. 44), but in Bakun B II only unjoined hourglasses occur. A few examples of the joined variety are known elsewhere in Fars (Stein, '36, Pl. XXI 11, 42), and there are two in Susa I (Fig. 13:50 and Pottier, '23, I C a, Pl. 8:16). This design seems unusual at Giyan (Contenau-Ghirshman, '35, Pls. 44:23 from -17-18 m., 50:15 from -12-13 m.). At Siyalk there is one example from II 1 (Ghirshman, '38, Pl. XLVII A 12), and then it is found again in III 1, 2 or 3, and perhaps 5 (Nos. 79-80 and *ibid.* Pls. LXXXVII C 7, D 13, LXXX C 22). No. 80 is the only example in Siyalk III with fill elements between the hourglasses.

Nos. 65-66 possibly illustrate influence from Siyalk III on the design of Bakun A. Such diamonds, which are characteristic of Siyalk III 1 (No. 81), are not shown after Siyalk III 5 (*ibid.* Pl. LXXX C 20).

No. 67 is the only example of a design zone with checkered borders found at Bakun. Crosshatched borders are twice shown from Giyan V C (Fig. 7:18-19). In Siyalk III crosshatched borders occur in III 1 (No. 82), while checkered borders are first known in III 4.

Nos. 68 and 83. See No. 10 (p. 28).

Nos. 69 and 84. See No. 58 (p. 29).

Vertical snakes. See No. 8 (p. 27).

A zigzag with appendages may be intended in a design from Siyalk III 1 (*ibid.* Pl. LXXXVI B 11). For the occurrence of this design elsewhere in Iran see Fig. 13:180, notes (p. 42).

No. 70. The dot-tipped star is found not uncommonly in Bakun A I-IV (e.g. Fig. 13:39) and elsewhere in Fars (Fig. 11:46 and Stein '36, Pl. XXI 34, 48). Otherwise it is known in the Hissar culture only (Mecquenem, '28, Fig. 24:10; Schmidt, '37, Pls. V, VII, VIII, X-XII). At Siyalk it occurs from III 2 or 3 (No. 85 and Ghirshman, '38, Pl. LXXXVII D 14, 16) through the end of III, though most of the published examples are from III 4 or 5 (e.g. No. 104).

No. 71. Filled checkers occur in Bakun A I-IV, though apparently rarely in IV (Langsdorff-McCown, '42, p. 41), and throughout the rest of Fars (Stein, '36, Pls. XXII 20, XXIV 41-42, XXVI 1, XXVIII 35). They have been found in Khuzistan (Stein, '40, Pls. III 19, VIII 22) and are not uncommon in Giyan V (Fig. 5:6 and Contenau-Ghirshman, '35, Pls. 40:12, 41:5 from A; *ibid.* Pl. 46:14-15 from -15-16 m.; Fig. 11:20, 89 from -14-15 m.; *ibid.* Pl. 52:2 from -11-12 m.). They are shown from Siyalk II surface (Fig. 11:21 and Ghirshman, '38, Pl. L B 2), and in Siyalk III sporadic examples appear from 2 or 3 onward (No. 86 and *ibid.* Pls. LXXXVIII C 1, LXXX C 14, LXXXIII A 9, and in effect LXIX S.158, LXXXI D 12). Since there is presumably but a short interval between the examples in Siyalk II and III, this design may have continued from II to III. The fill element of No. 86 is seen also in Siyalk III 4 or 5 (*ibid.* Pl. LXXXIX A 19) and Hissar I B-C. Elsewhere it occurs in Bakun A I-IV, in Susa I (Pottier, '12, Fig. 125; '23, I C a, Pls. 2:13, 8:12; Morgan, '00, Pl. XIX 11; Mecquenem, '28, Fig. 5:4), and at Zuhab (Mecquenem, '28, Fig. 32:7-8).

Bordered skewed chevrons in vertical or horizontal zones occur in Bakun A IV rarely (Langsdorff-McCown, '42, Pl. 36:3) and are shown to exist also at Chir in Fars (Stein, '36, Pl. XXVI 34), Kuzagaran (Stein, '40, Pl. XXVII 13), Giyan V A (Fig. 13:206), and Zuhab (Mecquenem, '28, Fig. 32:11). At Siyalk they are seen in III 2 or 3 and 3 or 4 (Ghirshman, '38, Pls. LXXXVII C 14, LXXXVIII B 1). At Hissar the horizontal form of this design is found in I A and II A, the vertical form in I C and II A.

No. 87. Reversing rectangles are found in Bakun A I-IV. No. 99, from Siyalk III 3, is the only example from another site in Iran.

No. 88. The idea of superimposed birds may be too general to be useful for our purpose. They are rare at Bakun A and are known also from Susa I (Pottier, '12, Pl. III 4) and Giyan V B-C (Contenau-Ghirshman, '35, Pls. 45:21, 47:10). Birds are superimposed in Siyalk II, but differently than in III, where there are a good many examples from 3 or 4 (e.g. No. 100) onward. They are found in Hissar I B-C also.

No. 89. Dot-centered circles unjoined in a row are represented at Bakun A by this one example, though they are occasionally found as isolated elements. They occur joined in a row in Bakun B II and are known in this fashion or as isolated elements elsewhere in Fars (Stein, '36, Pls. XXII 35, XXV 41). They exist joined or unjoined at Musyan (Gautier-Lampre, '05, Figs. 180, 244) and as isolated elements in Giyan V C (Contenau-Ghirshman, '35, Pl. 49:2). In Siyalk III circles with or without dots are shown from III 4-7 or 7b (No. 101, Fig. 3:16, and Ghirshman, '38, Pls. LXXXIX B 14, LXXX B 11, LXXXI A 13, LXXXIII A 14).

No. 102 shows the first beaker shape to appear at Siyalk. It began in III 4 and continued through III 7b. This exact shape is not found elsewhere, but beakers are characteristic of Bakun A and Susa I.

No. 90 is the only example of this particular element at Bakun A, though solid fringed circles are common in A I-IV. This element is otherwise known at Siyalk only, where it is found in III 4 and perhaps 5 (Nos. 103-4 and Ghirshman, '38, Pl. LXXXIX A 7).

See No. 57 (p. 29) for reference to a seal from Siyalk III 4 with a design paralleled on Bakun A seals.

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Low ring bases are first shown from Siyalk in III 4 (*ibid.* Pl. LXXVIII D 11). There are more examples in III 6 and particularly in III 7-7b. High ring bases, of course, occur from Siyalk I onward, but the low type seems to be new in III 4. This type is quite common in Bakun A I-IV and was found in B II. See also notes following Nos. 15 (p. 28) and 62 (p. 29).

No. 91. This type of composition is characteristic of Bakun A I-II (Langsdorff-McCown, '42, design XI E 1, p. 44) and is known at one other site in Fars (Stein, '36, Pl. XXIV 21). It is apparently not uncommon in Susa I (Pottier, '12, Pl. III 6-7; see also Morgan, '00, Pls. XVII, XIX) and appears at Musyan (Gautier-Lampre, '05, Fig. 136). No. 104 and another example (Ghirshman, '38, Pl. LXXXI A 2), from Siyalk III 4 or 5 and 6, are the best possible comparisons from Siyalk.

No. 92 is one of the few examples of a zigzag with dotted apexes found at Bakun A. Intersecting zigzags of the same loosely drawn type (see Herzfeld, '32, Pl. XXII) are found in one example from A III. This type of design is probably more typical of Khuzistan (Stein, '40, Pls. II 10, 18 from the Malamir site, VIII 8 from Kuzagaran; Gautier-Lampre, '05, Figs. 169, 224, 252 from the Musyan area). At Siyalk similarly dotted intersecting zigzags are found in III 4-6 (No. 105 and Ghirshman, '38, Pls. LXXVIII C 6, 14, LXXX A 4, LXXXI A 12), after which this pattern seems to have developed into a net design (*ibid.* Pls. LXXII S.154, LXXXII D 2, LXXXIII A 19). At Giyan this type of zigzag pattern appears in V D only, due to influence from the Hissar culture.

No. 93. Reversing triangles with or without fill between them occur in Bakun B II (Fig. 11:19) and A I-IV (Langsdorff-McCown, '42, pp. 47 f.) and throughout the rest of Fars. Only a few examples are known from Susa I (Fig. 13:132 and Pottier, '12, Pl. III 6), Musyan (Gautier-Lampre, '05, Fig. 153), and other western sites (Mecquenem, '28, Fig. 19:5; Stein, '40, Pls. VII 7, XI 10, XII 15). At Giyan reversing triangles occur in V B-D. They are first known at Siyalk in II 1, with more examples in II 2, and then from III 1 through 7 (e.g. No. 106).

Buttressed walls occur in Bakun A III, Siyalk III 4, and Hissar I C (see Fig. 3, notes). Painted walls are found in Bakun A III-IV (Langsdorff-McCown, '42, pp. 8, 19) and in Siyalk III 6 (Ghirshman, '38, p. 42). The walls throughout Siyalk II had also been painted.

Nos. 94 and 107-8. See notes following No. 14 (p. 28).

No. 95. The divided caduceus is known from Bakun B II (Fig. 13:120) and then is fairly common in Bakun A III-IV. It is found at the Malamir site also (Stein, '40, Pl. II 21). From Siyalk there is only No. 109 and a possible example in III 1 or 2 (Ghirshman, '38, Pl. LXXVII A 6).

No. 96. Such well drawn human figures are very rare at Bakun A, for there the artists specialized in geometric forms. The only other example from Bakun A (Herzfeld, '32, Fig. 1) is also *en face* except for the head, and the geometric forms are based on the front view too. In general the front view is prevalent in the buff-ware culture (Susa: Fig. 12:31 and Pottier, '12, Pl. II 3; '23, I C a, Pl. 8:21-22; Mecquenem, '28, Fig. 5:2; '34, Fig. 12:1-2; Juwi: Mecquenem, '35, Fig. 4; Musyan area: Gautier-Lampre, '05, Fig. 254; Pottier, '23, I C f, Pl. 3:10). In some examples where the hips and legs are seen more or less from the side the figures apparently are shown in action (Susa: Pottier, '12, Fig. 129; Mecquenem, '34, Figs. 11:1, 12:3; Musyan: Pottier, '23, I C f, Pl. 3:12). At Siyalk in III 4 and 5 human figures are in side view except for the chest (Ghirshman, '38, Pls. LXXV 1-2, 5, 7, LXXIX A 7, LXXX A 1[?], C 6-8). Only one later example of this form is shown, from III 7 (*ibid.* Pl. LXXV 6). The figure in front view first occurs in III 5 or 6 (No. 110), after which there are other examples in III 7-7b (*ibid.* Pls. LXXXIII C 1, LXXXIII S.1738, LXXV 4). An example of figures in side view is published from Chashmah Ali (Mecquenem, '28, Fig. 24:1).

No. 97. Stepped rectangles occur in Bakun A I-IV and elsewhere in Fars (Stein, '36, Pls. XXII 71, XXIV 21, XXVI 8). They are found in the Musyan area also (Gautier-Lampre, '05, Fig. 166; Pottier, '23, I C f, Pl. 1:8). At Siyalk they are found in II (Fig. 12:17 and Ghirshman, '38, Pl. L A 14) and after that in III 5 or 6 only (No. 111).

No. 112. Deep narrow bowls began to appear at Siyalk about III 6. Comparable forms are characteristic at Bakun A and in Susa I.

Vertical zones are fairly common in Bakun A I-IV (Langsdorff-McCown, '42, pp. 36 f.) and are found elsewhere in Fars (Stein, '36, Pl. XXVIII 18; '37, Pls. XXVIII vi.30, XXIX vi.43). They are not rare in Susa I, are known at Chigha Pahn (Stein, '40, Pl. XII 15), and are illustrated from Giyan V B-C (Figs. 9:2, 12:40, 48, 13:168, and Contenau-Ghirshman, '35, Pl. 50:25). At Siyalk they occur in I and II (Figs. 1:15, 6:19, and Ghirshman, '38, Pls. XLIII B 14, XLVII B 3, LI B 2) and in III but only in 5-7b (Fig. 7:14 and *ibid.* Pls. LXXX C 13, LXXXII A 10, D 3, LXXXIII A 5, 17, B 7, LXXI S.1800, LXXII S.1765, LXXIV S.1748).

No. 98. Vertical zones of joined isosceles triangles are used occasionally in Bakun A I-III and elsewhere in Fars (Stein, '36, Pl. XXVI 13-14). They are fairly common in Susa I, are represented at Chigha Pahn (Stein, '40, Pl. XII 10), and occur in Giyan V C (Fig. 9:2 and Contenau-Ghirshman, '35, Pl. 50:25). No. 113, from Siyalk III 6, and an example from III 7 (Ghirshman, '38, Pl. LXXXII S.1761) are the only occurrences at Siyalk. For horizontal zones of joined lateral isosceles triangles see No. 33.

No. 114. Checkered diamonds are common in Bakun A I-IV and throughout the rest of Fars. They are fairly common in Susa I, but at Giyan only two examples are known from the upper part of V C (No. 76 and Contenau-Ghirshman, '35, Pl. 55:22). No. 127, from Siyalk III 7, is the only example from that site.

Nos. 115 and 128. See No. 36 (p. 28).

No. 116. Only two examples of this design are known at Bakun, both in A IV. It is shown once in Giyan V B, at -14-15 m. (Fig. 11:89). At Siyalk it is found in III 7 or possibly 7b only (No. 129 and Ghirshman, '38, Pls. LXXXI D 12, LXXXII D 8).

Nos. 117 and 130. See No. 43 (p. 29).

No. 118 is the only example of joined gyrons from Bakun A, though they occur in Bakun B II (Fig. 13:93). Single gyrons are found in Bakun A III-IV. Single or joined gyrons are found elsewhere in Fars (Fig. 13:94 and Stein '36, Pls. XXI 42, XXIV 23), at Juwi (Fig. 13:96), and at Musyan (Gautier-Lampre, '05, Fig. 175). At Siyalk this design is found in III 7 and possibly 7b only (No. 131 and Ghirshman, '38, Pls. LXXIV S.1691, LXXXII D 10, LXXXIII B 3).

Sigmas occur quite commonly in Bakun A I-IV (e.g. Fig. 13:134) and throughout Fars. They are not uncommon in Susa I (e.g. Fig. 13:135) and the Musyan area (Gautier-Lampre, '05, Figs. 139, 143, 145, 156, 213) and are illustrated from the Malamir site and Girairan also (Stein, '40, Pls. III 6, XIV 27). At Giyan they occur in V A-D (Fig. 13:133 and Contenau-Ghirshman, '35, Pls. 47:1, 54:12, 57:17, 59:17, 60:18). Only one example is found at Siyalk, in III 7 (Ghirshman, '38, Pl. LXXXI D 15).

Nos. 119 and 132. See No. 43 (p. 29).

Nos. 120 and 133. See No. 9 (p. 28).

No. 121. This element is so far unknown at Bakun A. The sherd on which it appears at Tall-i-Rigi near Kamalabad can be dated to the time of Bakun A I by the design of the lower zone. This pattern is otherwise found only at Giyan in V B and the beginning of C (Fig. 6:16 and Contenau-Ghirshman, '35, Pl. 47:1). No. 134, from Siyalk III 7, and an example from III 7 or 7b (Ghirshman, '38, Pl. LXXXIII B 6) are the only instances at Siyalk.

No. 122. Such diamonds are exceptional at Bakun A after I-II. They are found elsewhere in Fars (Stein, '36, Pls. XXIV 26, XXV 9, XXVI 27) and at Girairan (Stein, '40, Pl. XIV 11). No. 135, from III 7 or 7b, and one example from III 7b (Ghirshman, '38, Pl. LXXXIII S.1696) represent the only occurrences at Siyalk.

No. 123 is one of the few examples from Bakun A where a row of diamonds is terminated by a triangle at either end. A sherd from Tall-i-Sakau near Madavan, in Fars (Stein, '36, Pl. XXVIII 22), shows this feature in a design zone, as it appears at Musyan also (Gautier-Lampre, '05, Fig. 170). At Siyalk it is represented in III 7 and possibly 7b (Nos. 135-36 and Ghirshman, '38, Pl. LXX S.116).

Nos. 124 and 137. See No. 34 (p. 28).

No. 125, probably showing the top of an ibex head with three "horns," is the only example at Bakun. No. 138 and one other sherd from Siyalk III 7 or 7b (Ghirshman, '38, Pl. LXXXII A 12) also show the peculiar three "horns."

No. 126. The Maltese square is a typical element of design in the repertoire of the buff-ware culture. It is found in Bakun B II (Fig. 11:47) and A I-IV and throughout Fars. It is common in Susa I (e.g. Fig. 12:75) and occurs in the Musyan area (Gautier-Lampre, '05, Figs. 175, 177). At Giyan it is found in V A-C (Fig. 12:71 and Contenau-Ghirshman, '35, Pls. 41:5, 43:14-15 from A; *ibid.* Pl. 44:22 from -17-18 m.; *ibid.* Pl. 44:8 from -16-17 m.; *ibid.* Pl. 54:8 from -11-12 m.). It may possibly be seen in Siyalk II 2 (Ghirshman, '38, Pl. XLIX A 4). In Siyalk III it does not occur before 7 or 7b (Nos. 132[?], 139, and *ibid.* Pl. LXXXII A 3, 7).

Zigzags of small elements between dovetailed triangles or other elements are found in Bakun B II and A, particularly A IV (Langsdorff-McCown, '42, p. 47), and at various other sites in Fars. Outside Fars this design is so far known only at Musyan (Gautier-Lampre, '05, Fig. 156) and possibly in Giyan V at -12-13 m. (Fig. 11:94) and -9-10 m. (Contenau-Ghirshman, '35, Pl. 56:17). In Siyalk III 7 or 7b there is one example (Ghirshman, '38, Pl. LXXXIII A 14).

In Siyalk III the usual motive inside ibex horns is a dot-tipped star (No. 85). Before III 7 there are few exceptions: concentric circles and superimposed birds in III 3 or 4 (*ibid.* Pls. LXXVIII B 6, LXXX A 9) and a branch in III 6 (*ibid.* Pl. LXXXI B 6-7). In III 7 or 7b the Maltese square (Fig. 7:26 and *ibid.* Pl. LXXXII A 3, 7) and other elements (*ibid.* Pls. LXXXI D 4, 6, LXXXII A 5, B 9) are used. This style is found in Hissar I C also. In the buff-ware culture an element is placed inside horns only at Susa, where it is usually a circle or a diamond, and in Fars. At Bakun A quite a variety of elements, including the Maltese square, is used (e.g. No. 70).

For other elements or designs appearing in Siyalk III 7 or 7b which are known at Bakun and other buff-ware sites see notes to Figs. 12:126 and 13:61-62, 147-48, 152, 154.

Certain of the Bakun and Siyalk features compared above appear at one or more of the buff-ware sites before the time of Siyalk III and are also commoner in Fars than elsewhere as far as we can judge (see Nos. 9, 43, 63, 95, and zigzags of small elements [p. 32]). Others seem commoner in Fars than at other buff-ware sites, where they are sporadically represented, but cannot be proved to be older than Siyalk III (see Nos. 58, 64, zigzags with appendages [p. 30], Nos. 70, 87, 102, 90, 57, 94, 97, 122, and Maltese squares inside horns [p. 32]). Such features suggest influence from the southwest on Siyalk III (see pp. 24-26). It is true that temporal synchronization of Bakun A I-IV and Siyalk III still rests on general grounds and on the supposition that the end of the buff-ware culture in Fars is reflected in Siyalk III 6-7.

The other comparisons made above between material from buff-ware sites and material from Siyalk show inescapably that Siyalk III reveals strong influence from the buff-ware culture. Various features are proved to be older than Siyalk III by their appearance in Giyan V A, B, or Bakun B II (see Nos. 36-37, bordered skewed chevrons [p. 30], No. 88, low ring bases [p. 31], sigmas [p. 32], Nos. 121, 126, and Fig. 13:147-48). Even if this should be denied, some of them are unquestionably older in the Samarra culture, which is basically a buff-ware aspect (p. 35). In the case of these comparisons we are uncertain from which of the buff-ware variants the influence on Siyalk III came, but such pressure is indicated by these features. The appreciation of this fact is of the greatest importance in making comparisons inside Iran or with Mesopotamian sites. Many of the features of the buff-ware culture which appear in numbers in the middle of Siyalk III and in profusion at the end of this period existed much earlier at various buff-ware sites.

1. Langsdorff-McCown, '42, Pl. 22:15, Bakun A III
2. *Ibid.* Pl. 32:13, Bakun A III
3. *Ibid.* Pl. 78:2, Bakun A I
4. *Ibid.* Pl. 70:14, Bakun A IV
5. *Ibid.* Pl. 36:14, Bakun A III
6. *Ibid.* Pl. 29:3, Bakun A III
7. *Ibid.* Pl. 34:3
8. *Ibid.* Pl. 77:9, Bakun A III
9. *Ibid.* Pl. 31:1, Bakun A III
10. *Ibid.* Pl. 79:5, Bakun A III
11. *Ibid.* Pl. 35:2, Bakun A III
12. *Ibid.* Pl. 76:9, Bakun A I
13. *Ibid.* Pl. 32:7
14. *Ibid.* Pl. 27:15, Bakun A IV (top), surf.
15. *Ibid.* Pl. 13:9, Bakun A III (somewhat taller than No. 30)
16. Pottier, '12, Pl. XXII 7
17. *Ibid.* Pl. X 1
18. *Ibid.* Fig. 134
19. *Ibid.* Pl. III 5
20. *Ibid.* Pl. IX 3
21. Pottier, '23, I C a, Pl. 3:17
22. *Ibid.* Pl. 6:12
23. *Ibid.* Pl. 12:38
24. Mecquenem, '34, Fig. 9:2
25. Pottier, '12, Pl. XIII 7
26. *Ibid.* Pl. XXI 3
27. *Ibid.* Pl. XX 1
28. *Ibid.* Pl. V 7
29. *Ibid.* Pl. V 9
30. *Ibid.* Pl. XXII 4
31. Langsdorff-McCown, '42, Pl. 37:4
32. PPB 20, Bakun B II
33. PPB 49, Bakun B II
34. Langsdorff-McCown, '42, Pl. 49:21, Bakun A III
35. *Ibid.* Pl. 47:8, Bakun A IV
36. PPA 3865, Bakun A surf.
37. PPA 3948, Bakun A
38. Langsdorff-McCown, '42, Pl. 22:19, Bakun A III
39. PPA 3866a, Rm. X 3, Bakun A III
40. PPB 74, Bakun B II (probable reconstruction)
41. Langsdorff-McCown, '42, Pl. 39:4, Bakun A III-IV
42. PPA 3746, Bakun A surf.
43. PPA 2386a, Trench I, 0-10 m., +0.9-1.3 m., Bakun A surf.
44. Contenau-Ghirshman, '35, Pl. 41:13, Giyan V A
45. *Ibid.* Pl. 43:23, Giyan V A
46. *Ibid.* Pl. 43:8, Giyan V B, -17-18 m.
47. *Ibid.* Pl. 45:2, Giyan V B, -15-16 m.
48. *Ibid.* Pl. 45:15, Giyan V B, -15-16 m.
49. *Ibid.* Pl. 46:8, Giyan V B, -15-16 m.
50. *Ibid.* Pl. 46:3, Giyan V B, -14-15 m.
51. *Ibid.* Pl. 48:19, Giyan V C, -12-13 m.
52. *Ibid.* Pl. 50:16, Giyan V C, -12-13 m.
53. *Ibid.* Pl. 48:21, Giyan V C, -13-14 m.
54. *Ibid.* Pls. 50:20 and 51:5, Giyan V C, -12-13 m.
55. *Ibid.* Pl. 50:26, Giyan V C, -12-13 m.
56. *Ibid.* Pl. 51:7, Giyan V C, -12-13 m.
57. Langsdorff-McCown, '42, Pl. 81:19, Bakun A III
58. *Ibid.* Pl. 30:6, Bakun A IV
59. *Ibid.* Pl. 70:9, Bakun A III
60. *Ibid.* Pl. 46:16
61. *Ibid.* Pl. 34:4, Bakun A IV
62. *Ibid.* Pl. 31:1, Bakun A III
63. PPA 4306, Rm. XIII 3, Bakun A IV
64. Langsdorff-McCown, '42, Pl. 48:1, Bakun A II-III
65. *Ibid.* Pl. 51:10, Bakun A surf.
66. *Ibid.* Pl. 22:14
67. *Ibid.* Pl. 42:19, Bakun A surf.
68. *Ibid.* Pl. 79:5, Bakun A III
69. *Ibid.* Pl. 30:6, Bakun A IV

70. PPA 3710, O 33, Bakun A surf.
71. Langsdorff-McCown, '42, Pl. 37:8, Bakun A III
72. Contenau-Ghirshman, '35, Pl. 35:8, -13.1 m.
73. *Ibid.* Pl. 51:3, -12-13 m.
74. *Ibid.* Pl. 51:22, -12-13 m.
75. *Ibid.* Pl. 52:10, -11-12 m.
76. *Ibid.* Pl. 53:15, -11-12 m.
77. *Ibid.* Pl. 53:16, -11-12 m.
78. Ghirshman, '38, Pl. LXXVI D 8, Siyalk III 1
79. *Ibid.* Pl. LXXVI A 18, Siyalk III 1
80. *Ibid.* Pl. LXXVII C 1, Siyalk III 2 or 3
81. *Ibid.* Pl. LXXVI C 4, Siyalk III 1
82. *Ibid.* Pl. LXXVII D 7, Siyalk III 2 or 3
83. *Ibid.* Pl. LXXVII B 11, Siyalk III 1 or 2
84. *Ibid.* Pl. LXXVII B 8, Siyalk III 1 or 2
85. *Ibid.* Pl. LXXVII C 16, Siyalk III 2 or 3
86. *Ibid.* Pl. LXXVII D 15, Siyalk III 2 or 3
87. PPA 4964, Rm. VI 3, Bakun A III
88. Langsdorff-McCown, '42, Pl. 76:3, Bakun A III
89. *Ibid.* Pl. 38:13, Bakun A I
90. *Ibid.* Pl. 79:3, Bakun A III
91. PPA 3882
92. Langsdorff-McCown, '42, Pl. 53:9, Bakun A III
93. PPA 3167, Rm. XII 2, Bakun A III
94. Langsdorff-McCown, '42, Pl. 75:10
95. *Ibid.* Pl. 30:9, Bakun A III
96. Herzfeld, '32, Pl. XVI 2
97. PPA 4255, J 31, +1.72 m., Bakun A surf.
98. PPA 2922, Trench I, 10-20 m., +0.2 m., Bakun A I
99. Ghirshman, '38, Pl. LXXVIII A 5, Siyalk III 3
100. *Ibid.* Pl. LXXVIII B 8, Siyalk III 3 or 4
101. *Ibid.* Pl. LXIV S.224, Siyalk III 4
102. *Ibid.* Pl. LXIV S.258, Siyalk III 4
103. *Ibid.* Pl. LXXVIII C 15, Siyalk III 4
104. *Ibid.* Pl. LXXIX C 8, Siyalk III 4 or 5
105. *Ibid.* Pl. LXIV S.248, Siyalk III 4
106. *Ibid.* Pl. LXXIX A 16, Siyalk III 4 or 5
107. *Ibid.* Pl. LXXIX C 3, Siyalk III 4 or 5
108. *Ibid.* Pl. LXXIX A 3, Siyalk III 4 or 5
109. *Ibid.* Pl. LXVIII S.140, Siyalk III 5
110. *Ibid.* Pl. LXXX D 10, Siyalk III 5 or 6
111. *Ibid.* Pl. LXXX D 7, Siyalk III 5 or 6
112. *Ibid.* Pl. LXIX S.158, Siyalk III 6
113. *Ibid.* Pl. LXIX S.156, Siyalk III 6
114. PPA 3924, Rm. VII 3, Bakun A III
115. PPA 3865, Bakun A surf.
116. Langsdorff-McCown, '42, Pl. 80:13, Bakun A IV
117. PPA 2386a, Trench I, 0-10 m., +0.9-1.3 m., Bakun A surf.
118. Langsdorff-McCown, '42, Pl. 76:11, Bakun A, top III(?)
119. *Ibid.* Pl. 37:7, Bakun A III
120. *Ibid.* Pl. 31:1, Bakun A III
121. Stein, '36, Pl. XXI 24, Tall-i-Rigi near Kamalabad
122. Langsdorff-McCown, '42, Pl. 48:14, Bakun A III
123. *Ibid.* Pl. 61:6, Bakun A III
124. *Ibid.* Pl. 49:21, Bakun A III
125. *Ibid.* Pl. 73:10, Bakun A IV
126. *Ibid.* Pl. 40:5, Bakun A III, surf.
127. Ghirshman, '38, Pl. LXXXI D 10, Siyalk III 7
128. *Ibid.* Pl. LXIX S.67, Siyalk III 6
129. *Ibid.* Pl. LXXII S.150, Siyalk III 7
130. *Ibid.* Pl. LXX S.119, Siyalk III 7
131. *Ibid.* Pl. LXXXII B 3, Siyalk III 7 or 7b
132. *Ibid.* Pl. LXXXIII A 8, Siyalk III 7 or 7b
133. *Ibid.* Pl. LXXXIII A 13, Siyalk III 7 or 7b
134. *Ibid.* Pl. LXXII S.71, Siyalk III 7
135. *Ibid.* Pl. LXXXIII B 4, Siyalk III 7 or 7b
136. *Ibid.* Pl. LXX S.107, Siyalk III 7
137. *Ibid.* Pl. LXXXIII C 3, Siyalk III 7 or 7b
138. *Ibid.* Pl. LXXXII A 14, Siyalk III 7 or 7b
139. *Ibid.* Pl. LXXI S.1820, Siyalk III 7b

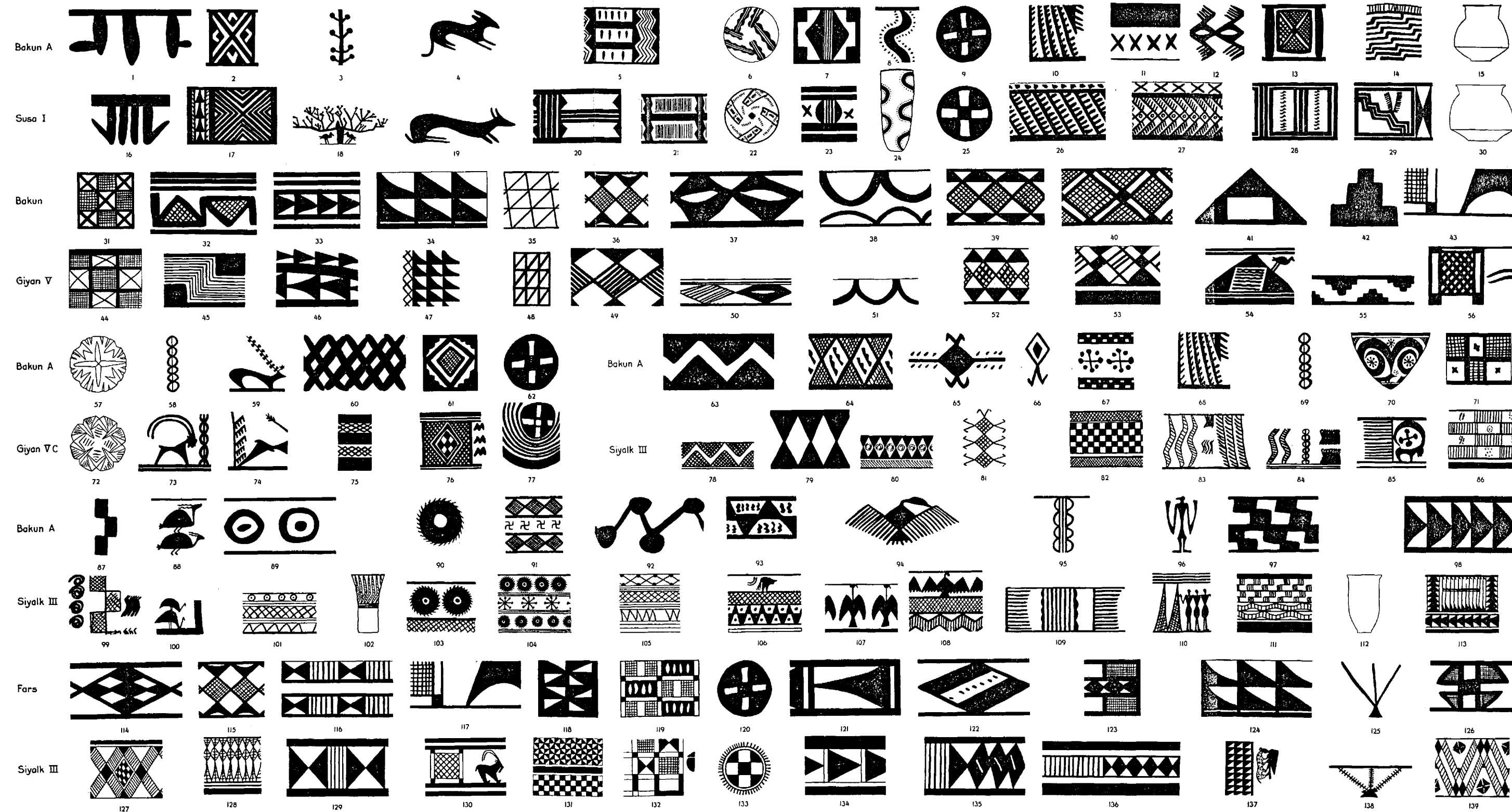


FIG. 10.—Fars and Susa I, Giyan V, Siyalk III

MESOPOTAMIAN RELATIONSHIPS

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discovered.⁴⁰ There are already distinct local differences between the earliest buff ware of Bakun (B II) and that of Giyan V A, though they show a common tradition. From what is known at present of the geographic subdivisions of the buff-ware culture we already realize that each region no doubt had a different history to varying extents. Giyan V A-B reveals contact with the Chashmah Ali culture (pp. 13 f. and Figs. 5-6), while contact with the latter is apparent to a much lesser degree in Fars (see n. 31). Again, Giyan V C probably underwent influence from the Halaf culture (see below), which Fars felt in a different way. With our present knowledge the sequence of Bakun B and A suggests simple development without significant external influence. The broken archeological sequence at Bakun, the absence of stratigraphic series at Susa and Musyan, and the amorphous stratigraphy of Giyan prevent at present the formulation of cultural periods such as those of northeastern Iran (see pp. 12 f.).

MESOPOTAMIAN RELATIONSHIPS

Up to this point the discussion has been concerned exclusively with Iran, but now to gain a wider perspective it is essential to consider the existing evidence for the relationship and correlation of Iranian cultures and those found in Mesopotamia.

THE HALAF CULTURE

Figure 11 shows the more distinctive comparisons which can be made between the Halaf culture and Iranian cultures. The evidence is slight. There is nothing definite to suggest that the Halaf culture was in any sense genetically related to any Iranian civilization, but what evidence there is allows a temporal equation of the Halaf and Chashmah Ali cultures. In Chashmah Ali I A the style of a peculiar and atypical ibex (Fig. 11:136) and the use of separate mouflon heads (Fig. 11:135) may be due to Halafian ideas (cf. Fig. 11:131, 130). Other designs common to the Halaf and Chashmah Ali cultures may indicate contact, but the evidence is weak except perhaps for the appearance of diagonal-crossed checkers (Fig. 11:9, 26) in Chashmah Ali I A and Giyan V A.

Since most if not all of Giyan V C is contemporary with the Ubaid period (see p. 39), the presence in Giyan V B-C (at -15-14 to -13-12 m.) of various Halafian designs (see Fig. 11) strongly suggests that at this point we may locate the end of the Halaf period. The appearance of such Halafian traits at Giyan plausibly was due to interaction of the Halaf and Ubaid cultures when the latter still maintained contact with Iran or might have resulted from a retreat of some of the peoples of the Halaf culture into Iran before the Ubaid culture.⁴¹ The occurrence in Siyalk III 1 of imbrications (Fig. 11:42) and loop designs (Ghirshman, '38, Pls. LXII S.394, LXXVI A 4-5) also may be connected with this phenomenon.⁴² The design affin-

⁴⁰ However tempting it may be, the present evidence does not permit the assumption that a stage close to the parent buff-ware culture is represented by the light ware of Siyalk I (pp. 2 f.). Although this is undemonstrable at present, fresh evidence may show it to be true. It should be clear also that due to the nature of the available material the known differences among the local aspects of the buff-ware civilization are mainly ceramic. The variation in local painting style is certainly of greater archeological than cultural significance, though it might well be connected with tribal divisions.

⁴¹ Several unstratified amulets or seals from Giyan are of Halafian appearance (Herzfeld, '33a, Fig. 13).

⁴² The presence of imbrications in Bakun B II (Fig. 11:44), however, makes this suggestion uncertain. The sudden appearance in Siyalk III of bull and leopard designs, the latter with dot-edging (cf. Fig. 11:131), might have resulted from Halafian influence, though this is uncertain for it would seem to come later than would be expected. The bull and leopard designs of Bakun A I-IV are not similar enough in detail to those of Siyalk III to be considered in this connection.

NOTES ON FIGURE 11

This figure presents a good many elements of design, designs, and other features which are found in the Halaf culture and at various sites in Iran. How these similarities should be explained is uncertain. Some of them may be due to contact with the Samarra culture, with the incoming Ubaid culture, or directly with Iranian tribes contemporaneous with the Halaf period. Others are presumably due to Halaf influence on various Iranian cultures after the end of the Halaf period.

Certain of the Iranian features are contemporary with the Halaf culture, for they are earlier than the Hissar period, Giyan V C, Susa I, and Bakun A I-IV, which are shown by a good deal of evidence to synchronize roughly with the Ubaid period.

No. 1. This design is found at Arpachiyah from pre-TT 10 to TT 6 and at most other Halafian sites. It occurs sporadically at a good many Iranian sites at various periods. Only in Siyalk I (No. 11) and Susa I (No. 12) is it quite common.

No. 65. The comb element is known from Tell al-Halaf also (Oppenheim, '33, Pl. LIII 1). In Iran apparently it is known in the Chashmah Ali culture only (No. 81 and Ghirshman, '38, Pl. XLIX D 7), for similar Susa I elements (Potter, '12, Pl. XVI) are probably not comparable.

No. 130. The *bucranium* is found at all times throughout the Halaf culture. No. 135 is unique in Iran. It may indicate inspiration from the Halaf culture, but no connection need be postulated with the so-called mouflon heads of the Halaf culture.

No. 131 is the only example of a leopard at Arpachiyah (pre-TT 10). Similar leopards are known from Shaghir Bazar 13-14 (Mallowan, '36, Fig. 27: 1-2), but their legs are not in the same peculiar position. No. 136 is a unique and atypical ibex from Chashmah Ali I A. The position of its legs recalls the Arpachiyah leopard.

For other contemporary features see Nos. 3-8, 63-64, 66.

Comparisons of the Halaf culture with Giyan V A-B give some indications of contemporaneity.

No. 9. This type of checker pattern is found at Arpachiyah toward the end of the Halaf period (Mallowan-Rose, '35, Fig. 66: 6, Pls. XVI b, XX b). It is known also from Tell al-Halaf (Oppenheim, '33, Pl. LII 3) and Gaura (Speiser, '37a, Fig. 2). Iranian examples are known from Giyan V A (No. 26) and the Chashmah Ali culture. There is one from Bakun A (Fig. 10: 31) and another from Siyalk III 5 (Ghirshman, '38, Pl. LXXX C 14).

No. 70. Dotted diamonds are found at Carchemish also (Woolley, '34a, Pl. XIX). They are very rare in Iran (No. 86).

No. 32. The Maltese square is certainly rare in the Halaf culture. Nos. 47-48. See Fig. 10: 126, notes (p. 32). It is interesting that in Giyan V B at -16-17 m. (Contenau-Ghirshman, '35, Pl. 44: 8) and at Musyan (Gautier-Lampre, '05, Fig. 177, right) Maltese squares with very large centers (cf. No. 32) occur.

Nos. 36-37. This pattern occurs on several vessels toward the end of the Halaf period at Arpachiyah (e.g. Mallowan-Rose, '35, Fig. 78: 16) and is known at Tell al-Halaf (Oppenheim, '33, Fig. 1, p. 296). Nos. 53-54. See Fig. 10: 34, notes (p. 28).

For other designs of the Halaf culture which have parallels in Giyan V A-B see Nos. 3-5, 7-8, 10, 33-35, 69, 71-72.

For comparisons of the Halaf culture with Bakun B II see Nos. 4, 10, 30, 32-33, 38, 40. Of these No. 30 is most interesting. This design occurs at various Halafian sites. It does not appear before TT 10 at Arpachiyah, and it is known in the Ubaid period (Mallowan-Rose, '35, p. 167; Woolley, '35, Pl. 2b). It is known at Bakun B II only (No. 44) and is found elsewhere in Fars (No. 43 and Stein, '36, Pls. XXI 30, XXIV 30, 38, XXV 30, 37; '40, Pl. I 8). Otherwise it is known from Siyalk III 1 only, where there are quite a few examples (No. 42 and Ghirshman, '38, Pl. LXXVI A 1-2, 7, D 12, 17).

In Giyan V from about -15-14 m. up to -13-12 m. appear a number of distinctive designs which are closely comparable with Halafian patterns. Since other correlations suggest that most if not all of Giyan V C is contemporary with the Ubaid period, the appearance of these Halafian designs at the end of Giyan V B and the beginning of C is probably due to either the interaction of the Halaf and the incoming Ubaid culture or the retreat of some Halaf peoples into the Iranian mountains before the Ubaid culture.

No. 73. This type of checker pattern seems to be reasonably prevalent at Arpachiyah in TT 6-10 (No. 70 and Mallowan-Rose, '35, Figs. 64: 1, 78: 6, 10) and is known from Tell al-Halaf also (Oppenheim, '33, Pls. LI 1, LII 2). No. 89 is the only example in Iran.

No. 74 is the only example of this design in Mesopotamia, though another design known from Arpachiyah is rather similar (Mallowan-Rose, '35, Fig. 53: 2) and is found also at Carchemish (Woolley, '34a, Pl. XIX) and Samarra (Herzfeld, '30, Fig. 221). No. 90 is the only example in Iran.

No. 38. This pattern is found at Arpachiyah in TT 7-10 or perhaps earlier (Mallowan-Rose, '35, Fig. 59: 3). In the Halaf culture it is much commoner without the central dot, in which form it is found elsewhere also. No. 55 is the only example known from Giyan, but the same design is found at Musyan (Gautier-Lampre, '05, Fig. 180) and in Bakun B II (No. 56).

Nos. 75-76. Such dot-ringed circles are not uncommon at Arpachiyah from pre-TT 10 to TT 6 (Mallowan-Rose, '35, Figs. 58: 4, 62: 3, 76: 2, 78: 21, Pl. XVII a) and occur also in Ninevite 2(c) (Thompson-Mallowan, '33, Pl. XLII 8, 12) and at Gaura in the early Halaf period (Speiser, '37b, Fig. 11). Aside from one example at Giyan (No. 91) this element is found in Bakun A III-IV and elsewhere in Fars (Fig. 13: 37).

No. 78. Stippled panels are typical of the Halaf culture and are known at Arpachiyah from pre-TT 10 to TT 6. No. 95 provides an excellent parallel, as does No. 114, from Susa I.

Nos. 42 and 83-84 show designs which appear near the beginning of Siyalk III perhaps as a result of the end of the Halaf period in Mesopotamia. Some of the elements compared from Bakun A may represent the same sort of happening.

1. Mallowan-Rose, '35, Fig. 68:4, Arpachiyyah, probably pre-TT 10
2. *Ibid.* Fig. 68:1, Arp. TT 10 or earlier
3. *Ibid.* Fig. 59:2, Arp. TT 6(?)
4. *Ibid.* Fig. 78:3, Arp. TT 6-10
5. *Ibid.* Fig. 78:23, Arp. TT 6-10
6. Oppenheim, '33, Fig. 1 (p. 296), Tell al-Halaf
7. Mallowan-Rose, '35, Fig. 78:25, Arp. TT 6-10
8. Oppenheim, '33, Fig. 1 (p. 296), Tell al-Halaf
9. Mallowan-Rose, '35, Fig. 66:7, Arp. ca. TT 8-9
10. *Ibid.* Fig. 71:1, Arp. TT 6
11. Ghirshman, '38, Pl. XLII C 8, Siyalk I 3
12. Pottier, '12, Pl. XV 6, Susa I
13. Ghirshman, '38, Pl. XLIV D 13, Siyalk I 5
14. Langsdorff-McCown, '42, Pl. 46:1, Bakun A IV
15. Contenau-Ghirshman, '35, Pl. 43:7, Giyan V B, -17-18 m.
16. Ghirshman, '38, Pl. L B 16, Siyalk II surf.
17. *Ibid.* Pl. XLIX B 17, Siyalk II 2
18. Contenau-Ghirshman, '35, Pl. 45:10, Giyan V B, -15-16 m.
19. PPB 47, Bakun B II
20. Contenau-Ghirshman, '35, Pl. 46:2, Giyan V B, -14-15 m.
21. Ghirshman, '38, Pl. LI D 16, Siyalk II surf.
22. *Ibid.* Pl. XLVIII A 9, Siyalk II 1
23. Stein, '36, Pl. XXIV 6, Fars
24. Contenau-Ghirshman, '35, Pl. 43:2, Giyan V B, -17-18 m.
25. Ghirshman, '38, Pl. LI D 4, Siyalk II surf.
26. Contenau-Ghirshman, '35, Pl. 41:13, Giyan V A
27. Langsdorff-McCown, '42, Pl. 32:13, Bakun A III
28. Contenau-Ghirshman, '35, Pl. 42:29, Giyan V A
29. Bakun B II
30. Mallowan-Rose, '35, Fig. 78:20, Arp. TT 6-10
31. *Ibid.* Fig. 77:6, Arp. TT 10 or earlier
32. *Ibid.* Pl. XVIII, Arp. TT 6
33. *Ibid.* Fig. 62:4, Arp. probably TT 7 or earlier
34. Mallowan, '36, Fig. 26:17, Shaghir Bazar 12
35. Mallowan-Rose, '35, Fig. 72:3, Arp. pre-TT 10
36. *Ibid.* Pl. XIV, Arp. TT 6
37. *Ibid.* Pl. XV, Arp. TT 6
38. *Ibid.* Fig. 66:1, Arp. TT 8-10
39. *Ibid.* Fig. 77:16, Arp. probably pre-TT 10 (Samarra ware?)
40. *Ibid.* Fig. 60:2, Arp. TT 6(?)
41. Oppenheim, '33, Pl. LIII 9, Tell al-Halaf
42. Ghirshman, '38, Pl. LXXVI D 16, Siyalk III 1
43. Stein, '36, Pl. XXIV 29, Fars
44. Bakun B II
45. Ghirshman, '38, Pl. LXXIX C 8, Siyalk III 4 or 5
46. Stein, '36, Pl. XXIII 34, Fars
47. Bakun B II
48. Contenau-Ghirshman, '35, Pl. 42:16, Giyan V A
49. PPB 49, Bakun B II
50. Contenau-Ghirshman, '35, Pl. 43:8, Giyan V B, -17-18 m.
51. *Ibid.* Pl. 45:6, Giyan V B, -15-16 m.
52. PPA 3955, Bakun A
53. Contenau-Ghirshman, '35, Pl. 45:2, Giyan V B, -15-16 m.
54. Langsdorff-McCown, '42, Pl. 47:8, Bakun A IV
55. Contenau-Ghirshman, '35, Pl. 48:5, Giyan V C, -12-13 m.
56. PPB 16, Bakun B II
57. Pottier, '12, Pl. VIII 7, Susa I
58. Stein, '36, Pl. XXV 32, Fars
59. Pottier, '12, Pl. XX 9, Susa I
60. PPB 60, Bakun B II
61. Pottier, '12, Pl. XVIII 6, Susa I
62. Stein, '36, Pl. XXIV 3, Fars
63. Mallowan-Rose, '35, Fig. 52:20, Arp.
64. *Ibid.* Fig. 71:5, Arp. pre-TT 10
65. *Ibid.* Fig. 78:28, Arp. TT 6-10

66. *Ibid.* Fig. 77:14, Arp. TT 10 or earlier (Samarra ware)
67. Oppenheim, '33, Pl. LIV 10, Tell al-Halaf
68. Starr, '37, Pl. 47 FF, Kudish Saghir 16(?)
69. Mallowan-Rose, '35, Fig. 78:5, Arp. ca. TT 10
70. *Ibid.* Fig. 78:9, Arp. TT 6-10
71. *Ibid.* Fig. 78:14, Arp. TT 6-10
72. *Ibid.* Fig. 78:26, Arp. pre-TT 10
73. *Ibid.* Fig. 78:7, Arp. TT 6-10
74. *Ibid.* Fig. 67:1, Arp. probably pre-TT 10
75. *Ibid.* Fig. 65:1, Arp. probably pre-TT 6
76. *Ibid.* Fig. 67:2, Arp. probably pre-TT 10
77. *Ibid.* Fig. 78:17, Arp. TT 6-10
78. *Ibid.* Fig. 69:1, Arp. probably pre-TT 10
79. Ghirshman, '38, Pl. LV 17, Siyalk I 1
80. *Ibid.* Pl. L D 2, Siyalk II surf.
81. *Ibid.* Pl. XLV S.1552, Siyalk II 2
82. *Ibid.* Pl. XLVI S.1736, Siyalk II 2
83. *Ibid.* Pl. LXXVIII C 17, Siyalk III 4
84. *Ibid.* Pl. LXXVII D 10, Siyalk III 2 or 3
85. Contenau-Ghirshman, '35, Pl. 42:3, Giyan V A
86. *Ibid.* Pl. 43:13, Giyan V A
87. *Ibid.* Pl. 42:17, Giyan V A
88. *Ibid.* Pl. 42:1, Giyan V A
89. *Ibid.* Pl. 47:18, Giyan V B, -14-15 m.
90. *Ibid.* Pl. 47:15, Giyan V C, -13-14 m.
91. *Ibid.* Pl. 48:7, Giyan V C, -12-13 m.
92. *Ibid.* Pl. 48:25, Giyan V C, -13-14 m.
93. *Ibid.* Pl. 48:6, Giyan V C, -12-13 m.
94. *Ibid.* Pl. 50:13, Giyan V C, -12-13 m.
95. *Ibid.* Pl. 49:22, Giyan V C, -12-13 m.
96. Mallowan-Rose, '35, Fig. 59:4, Arp. probably pre-TT 7
97. *Ibid.* Fig. 64:2, Arp. TT 6
98. *Ibid.* Fig. 64:8, Arp. TT 10 or earlier
99. *Ibid.* Fig. 61:2, Arp. TT 6(?)
100. Mallowan, '36, Fig. 21:1, Shaghir Bazar 12
101. Mallowan-Rose, '35, Fig. 50:5, Arp.
102. *Ibid.* Fig. 50:14, Arp.
103. *Ibid.* Fig. 50:17, Arp.
104. *Ibid.* Fig. 50:19, Arp.
105. *Ibid.* Fig. 68:1, Arp. TT 10 or earlier (twice as tall as No. 121)
106. *Ibid.* Fig. 59:1, Arp. TT 6 (somewhat shorter than No. 122)
107. Oppenheim, '33, Pl. LIV 9, Tell al-Halaf
108. Mallowan-Rose, '35, Fig. 69:3, Arp. TT 7-8
109. *Ibid.* Fig. 77:17, Arp. TT 10 or earlier (Samarra ware?)
110. Mallowan, '36, Fig. 24:7, Shaghir Bazar 11
111. Mallowan-Rose, '35, Fig. 53:1, Arp. TT 6
112. Pottier, '12, Pl. XX 4
113. *Ibid.* Pl. XIX 2
114. *Ibid.* Pl. XXI 2
115. *Ibid.* Pl. XV 2
116. *Ibid.* Pl. XX 1
117. Langsdorff-McCown, '42, Pl. 82:8, Bakun A III
118. *Ibid.* Pl. 82:19, Bakun A, top IV(?), surf.
119. *Ibid.* Pl. 82:3, Bakun A III
120. *Ibid.* Pl. 82:18, Bakun A IV
121. *Ibid.* Pl. 13:4, Bakun A I
122. *Ibid.* Pls. 13:9 and 12:13, Bakun A III-IV
123. *Ibid.* Pl. 52:5, Bakun A IV
124. *Ibid.* Pl. 30:9, Bakun A III
125. *Ibid.* Pl. 78:4, Bakun A I
126. *Ibid.* Pl. 51:7, Bakun A III
127. *Ibid.* Pl. 37:8, Bakun A III
128. Mallowan-Rose, '35, Fig. 78:8, Arp. TT 6-10
129. *Ibid.* Pl. XV, Arp. TT 6
130. *Ibid.* Fig. 74:1, Arp. probably pre-TT 10
131. *Ibid.* Pl. 77:1, Arp. pre-TT 10
132. PPB 32, Bakun B II
133. Stein, '36, Pl. XXVIII 33, Fars
134. *Ibid.* Pl. XXII 49, Fars
135. Hall, '35, Fig. 2
136. Chashmah Ali I A

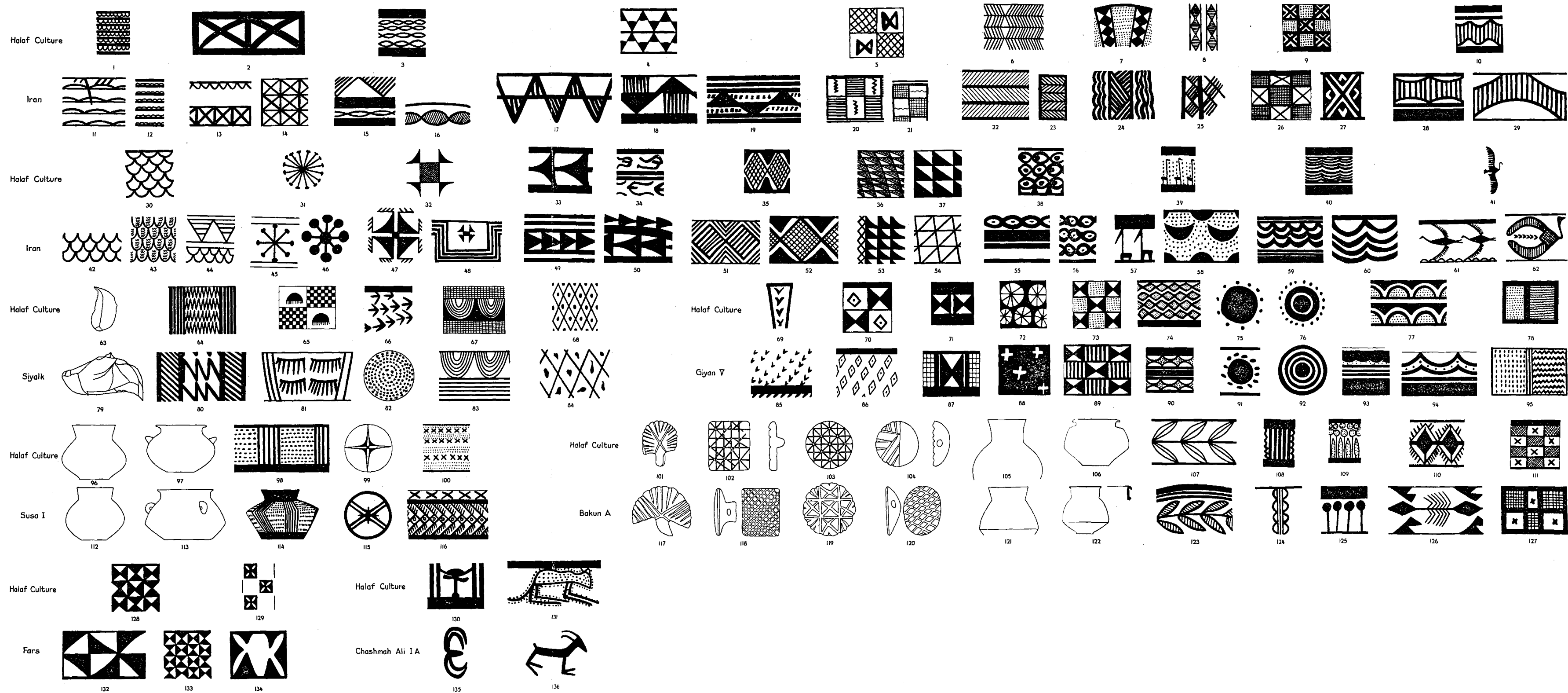


FIG. 11.—The Halaf culture and Iran

ities of Bakun B II and the Halaf culture may be due to contact (difficult as this is to explain) or may be in part the result of Samarran influence upon the Halaf culture,⁴³ for, since Samarra shows many similarities to Bakun B II (see Fig. 12), the presence of such features in the Halaf culture might derive from Samarra. The presence in Bakun A I–IV of a few very distinctive seal types, a stump-legged seated figurine (Langsdorff-McCown, '42, Pl. 6:20), and certain pottery designs may possibly be explained as influence from the Halaf culture (see Fig. 11) just after the end of the Halaf period. In the present state of our knowledge it is impossible to explain the mechanism of such contact, because of the great distance between northern Mesopotamia and Fars and the difficulty of penetration from the plains into the mountains. Excavation of intervening sites is needed to assure these necessarily tentative explanations of Mesopotamian relations.

THE SAMARRA CULTURE

Many more associations of Iran with Samarra are apparent (Fig. 12), for, in contrast to the Halaf culture, that of Samarra is Iranian. The greatest number of comparisons is with the Fars aspect of the buff-ware culture (see Fig. 12), while the most distinctive parallels are with pottery designs from Chashmah Ali I A, Giyan V A–B, and Bakun B II. It is important that in Iran meanders (Fig. 12:61, 71–74, 76) are unusual in strata later than those just mentioned and that fringed suspended diamonds or triangles (Fig. 12:97, 109–11) do not occur later than Bakun B II. These facts indicate fairly close contemporaneity of Samarra and the Iranian strata mentioned and also support the relationship suggested by parallels in the Chashmah Ali and Halaf cultures (see above and Fig. 11, notes).⁴⁴ The many similarities of Samarran design to that of Iranian sites of various other periods are the result of Samarra's position as a member of the buff-ware culture. Comparison with Bakun A I–IV pottery is of value because so little is known of the Bakun B II stage, and at Bakun A some older designs which are so far undiscovered in the earlier phase should be preserved. The evidence indicates the temporal equation of Bakun B II and Samarra and closer affinities of the Samarra culture with that of Bakun B II than with any other regional variant of the buff-ware culture. Despite the close similarity of the pottery design of Samarra and Fars,⁴⁵ most of the forms are quite dissimilar. Slips are occasionally used at Samarra but are unknown on the buff ware of Fars and Susa I.⁴⁶

Too little is known of the burial customs of the buff-ware culture to be of much use in this

⁴³ Different aspects of the Ubaid culture are already known, and it will be surprising if variants of the Samarra culture are not found also. There are already some indications of such variations.

⁴⁴ The evidence of all northern Mesopotamian sites shows that the Samarra culture precedes and overlaps the Halaf culture. An examination of the material from Tepe Gaura in the University Museum at Philadelphia revealed no sherds with diagnostic Samarran designs in the Ubaid period. It is interesting to note Samarran sherds in Ninevite 1 (Thompson-Mallowan, '33, Pl. XXXV 2, 13, 22) because contact with the incised ware of Nineveh may explain the un-Iranian incision of some of the Samarra pottery.

⁴⁵ Note the marked similarity to Samarra specimens in composition and design of Fig. 12:13. Unfortunately we cannot be sure that this sherd belongs to the Bakun B II stage.

⁴⁶ Note, however, the use of slips on pottery of Giyan V A (p. 13). It is of interest that the pottery of Hajji Muhammad, which in design is very close to that of southwestern Iran but in form is very similar to that of Samarra (cf. Nöldeke *et al.* '38, Pl. 40 *k, l, o* with Herzfeld, '30, Figs. 23, 100 or 102, 196 respectively), should be slipped. Dr. Ann Louise Perkins has shown (in an as yet unpublished study) that this site is contemporaneous with Ur-Ubaid I and the early part of the Ubaid period at Gaura. Unfortunately the connection of these buff slipped wares with such ware from Siyalk I (see p. 2) is problematical. The appearance of this technique in Giyan V A, Samarra, and Hajji Muhammad, however, indicates that further exploration may disclose an aspect of the buff-ware culture with slips as a characteristic of the pottery.

discussion. De Morgan ('27, pp. 51 f.), however, does state that extended and contracted skeletons were found in the Susa I necropolis, while at Samarra the bodies were laid in a dorsal position (Herzfeld, '30, p. 1) and presumably extended, as were those of Ur-Ubaid II-III.⁴⁷

As good an interpretation as present evidence permits is that the culture characterized by the painted ware of Bakun B II arrived in Fars at about the same time that the Samarra culture entered northern Mesopotamia. These two cultures were borne by peoples with a common civilization already diverging in varying degrees as regards particular features. There is certainly no basis for assuming that the Samarra culture derived from the region of Fars.

THE UBAID CULTURE

The Ubaid culture, in all its stages and variant local aspects, is primarily Iranian though influenced by the Halaf culture and perhaps in the south mixed with an original "swamp Arab" element.⁴⁸

Figure 13 reveals that its closest associations in Iran are with Fars and Susa I and that this is true of all its variants. The connection may be not directly with either the Fars or the Susa I aspect of the buff-ware culture but with another variant, sharing characteristics of both and perhaps to be localized between Shiraz and Susa. In such an area the mountaineers could have experienced coastal life and thus have been prepared to adapt themselves to the very different environment to be met in southern Mesopotamia.⁴⁹

Certain elements of the Ubaid culture, such as bent clay "nails" and clay sickles, are unknown at stratified Iranian sites in the period under discussion.⁵⁰ However, the clay stirrup-shaped scrapers of Bakun A III-IV (Langsdorff-McCown, '42, p. 71) are analogous in idea to the sickles of the Ubaid culture, for both show the very general idea of making tools from clay. Human figurines of the type known from Juwi (Mecquenem, '35, Fig. 5:1-2) and Bakun A III-IV (Langsdorff-McCown, '42, pp. 64 f.) are similar to those from Ur-Ubaid I and II (Woolley, '35, Pl. 6 *a-d*) and Warka (Jordan, '32, Pl. 21). Though details of the face may vary, they all share conical heads; and one Bakun A figurine (Langsdorff-McCown, '42, Pl. 7:1) may have cicatrices, which are known at Ur (Woolley, '35, Pl. 6 *a-b*). A male head from Bakun A (Langsdorff-McCown, '42, Pl. 6:27) is similar to those of Warka, and a figurine from Susa I (Mecquenem, '34, Fig. 45) is a crude form of a well made type known at Warka (Jordan, '32, Pl. 21:9722). The identity of these two forms is confirmed by the similarity of a poorly made figurine from Telloh (Genouillac, '34, p. 9 and Pl. 12:4b). Extended burials, typical of Ur-Ubaid II, occur at Susa I also (see above).

Derivation of the various local forms of the Ubaid culture from southwestern Iran is assured, but temporal synchronization is much more difficult.⁵¹ The following considerations must be

⁴⁷ It is naturally puzzling that de Mecquenem ('30, p. 226) should state that the burials of the Susa I necropolis were all secondary when we even have a sketch of a contracted burial published by de Morgan ('27, Fig. 65). See de Mecquenem, '28, p. 100, for a description of true secondary burials.

⁴⁸ Professor Frankfort kindly brought this interesting possibility to my attention.

⁴⁹ Dr. Thorkild Jacobsen kindly directed my attention to this possibility. Stein's trip now limits the area where this might be possible to near the coast.

⁵⁰ Note the painted bent clay "nails" of Musyan (Gautier-Lampre, '05, Fig. 118). At Susa such "nails" and clay sickles first occur in the stratum above Susa I (Mecquenem, '34, p. 205). The absence of wood in southern Mesopotamia might explain this situation, though such an explanation would be less likely in the region of Assyria.

⁵¹ This is in part due to the uncertainty of the comparative stratigraphy of the Ubaid sites. Our attempt at correlation is based on the practically certain assumption that the Ubaid culture entered Mesopotamia at approximately the same time in both north and south.

MESOPOTAMIAN RELATIONSHIPS

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taken into account in any attempt at temporal equation and explanation of the relations of the Ubaid and Iranian cultures:

1. The appearance of Halafian influence in Giyan V B-C (see p. 33) suggests the beginning of the Ubaid period in northern Mesopotamia (Gaura XIX).⁵²
2. The most certain element for cross-dating is the suspension jar with inner-ledge rim, which is known from Bakun A III-IV (Fig. 13:171), the Musyan area, Zuhab,⁵³ Tell Arpachiyah (Fig. 13:150), Gaura, Kudish Saghir 16, and al-Ubaid. When such a peculiar form shows no degeneration (as it does show typologically at Arpachiyah) the assumption of a temporal as well as a cultural relationship seems justified.
3. Hemispherical bowls and certain design elements applied in a distinctive way to this form occur in the latter part of Giyan V B and in V C.⁵⁴ They are paralleled in Gaura XIX-XVI⁵⁵ and either are found in northern Mesopotamia only or are more common there than in the south.

⁵² With this movement of an Iranian culture into Mesopotamia may be connected the appearance of the Susa I aspect of the buff-ware culture in the Susa region and the factors producing the change from Siyalk II to III. All this suggests some sort of internal readjustment in Iran. From the beginning of Siyalk III the Hissar culture shows the effects of the expansion of the buff-ware culture. The arrival of the Ubaid culture in Mesopotamia is to be considered as a manifestation of this expansive force.

⁵³ Meequenem, '28, Fig. 32:10. The other published sherds from this site, which is geographically part of northern Mesopotamia, show some similarity to those of Giyan V C and possibly B.

⁵⁴ Fig. 13:161 and Contenau-Ghirshman, '35, Pls. 45:12, 25, 47:20.

⁵⁵ Speiser, '38a, Fig. 2.

NOTES ON FIGURE 12

All the elements from Samarra which are here included may be considered to be common there unless mentioned as rare. Nos. 1, 3, 6, 8, 61, and 97 provide the best elements for cross-dating.

No. 1. Fringe of short strokes at the rim or below the design zone occurs in Bakun B II and is quite typical of Giyan V A (No. 11) and Siyalk I (No. 10). In later periods it occurs sporadically.

No. 3. Small line-steps occur in the Chashmah Ali culture. They are found also throughout Fars (Nos. 13, 15, and Stein, '36, Pls. XXII 26, 55, 58, XXIII 6, XXIV 21, XXVI 5) and at Musyan (No. 14) and other sites in Khuzistan (Stein, '40, Pls. II 16, III 8, VIII 9).

No. 6 is the only sure example of this design at Samarra, though there is an uncertain one also (Herzfeld, '30, Fig. 218). Nos. 22-24. See Fig. 10:36 and 40, notes (pp. 28 f.).

No. 8. This type of crosshatch or zigzag has been found in Giyan V A (No. 28) and at Musyan (No. 29). It is interesting to see it appear in Siyalk III 7 or 7b (Ghirshman, '38, Pl. LXXXII A 2).

Nos. 61, 71-74, and 76. For meanders in Iran see Fig. 10:32, notes (p. 28).

No. 97. Iranian counterparts for this type of design are found only in Bakun B II (Nos. 109-11) and elsewhere in Fars (Stein, '36, Pl. XXIII 65).

Though other Samarran features have counterparts in Iran, some presumably contemporary with the Samarra period, the main value of the following comparisons is in demonstrating that Samarra shows more similarity to Fars and Khuzistan than to any other regions of Iran.

No. 2. The dovetailed element of this design is rare at Samarra, though other dovetailed elements are not unusual. Similar or identical dovetailed patterns are found in Bakun B II (Fig. 13:74) and rarely A (Herzfeld, '32, Pl. XIV 5) and elsewhere in Fars (No. 13, Fig. 13:75, and Stein, '36, Pls. XXI 14, XXII 16, XXVI 33).

No. 3. For large steps see Fig. 10:14, notes (p. 28).

Nos. 4 and 17-18. See Fig. 10:97, notes (p. 31).

No. 5. Swastikas are found in Bakun A I-IV (e.g. No. 20) and at various other sites in Fars. They are not untypical in Susa I (No. 21) and are known from Musyan (Gautier-Lampre, '05, Fig. 176, right) and perhaps Siyalk II (No. 19).

No. 7. Barred lines occur in Bakun B II (No. 26) and A. There is an example from Giyan V A (No. 25). They are fairly common in Siyalk I and occur in II (No. 27).

Nos. 9 and 30-31. See Fig. 10:96, notes (p. 31).

No. 32. This design is fairly typical of Bakun A II-IV (No. 41; see Langsdorff-McCown, '42, p. 46) and is not uncommon in Susa I (No. 42). It is known from the base of Giyan V B (No. 40).

Nos. 33 and 43-46. See Fig. 10:33, notes (p. 28).

No. 34. A cross design inside bowls is rare at Bakun A (No. 47) and occurs once in Giyan V C (No. 48).

No. 35 is the only cone at Samarra. Cones are typical of Bakun A (No. 49) and are found elsewhere in Fars and in Susa I (No. 50).

Nos. 36 and 51-52. See Fig. 10:11, notes (p. 28).

No. 37. Zigzags with triangular fill between the points are found in Bakun B II (Fig. 13:70) and A I-IV (No. 53; see *ibid.* p. 46) and throughout Fars. The type of triangle used in No. 37 occurs in Bakun A III-IV. This design is not rare in Susa I (No. 54) and is found in northern Luristan (Stein, '40, Pl. XIV 33), at Giyan in V A and C (Fig. 9:13 and Contenau-Ghirshman, '35, Pls. 40:7, 42:5b, 50:10, 52:4, 53:3, 55:10), and in Hissar II A.

Nos. 38 and 55-57. See Fig. 10:10, notes (p. 28).

No. 39. The few possible examples from Fars (Nos. 58-59) may not be strictly comparable.

Nos. 60 and 69-70. See Fig. 10:43, notes (p. 29).

Nos. 63 and 75. See Fig. 10:126, notes (p. 32).

No. 64. There are no examples in Iran of horns barred as at Samarra. At Bakun B (No. 77) and A (see Langsdorff-McCown, '42, p. 51) and rarely in Susa I and Giyan V horns are knobbed or denticulated along the top. With No. 78 cf. a fine bowl from Samarra (Herzfeld, '30, Pl. VIII).

Nos. 65 and 79-81. See Fig. 10:63, notes (p. 30).

Nos. 66 and 82-83. See Fig. 10, notes following No. 118 (p. 32).

Nos. 67 and 84-85. See Fig. 10:64, notes (p. 30).

No. 68. Hourglasses composed in this fashion are found in Fars (Fig. 11:133) and at Musyan (No. 86 and Gautier-Lampre, '05, Fig. 154).

Nos. 87-88. The herringbone pattern is unusual at Bakun A though known elsewhere in Fars (Fig. 11:23). It is found at the base of Giyan V B (Fig. 6:5), in Siyalk I (No. 100 and Ghirshman, '38, Pl. XLIV A 5, 7, B 8) and II (Figs. 6:10, 11:22, and *ibid.* Pl. L C 14-15), and Hissar I B.

Nos. 89 and 101 (also Nos. 125 and 141). See Fig. 10:93, notes (p. 31).

No. 90 (also No. 128). The truncated zigzag is rare in Bakun A III-IV (No. 143) and at Giyan appears in V C-D only (Fig. 13:127 and Contenau-Ghirshman, '35, Pls. 57:6, 59:24, 60:9). It is found in Siyalk I (Ghirshman, '38, Pls. XLII D 6, XLIII C 4), II (No. 102 and Fig. 13:126), and III 6-7 (see Fig. 13:107-8, notes [p. 41]) and possibly in Hissar I C (Schmidt, '37, Pl. IX H 3385). It is found in the Ubaid culture also (Fig. 13:106-8).

No. 91. This shape is unusual at Samarra. The only possible Iranian comparisons are with vessels from Giyan V A-C and Siyalk II and are not very good (e.g. Figs. 5:1, 7 and 6:1, 8).

No. 92. In Iran this type of deep beaker or bowl is found in Giyan V only, certainly in V C (No. 104) and possibly in V B.

No. 93. In Iran this design is found only in Giyan V B-C (No. 105 and Contenau-Ghirshman, '35, Pl. 47:1) and possibly Siyalk II 2 (Fig. 6:20).

Nos. 94 and 106. See Fig. 10:41, notes (p. 29).

Nos. 95 and 107 (also No. 59). See Fig. 10:2, notes (p. 27).

Nos. 96 and 108. See Fig. 10:13, notes (p. 28).

No. 98 is similar in idea to No. 112, which is the only example in Iran.

No. 99. Such opposed scalloped bands are found in Bakun B II (No. 113) and occasionally at Bakun A. See also sherds from Siyalk III 1 (e.g. Ghirshman, '38, Pl. LXXVI C 5).

No. 114. This type of pot (Langsdorff-McCown, '42, form IX B) is rare at Bakun A (No. 130 and Herzfeld, '32, Pl. XVIII L).

No. 115. In Iran this type of zigzag is found at Bakun A only (No. 131), where it is rare.

Nos. 116 and 132. This type of design is found in Bakun A III. Triangles like those of No. 116 (also No. 65) are common in Bakun A III-IV and Susa I and are known from Musyan (Gautier-Lampre, '05, Fig. 156).

No. 117. No. 133, from Bakun A III, is the only comparable element in Iran.

Nos. 118-19 and 134. A similar type of step is found in Bakun A I, while negative lentoids occur in Bakun A I-IV and elsewhere in Fars (Stein, '36, Pl. XXVI 59).

Nos. 120 and 135. See Langsdorff-McCown, '42, design XIII B.

No. 121 (also Herzfeld, '30, Fig. 209 b). Panels divided by diagonals into triangular halves (No. 136) are fairly common in Bakun A I-IV (Langsdorff-McCown, '42, p. 40). Panels like that of No. 121 occur elsewhere in Fars (Stein, '36, Pl. XXVI 47, 53-54). A design similar in idea is found in Susa I (Pottier, '12, Pl. VIII 4).

No. 122. There is an example similar to No. 137 in Bakun A IV.

No. 123. This type of element is not unusual at Bakun A (Nos. 138-39).

No. 125. The Samarran "peg" design is basically a reversing-triangle pattern. No. 141. See Fig. 10:93, notes (p. 31).

No. 126. There is only one example of this element at Bakun A (No. 141). It is found in the Musyan area (Gautier-Lampre, '05, Figs. 166, center, and probably 168) and appears at Siyalk in III 7 (Ghirshman, '38, Pl. LXXXI C 11).

No. 127. Such points are found very rarely at Bakun A but occur elsewhere in Fars (No. 142 and Stein, '36, Pls. XXIV 36, XXVIII 45). They are shown once from Susa I (Pottier, '23, I C a, Pl. 5:26) and once from Musyan (Gautier-Lampre, '05, Fig. 135, lower right). They occur in Siyalk II also (Fig. 11:82).

Nos. 128 and 143 show a form of truncated zigzag, for which see No. 90.

No. 129 is apparently the only example of the unilaterally scalloped band at Samarra. It is found in Bakun A I-IV and at another site in Fars (Stein, '36, Pl. XXV 42). Though bands are scalloped in this way elsewhere in Iran, they are never used in such a fashion in the design zone.

1. Herzfeld, '30, Fig. 35
2. *Ibid.* Fig. 198
3. *Ibid.* Fig. 18
4. *Ibid.* Fig. 174
5. *Ibid.* Fig. 105
6. *Ibid.* Fig. 166
7. *Ibid.* Fig. 128
8. *Ibid.* Fig. 45
9. *Ibid.* Fig. 1
10. Ghirshman, '38, Pl. XL A 9, Siyalk I 1
11. Contenau-Ghirshman, '35, Pl. 42:10, Giyan V A
12. Ghirshman, '38, Pl. XLII D 10, Siyalk I 3
13. Stein, '36, Pl. XXII 54, Fars
14. Gautier-Lampre, '05, Fig. 165, Musyan
15. Langsdorff-McCown, '42, Pl. 27:15, Bakun A IV (top), surf.
16. Pottier, '12, Pl. V 9, Susa I
17. Ghirshman, '38, Pl. L A 13, Siyalk II surf.
18. PPA 4255, J 31, +1.72 m., Bakun A surf.
19. Ghirshman, '38, Pl. L A 17, Siyalk II surf.
20. Langsdorff-McCown, '42, Pl. 31:2, Bakun A IV
21. Pottier, '12, Pl. XLI 3, Susa I
22. PPB 74, Bakun B II
23. Contenau-Ghirshman, '35, Pl. 46:8, Giyan V B, -15-16 m.
24. Langsdorff-McCown, '42, Pl. 49:4, Bakun A
25. Contenau-Ghirshman, '35, Pl. 40:13, Giyan V A
26. PPB 37, Bakun B II
27. Ghirshman, '38, Pl. XLIX C 13, Siyalk II 3
28. Contenau-Ghirshman, '35, Pl. 42:19, Giyan V A
29. Gautier-Lampre, '05, Fig. 165, Musyan
30. Herzfeld, '32, Pl. XVI 2, Bakun A
31. Pottier, '23, I C a, Pl. 8:15, Susa I
32. Herzfeld, '30, Pl. XXX 158
33. *Ibid.* Pl. XXV 263
34. *Ibid.* Fig. 52
35. *Ibid.* Fig. 213
36. *Ibid.* Fig. 99
37. *Ibid.* Fig. 158
38. *Ibid.* Fig. 123
39. *Ibid.* Fig. 52
40. Contenau-Ghirshman, '35, Pl. 43:2, Giyan V B, -17-18 m.
41. PPA 4266, P 30, +2.62 m., Bakun A surf.
42. Pottier, '12, Pl. XIX 1, Susa I
43. Contenau-Ghirshman, '35, Pl. 43:8, Giyan V B, -17-18 m.
44. PPB 49, Bakun B II
45. PPA 2922, Trench I, 10-20 m., +0.2 m., Bakun A I
46. Pottier, '23, I C a, Pl. 7:5, Susa I
47. Langsdorff-McCown, '42, Pl. 28:3, Bakun A III
48. Contenau-Ghirshman, '35, Pl. 48:8, Giyan V C, -12-13 m.
49. Langsdorff-McCown, '42, Pl. 16:7, Bakun A III
50. Pottier, '12, Pl. XXIII 2, Susa I
51. Langsdorff-McCown, '42, Pl. 35:2, Bakun A III
52. Pottier, '12, Pl. XX 1, Susa I
53. PPA 3892, M 31, +0.5 m., Bakun A I; Rms. XII 1, 3, Bakun A III; Q 32, +2.25 m., Bakun A surf.
54. Pottier, '12, Pl. XX 3, Susa I
55. Bakun B II
56. Pottier, '12, Pl. XXI 3, Susa I
57. Langsdorff-McCown, '42, Pl. 79:5, Bakun A III
58. Stein, '36, Pl. XXII 49, Fars
59. Langsdorff-McCown, '42, Pl. 33:2, Bakun A
60. Herzfeld, '30, Fig. 165
61. *Ibid.* Fig. 138
62. *Ibid.* Fig. 67
63. *Ibid.* Fig. 25
64. *Ibid.* Pl. XI
65. *Ibid.* Fig. 185
66. *Ibid.* Fig. 184
67. *Ibid.* Fig. 46
68. *Ibid.* Fig. 48
69. Langsdorff-McCown, '42, Pl. 37:7, Bakun A III
70. Pottier, '12, Pl. XLII 3, Susa I
71. Contenau-Ghirshman, '35, Pl. 42:16, Giyan V A
72. PPB 59, Bakun B II
73. PPB 20, Bakun B II
74. Pottier, '12, Pl. III 2, Susa I
75. *Ibid.* Pl. XVI 7, Susa I
76. Langsdorff-McCown, '42, Pl. 61:5, Bakun A III
77. PPB 24, Bakun B II
78. PPA 5269, Q 33, +1.87 m., Bakun A surf.
79. Ghirshman, '38, Pl. XLII A 12, Siyalk I 3
80. PPA 3908, Rm. XI, Bakun A III
81. Pottier, '12, Pl. XVII 6, Susa I
82. Contenau-Ghirshman, '35, Pl. 40:10, Giyan V A
83. Pottier, '12, Pl. XX 4, Susa I
84. Ghirshman, '38, Pl. LXXXVI A 18, Siyalk III 1
85. Langsdorff-McCown, '42, Pl. 48:1, Bakun A II-III
86. Gautier-Lampre, '05, Fig. 155, Musyan
87. Herzfeld, '30, Pl. XXXIV 186
88. *Ibid.* Fig. 51
89. *Ibid.* Fig. 155
90. *Ibid.* Pl. XXIX 45
91. *Ibid.* Fig. 119
92. *Ibid.* Fig. 178 (not as tall as No. 104)
93. *Ibid.* Fig. 199
94. *Ibid.* Fig. 181
95. *Ibid.* Fig. 55
96. *Ibid.* Pl. XXXV 221
97. *Ibid.* Fig. 135
98. *Ibid.* Fig. 151
99. *Ibid.* Fig. 60
100. Ghirshman, '38, Pl. XLIV A 6, Siyalk I 4
101. *Ibid.* Pl. XLIX B 17, Siyalk II 2
102. *Ibid.* Pl. LI A 7, Siyalk II surf.
103. Contenau-Ghirshman, '35, Pl. 43:1, Giyan V B, -17-18 m.
104. *Ibid.* Pl. 84, center left, Giyan V C, -12.6 m.
105. *Ibid.* Pl. 44:16, Giyan V B, -16-17 m.
106. *Ibid.* Pls. 50:20 and 51:5, Giyan V C, -12-13 m.
107. Pottier, '12, Pl. X 1
108. *Ibid.* Pl. V 7
- 109-11. Bakun B II
112. PPB 50
113. PPB 52
114. Herzfeld, '30, p. 80, Fig. *t* (taller than No. 130)
115. *Ibid.* Fig. 86
116. *Ibid.* Pl. XXI 85
117. *Ibid.* Fig. 38
118. *Ibid.* Fig. 144
119. *Ibid.* Fig. 145
120. *Ibid.* Fig. 15
121. *Ibid.* Pl. XIX 61a
122. *Ibid.* Fig. 8
123. *Ibid.* Fig. 222:7
124. *Ibid.* Fig. 222:15
125. *Ibid.* Pl. XXIX 241
126. *Ibid.* Fig. 42
127. *Ibid.* Fig. 137
128. *Ibid.* Fig. 85
129. *Ibid.* Fig. 206
130. Langsdorff-McCown, '42, Pl. 13:21, Bakun A III-IV (base)
131. *Ibid.* Pl. 46:14, Bakun A IV
132. *Ibid.* Pl. 32:7, Bakun A
133. *Ibid.* Pl. 78:12, Bakun A III
134. *Ibid.* Pl. 65:10, Bakun A surf.
135. *Ibid.* Pl. 52:11, Bakun A III-IV
136. *Ibid.* Pl. 34:9, Bakun A III and surf.
137. *Ibid.* Pl. 61:13, Bakun A III
138. *Ibid.* Pl. 3:7, Bakun A III
139. *Ibid.* Pl. 78:29, Bakun A II
140. *Ibid.* Pl. 80:26, Bakun A IV
141. PPA 3799, Rm. XVII 3, Bakun A IV
142. Stein, '36, Pl. XXIII 87
143. Langsdorff-McCown, '42, Pl. 56:7, Bakun A

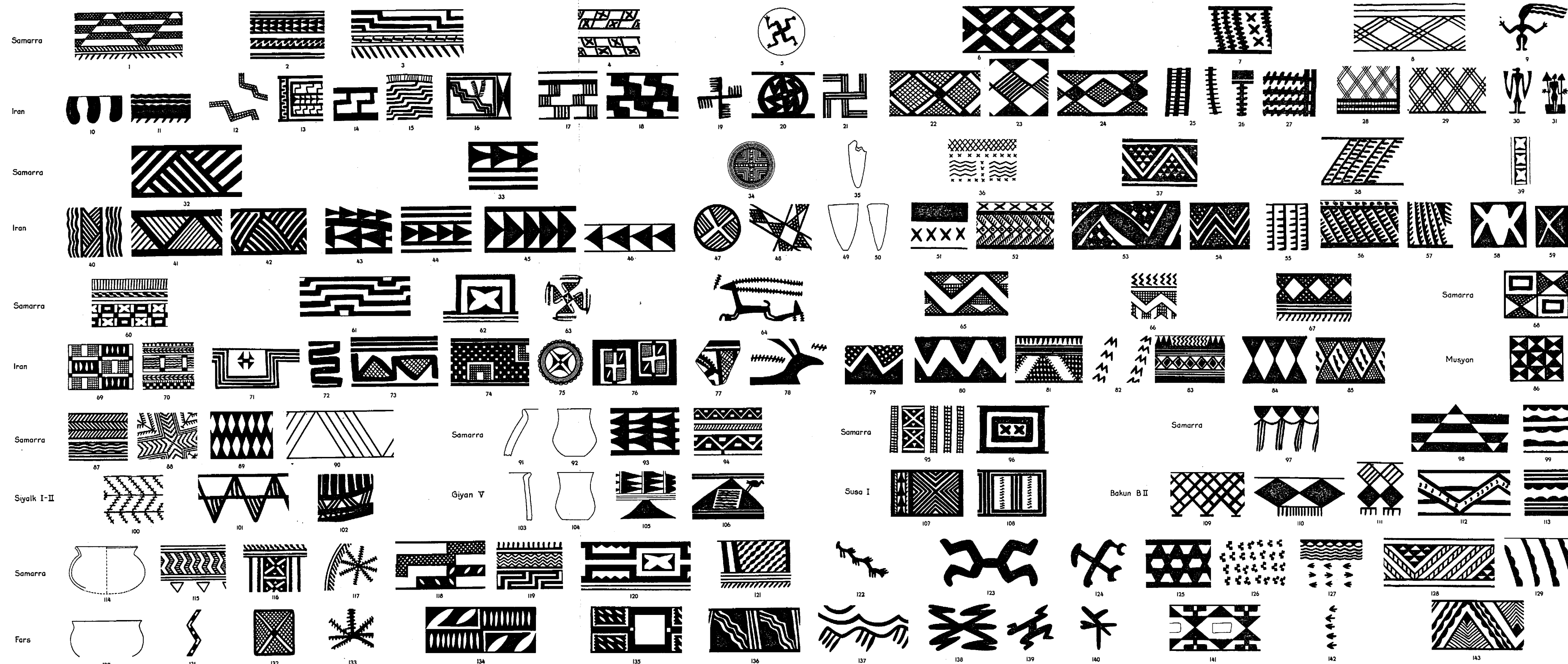


Fig. 12.—Samarra and Iran

4. The fact that the Gaura XIII designs which are known show close similarity to or identity with some of Bakun A I-IV suggests a close relationship to the Fars aspect. These new designs at Gaura differ sufficiently from those of preceding phases to indicate a new wave of Iranian influence on northern Mesopotamia. With such a wave it seems possible to correlate the buff-ware influence from the southwest which is so marked at Siyalk after III 5 (p. 24) and in the latter part of Giyan V C (p. 26).
5. The appearance of unpainted red ware in Ur-Ubaid III and Warka XIV is presumably related to the occurrence of similar ware in Bakun A V (p. 48) and in and immediately after Susa I (pp. 19 and 43).
6. Too little is known of the metallurgy of the earliest Ubaid levels to make it a useful basis of comparison. If the clay models of Ur-Ubaid I (Woolley, '30, p. 101, Fig. A) are really imitations of metal forms, that period should at least overlap the time of Siyalk III 4-5 (see p. 6).⁵⁶

The foregoing considerations seem to indicate that the Ubaid migration to Mesopotamia took place either at the beginning of Bakun A, Giyan V C, and Siyalk III or during the intervals between Bakun B and A and Siyalk II and III. The Ubaid culture throughout Mesopotamia derived mainly from southwestern Iran; only in northern Mesopotamia is it likely that the Giyan variant of the buff-ware culture formed a component of the Ubaid culture. At the end of the Ubaid period in the north new influence came from Fars, probably at the same time that influence from the southwest is to be seen at Siyalk after III 5 and in Giyan V C. The end of the Ubaid period (i.e., the end of Ur-Ubaid II, Warka XV-XIV, and Gaura XIII-XII) corresponds to or is slightly later than the end of the painted-pottery cultures in Iran, but in southern Mesopotamia it is likely that a transitional period, when Ubaid pottery occurred alongside new unpainted red ware, corresponds to the last phases of Susa I, when a similar condition existed. Since it is possible, however, that this red ware appeared earlier in Fars than elsewhere in Iran, Ur-Ubaid III might be contemporaneous with the stratum immediately above Susa I (here called "B 1"; see below).⁵⁷

The contemporaneity of Bakun A I-IV, Susa I, Giyan V C, the Hissar period, and the Ubaid period is close to certainty, but the relative dates of the beginning and the end of the Ubaid period cannot at present be fixed with any considerable precision since they rest mainly on inference. When an unbroken stratification from the time of Bakun B II through Bakun A is discovered in Fars and Khuzistan, the beginning of the Ubaid period may be fixed more accurately. The following consideration of the stratification at Susa provides additional evidence as to the time of the end of Susa I relative to the Mesopotamian sequence.

⁵⁶ It may not be an archeological accident that copper objects are rare at this time in Mesopotamia. Hawkes ('40, pp. 91 f.) has pointed out that it is reasonable that a people knowing metallurgy should lose this knowledge when moving far enough to a region without mineral resources. This suggestion seems to apply most appropriately to this Iranian migration to Mesopotamia, in which case it is clear also that communication with the homeland must have been limited.

⁵⁷ The two spouted pots of Siyalk III 6 (Ghirshman, '38, p. 47 and Pl. LXIX S.135) cannot be ignored. If they are variants of a long-spouted vessel known in Warka XIII (Nöldeke *et al.* '32, Pl. 17 D g), our synchronism still fits not too badly, for Warka XIII temporally is probably not very far from the end of Bakun A IV and perhaps Susa I (see p. 26). The form of the Siyalk spouted pots, however, is closest to a form known in Warka VII (*ibid.* Pl. 18 D i). Unless the correlation of Siyalk III and the end of Susa I (p. 22) is incorrect and the internal evidence from Susa has been misinterpreted (pp. 44 f.), it is impossible that Siyalk III 6 should be as late as Warka VII. It is possible that the presence of the two spouted pots in Siyalk III 6 is due to contact with one of the gray-ware cultures prior to the Uruk period in Mesopotamia. See n. 103 for an analogous case.

NOTES ON FIGURE 13

To attempt to learn when the Ubaid culture appeared in Mesopotamia we must limit our study to Giyan and Siyalk; for this event may have occurred during the interval between Bakun B II and A I (see p. 39), and the other published Iranian sites which were occupied at that time are unstratified.

Despite the fact that Siyalk is not a buff-ware site, there are some useful indications in Siyalk III. The appearance in Siyalk III 2 or 3 and 4 of a few elements typical of Ubaid pottery design (Nos. 20-21, 142-43) may be presumed to be the result of the movement of the Ubaid culture into Mesopotamia. It must not be forgotten that this was an event of considerable magnitude, for as a result lower Mesopotamia was settled and the culture of northern Mesopotamia all the way into Syria was almost completely changed. It is to be noted that these elements appear at Siyalk very shortly after certain apparently Halafian designs (Fig. 11: 42, 83-84) are first seen there. This evidence indicates that the inception of the Ubaid period was at about the beginning of Siyalk III.

Nos. 20-21. Crosshatched parallelograms occur at Warka and Eridu also. No. 47 is the only example of this element in Iran at the time of Siyalk III 2 or 3. It is known otherwise in Giyan V D only.

Nos. 142-43. This type of intermittent zigzag occurs at Warka and Telloh also. At Siyalk examples are first seen in III 4 (No. 162 and Fig. 10:101), but they continue through III 6. At Giyan such intermittent zigzags occur suspended as early as V A (Contenau-Ghirshman, '35, Pls. 40:22, 41:10, 42:27). In Giyan V B between -16 and -14 m. the same type of zigzag occurs (Nos. 160-61 and *ibid.* Pl. 45:16) and should be discontinuous, though the first certainly discontinuous example occurs apparently at -13 m. (*ibid.* Pl. 37:23). This element recurs in V D (*ibid.* Pl. 58:1, 5) under the influence of the Hissar culture. It is known from Juwi also (Mecquenem, '35, Fig. 2).

The problem in Giyan V is different, for from this aspect of the buff-ware culture a certain element of the Ubaid civilization derived.

Nos. 142-44. In Mesopotamia this type of design, seen in numerous other examples from Arpachiyah (Mallowan-Rose, '35, Figs. 29:1-2, 30:2) and Gaura in early Ubaid levels to as late as level XVI (Speiser, '38b, Fig. 11; 38a, Fig. 2), usually occurs on bowls with incurved or everted rims. In Giyan V such rows of small elements with broad bands below appear on these types of bowls from -17-18 m. onward (Nos. 160-61, 163, and Contenau-Ghirshman, '35, Pls. 43:6, 11, 45:8-11, 25, 46:16, 47:12-13, 19, 48:4, 16, 49:9-10, 23). From -13 m. onward they are usually on differently shaped bowls. The design of the type of Nos. 160-61 is not found above -13 m. at Giyan. If we could be sure that this is not due to accidents of publication it would mean that the Ubaid period must have begun by this point, provided that the Giyan stratification is typical of that region. This would agree well with the conclusions drawn from the Siyalk material.

Nos. 145-46. Horizontal or vertical zigzags with elongated points are found at Nuzi, Warka, Telloh, al-Ubaid, and Eridu also. At Giyan they are known from V B-C (No. 165 and Contenau-Ghirshman, '35, Pls. 45:12, 50:8). They are found at Chigha Pahn (Stein, '40, Pl. XII 1-2, 9) and Girairan (*ibid.* Pl. XIV 17) also. In Susa I the idea may be present but executed differently (No. 166 and Pottier, '12, Pls. I 2, X 7).

Some Iranian features may be considered as contemporary with their parallels in the Ubaid culture.

No. 11. No. 31, from Susa I, is unique in Iran in having a basket handle.

No. 150. This peculiar type of jar is found at Gaura, in Kudiash Saghir 16 (Starr, '37, Pl. 43 K), and at al-Ubaid (Hall-Woolley, '27, p. 48 and Pls. XVII 2024, XIX 2168). In Iran outside Bakun A III-IV (No. 171) it is known from the Musyan area (Pottier, '23, I C f, Pl. 1:9-11) and Zuhab (Mecquenem, '28, Fig. 32:10).

The design in the bottom of a bowl from Musyan (*ibid.* p. 130 and Fig. 35) is strikingly like some southern Ubaid designs (Hall-Woolley, '27, Pl. XVI 2155; Nöldeke *et al.* '38, Pl. 40 d) and is unparalleled elsewhere in Iran.

The other comparisons made in Fig. 13 show that Ubaid pottery shapes and designs parallel most closely those of southwestern and western Iran: Fars and Khuzistan.

No. 11. In Mesopotamia this type of design is so far known from Ur-Ubaid I only. No. 32, a design known mainly from Bakun A I-II, may not be really comparable. The design on a bowl from Buhallan (Mecquenem, '38, Fig. 6:3) is much more closely comparable. Nos. 33-34. "Eyes" in elements are rare in Susa I (Pottier, '23, I C a, Pl. 11:33; cf. Pl. 9:19), are found in diamonds in the Musyan area (Gautier-Lampre, '05, Figs. 171, center, 172-73), and are not uncommon in Bakun A I-IV.

Nos. 12-13 and 35-37. See Fig. 10:9, notes (p. 28).

No. 14. This element is found at al-Ubaid also. In Iran aside from one example in Giyan V C (No. 38) it is found in Bakun A III-IV and elsewhere in Fars (No. 37).

Nos. 15-16. No. 15 is most closely comparable with forms found in Siyalk III 1-7 (Ghirshman, '38, Pls. LXXVI C 17, LXXXI B 4, C 5). Nos. 39-40. See Fig. 10:70, notes (p. 30).

No. 17. A possible example of this design is known from al-Ubaid (Hall-Woolley, '27, Pl. XVII 2024). No. 41. See Fig. 10:2, notes (p. 27). No. 42. This design is known from Bakun A III-IV only.

Nos. 18 and 43. In Iran such diamonds are found in Bakun A I-IV and at another site in Fars (Stein, '36, Pl. XXI 38).

Nos. 19 and 44-46. See Fig. 10:114, notes (p. 31).

No. 22. Joined hourglasses are known from Tell Mefesh also (*The British Museum Quarterly* XIII [1939] Pl. XLI). Nos. 48-50. See Fig. 10:64, notes (p. 30).

No. 51. Zigzags with fill between the points are unusual in Ubaid design. The zigzag here is produced by scratching

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through a broad band of paint (Hall-Woolley, '27, p. 47). This type of incision is found also at Hajji Muhammad (No. 56) and Nuzi (Starr, '37, Pl. 46 A) and occasionally in Iran (Mecquenem, '28, Figs. 20:12, 32:9). Nos. 70-71. See Fig. 12:37, notes (p. 38).

No. 52 is the only example of the Maltese square in Ubaid design. Nos. 72-73. See Fig. 10:126, notes (p. 32).

Nos. 53 and 74-75. See Fig. 12:2, notes (p. 37).

Nos. 54-55. Elements on a central line are found in Bakun A I-IV (e.g. No. 76; see Langsdorff-McCown, '42, p. 46) and elsewhere in Fars (Stein, '36, Pls. XXII 69, XXVI 50; '40, Pl. I 10). The design of No. 55 is found in Ur-Ubaid I also (Woolley, '35, Pl. 2b). The same type of herringbone is known from Nuzi (Starr, '37, Pl. 43 DD2). No. 77. See Fig. 12:87-88, notes (p. 38).

Nos. 56-57 are the only examples of vertical zones in Ubaid design. Nos. 78-79. See Fig. 10, notes following No. 112 (p. 31).

No. 58 is very similar to No. 81 and in effect to No. 80. This type of element is found occasionally in Bakun A I-IV, while other elements in Susa I have a similar effect (Pottier, '12, Pl. XV 4; '23, I C a, Pl. 9:5, 11, 13).

Nos. 59-60. This pattern is found at al-Ubaid also (Hall-Woolley, '27, Pl. XLIX T.O.516). Nos. 82-83. See Fig. 10:34-35, notes (p. 28).

Nos. 61-62. This design is unusual at Bakun A (No. 86). It occurs in Susa I (Morgan, '00, Pl. XX 25) and Giyan V B-C (No. 85 and Contenau-Ghirshman, '35, Pls. 49:20, 55:11). At Siyalk it is known in I 4 (No. 84), II (Ghirshman, '38, Pls. XLVII A 10, L C 1, 3), and then not till III 7b (*ibid.* Pl. LXXXIII S.1696).

Nos. 63-64. This design is found at al-Ubaid also (Hall-Woolley, '27, Pl. XVIII 1567). It occurs in Bakun A I-IV (e.g. No. 88), elsewhere in Fars (Stein, '36, Pls. XXI 40, XXVI 4), and at Giyan from V A (No. 87) to C. At Siyalk it is seen in I 3 (Ghirshman, '38, Pl. XLI A 2, 6) and then not again till III 1 (*ibid.* Pl. LXXVI D 5, 11).

No. 65. This pattern, hatched or plain, horizontal or vertical, is known from Gaura XIX (Speiser, 38b, Fig. 9), Telloh, al-Ubaid, and Eridu also. It is not found at Bakun, though it is known elsewhere in Fars (Stein, '36, Pl. XXV 23). It occurs at the Malamir site (Stein, '40, Pl. II 8) and at Giyan in V B and C (No. 90 and Contenau-Ghirshman, '35, Pls. 44:7, 54:5). At Siyalk it is typical of level II (No. 89) but is not shown in level III until 6-7 (Fig. 4:25 and Ghirshman, '38, Pl. LXXXI D 3).

No. 66. This type of field-divider is characteristic of Susa I (No. 92) and is known twice from Giyan V A (e.g. No. 91).

Nos. 67-69. Gyrons are apparently not uncommon in Ur-Ubaid I. Nos. 93-96. See Fig. 10:118, notes (p. 32).

Nos. 97-99. This design appears at Telloh, al-Ubaid, and Eridu also. Nos. 114-17. See Fig. 10:33, notes (p. 28).

No. 100. Crosses are used in Gaura XIII also. Nos. 118-19. See Fig. 10:11, notes (p. 28).

Nos. 101-2. The divided diamond of No. 102 may be represented at al-Ubaid also (Hall-Woolley, '27, Pl. XLIX T.O.516). Nos. 120-22. See Fig. 10:95, notes (p. 31). No. 123. See Fig. 10:7, notes (p. 27).

Nos. 103-5. Examples of the design of No. 105 are found at Nuzi also (Starr, '37, Pl. 48 Z, EE, GG). Negative elements in solid fields are found in Bakun A II-IV (e.g. No. 124; see Langsdorff-McCown, '42, p. 43), throughout Fars (Stein, '36, Pls. XXIV 41-42, XXVI 61, XXVIII 20), and at Tall-i-Pir near Haraj (Stein, '37, Pl. XXVIII viii.9). This type of design occurs also in Susa I (No. 125), at Musyan (Gautier-Lampre, '05, Fig. 181), in Giyan V A (Fig. 11:88), and in the Chashmah Ali culture.

No. 106. There are several examples of this type of truncated zigzag at al-Ubaid. Nos. 126-27. See Fig. 12:90, notes (p. 38).

Nos. 107-8. This type of truncated zigzag occurs at al-Ubaid also. No. 128, from Siyalk III 6, and one from Siyalk III 7 (Ghirshman, '38, Pl. LXXXI D 16) are the only examples known in Iran. For other types of truncated zigzags see Nos. 106 and 152.

Nos. 109-10. Reversing triangles are known from Nuzi, Telloh, and Warka also. Nos. 129-32. See Fig. 10:93, notes (p. 31).

Nos. 110-12. Sigmas are found at Warka and Telloh also. Nos. 133-35. See Fig. 10, notes following No. 118 (p. 32).

No. 113. Field-dividers of butterfly elements usually flanked by vertical lines or identical zones occur at Telloh, al-Ubaid, and Eridu also. The butterfly element is unusual at Bakun A but occurs elsewhere in Fars (Stein, '36, Pls. XXI 39, XXIII 2, XXIV 27, XXVIII 42). As a panel-separator it is typical of Susa I but is rare with side elements (No. 137 and Pottier, '12, Pls. VI 1, VII 2; '23, I C a, Pl. 2:7). As an element or a field-divider it is found at Musyan (Fig. 12:86 and Gautier-Lampre, '05, Fig. 226) and elsewhere in Khuzistan (Stein, '40, Pl. VII 19). In Giyan V it is used without side elements in A-C (No. 136, Fig. 9:2, 24, and Contenau-Ghirshman, '35, Pls. 48:11, 52:20-21) and only once (in C) with side lines (*ibid.* Pl. 54:16), which are fringed like those flanking other types of field-dividers in Susa I (Fig. 10:17 and Pottier, '12, Pl. X 2). At Siyalk the butterfly element is found as a field-divider in III 4-7 without (Ghirshman, '38, Pls. LXXVIII D 10, 12, LXVIII S.180, LXXXI C 16) and in III 3-7 with (No. 138 and *ibid.* Pls. LXXVIII A 7, D 14, LXXXI D 13) side lines.

Panels flanked by vertical lines or identical zones are found at most Ubaid sites (e.g. No. 57). In Iran they occur in the Musyan (Gautier-Lampre, '05, Figs. 161-63, 172, right, 194, 213) and elsewhere in Khuzistan (Stein, '40, Pl. XIV 14), in Giyan V C (Fig. 7:11 and Contenau-Ghirshman, '35, Pl. 49:2), and in Siyalk III 2 (Ghirshman, '38, Pl. LXIII S.1817) to 7 or 7b (*ibid.* Pls. LXXXII A 1, 10, LXXXIII B 7). A possibly comparable style is known in Susa I (Pottier, '12, Pls. III 3, 8, XX 1, XXI 10, XXII 2; '23, I C a, Pl. 12:2).

Nos. 139-40 and 157 are all unique.

No. 141. Vertical zigzags seem a simple sort of field-divider, but their use as such is rare. They are found in Bakun A III-IV (Langsdorff-McCown, '42, Pl. 32:2-4, 6) and are known once from Susa I (Pottier, '12, Pl. II 4) and a few times in Giyan V B-D (No. 158 and Contenau-Ghirshman, '35, Pls. 47:3, 59:15). At Siyalk they occur in III 1-7 (No. 159 and Ghirshman, '38, Pls. LXXVI A 13, LXXXI C 6, 9).

Nos. 147-48. This design is found also at Telloh and painted solid in Warka XVII. It is found in Bakun B II (Fig. 11:29), very rarely in Bakun A I-IV, and elsewhere in Fars (Stein, '36, Pls. XXII 68, XXIII 5). It is quite common at Musyan in wavy form (Gautier-Lampre, '05, Fig. 213) and is known from Chigha Sabz in the Rumishgan Valley (Stein, '40, Pl. IX 9). At Giyan it is probably to be seen in V A (No. 167) and through V C (No. 168). At Siyalk it is unknown before III 7-7b (Ghirshman, '38, Pls. LXXIV S.10, LXXXII B 7, LXXXIII A 17, D 8, LXXII S.1749, 1765).

No. 149 is the only example of this design in the Ubaid culture. Nos. 169-70. See Fig. 10:37, notes (p. 29).

No. 151 is the only example of this design in the Ubaid culture. In Iran cart wheels are known only from Bakun A III-IV (e.g. No. 172) and elsewhere in Fars (Stein, '36, Pl. XXVI 58).

No. 152 is the only example of this type of zigzag in the Ubaid culture. Truncated zigzags of Iran are similar in effect. No. 173 is the only example from Bakun A, but they are found elsewhere in Fars (Stein, '36, Pls. XXIII 69, XXVI 26, XXVIII 36) and at Girairan (Stein, '40, Pl. XIV 31). They are known at Siyalk in III 7-7b (Figs. 7:25, 9:37, and Ghirshman, '38, Pls. LXXXI C 14, LXXXII B 5, LXXI S.1820). For other types of truncated zigzags see Nos. 106-8.

No. 153 is the only example of such a pannel in the Ubaid culture. No. 174. See Fig. 12:121, notes (p. 38).

No. 154 is the sole example of this type of design known in the Ubaid culture. No. 175. This pattern is found in Bakun A III. Somewhat similar wavy designs are known from Susa I (Pottier, '12, Pl. IX 7), the Musyan area (Gautier-Lampre, '05, Figs. 186, 199-200), Giyan V D (Contenau-Ghirshman, '35, Pl. 56:17), and Siyalk III 7 or 7b (Ghirshman, '38, Pl. LXXXIII C 10, 15).

No. 155, a design known at Hajji Muhammad only, is to some extent comparable with No. 176, which is unique in Bakun A III.

No. 156. This design is known at Hajji Muhammad only. No. 177. Such appendages are typical of Bakun A.

No. 178. In Mesopotamia this element is known in Ur-Ubaid I only. No. 199 is the only example from Bakun A, but the practice of leaving a negative square or diamond where two bands cross is typical there. A cross with a negative square is known from Susa I (Pottier, '12, Fig. 135), and an oblique cross with a negative diamond occurs in the Musyan area (Gautier-Lampre, '05, Fig. 167).

No. 179. This design is seen twice in Ur-Ubaid I and once in Shaghir Bazar 6-7 (Mallowan, '36, Pl. III 7). The last example is in polychrome Halaf ware, but the level from which it comes is very probably contemporary with early Ubaid levels in Assyria and southern Mesopotamia. No. 200. This design is known from Bakun A III-IV only.

No. 180. Zigzags with appendages running off the apexes are known from Gaura XVIII also (Speiser, '38b, Fig. 5). They occur in Bakun A I-IV quite commonly (e.g. No. 201) and throughout Fars (Stein, '36, Pls. XXII 25, 40, XXV 6). They are known also from the Musyan area (Gautier-Lampre, '05, Figs. 138, left, 146; Pottier, '23, I C f, Pl. 3:23), Malamir (Stein, '40, Pls. II 12, III 17), and possibly Siyalk III 1 (Ghirshman, '38, Pl. LXXVI B 11).

No. 181, a design known from al-Ubaid(?) only, may be a degeneration of the triangle-rhomboid design (No. 202) which occurs in Bakun A I-IV (Langsdorff-McCown, '42, pp. 49 f.) and elsewhere in Fars only.

No. 182. In Mesopotamia this design is known from al-Ubaid only. In Iran it occurs once in Bakun B II (No. 203) and once at Malamir (Stein, '40, Pl. II 9).

No. 183, a type of design characteristic of the Ubaid culture in southern Mesopotamia, and No. 204 may be comparable.

No. 184. In Mesopotamia this element is known from al-Ubaid only. In Iran it is typical of Bakun A I-IV (e.g. No. 205) and occurs in Giyan V also (Herzfeld, '33b, Pl. XX 3).

No. 185. Bordered skewed chevrons are found at Telloh, Warka, and Eridu also. No. 206. See Fig. 10, notes following No. 71 (p. 30).

No. 186. This pattern is known from Hajji Muhammad only. The only close parallel is from Siyalk III 6 (Ghirshman, '38, Pl. LXXXI A 10). The idea of pairing vertical or horizontal zigzags or reversing triangles so as to leave negative areas, which are then filled, is typical at Bakun A (Langsdorff-McCown, '42, designs IV C 1, XV G 1), and such designs occur in Giyan V A also (No. 207 and Contenau-Ghirshman, '35, Pl. 42:23).

No. 188. In Mesopotamia this type of ladder is known from Ur-Ubaid I alone. Though unknown at Bakun, it is found elsewhere in Fars (Stein, '36, Pls. XXIII 15, XXIV 19, XXV 43). It is known also from Chigha Pahn (Stein, '40, Pl. XII 5) and from Giyan V between -13 and -9 m. (Fig. 7:11 and Contenau-Ghirshman, '35, Pls. 55:3, 56:9). It is very common in Siyalk II (e.g. No. 209) but in Siyalk III is known from 4 or 5 and 6 only (Fig. 7:14 and Ghirshman, '38, Pl. LXXIX C 9). It is found in Hissar I C also (Schmidt, '37, Pl. X H 4378).

No. 189. Oblique checkers are found at al-Ubaid (Hall-Woolley, '27, Pl. XVII 1690) and in Gaura XVIII (Speiser, '38b, Fig. 7) also. In Iran they are known only in the Hissar culture or in aspects of the buff-ware culture strongly under the influence of the Hissar culture, that is, in Giyan V D and at Chigha Pahn (Stein, '40, Pls. XI 6, XII 14). In the Hissar culture they first appear in Siyalk III 4 (No. 210) and Hissar I B.

Nos. 190-96. The pottery shapes of the Ubaid culture are closer to those of Susa I (Nos. 211-17) than to those of any other region of Iran.

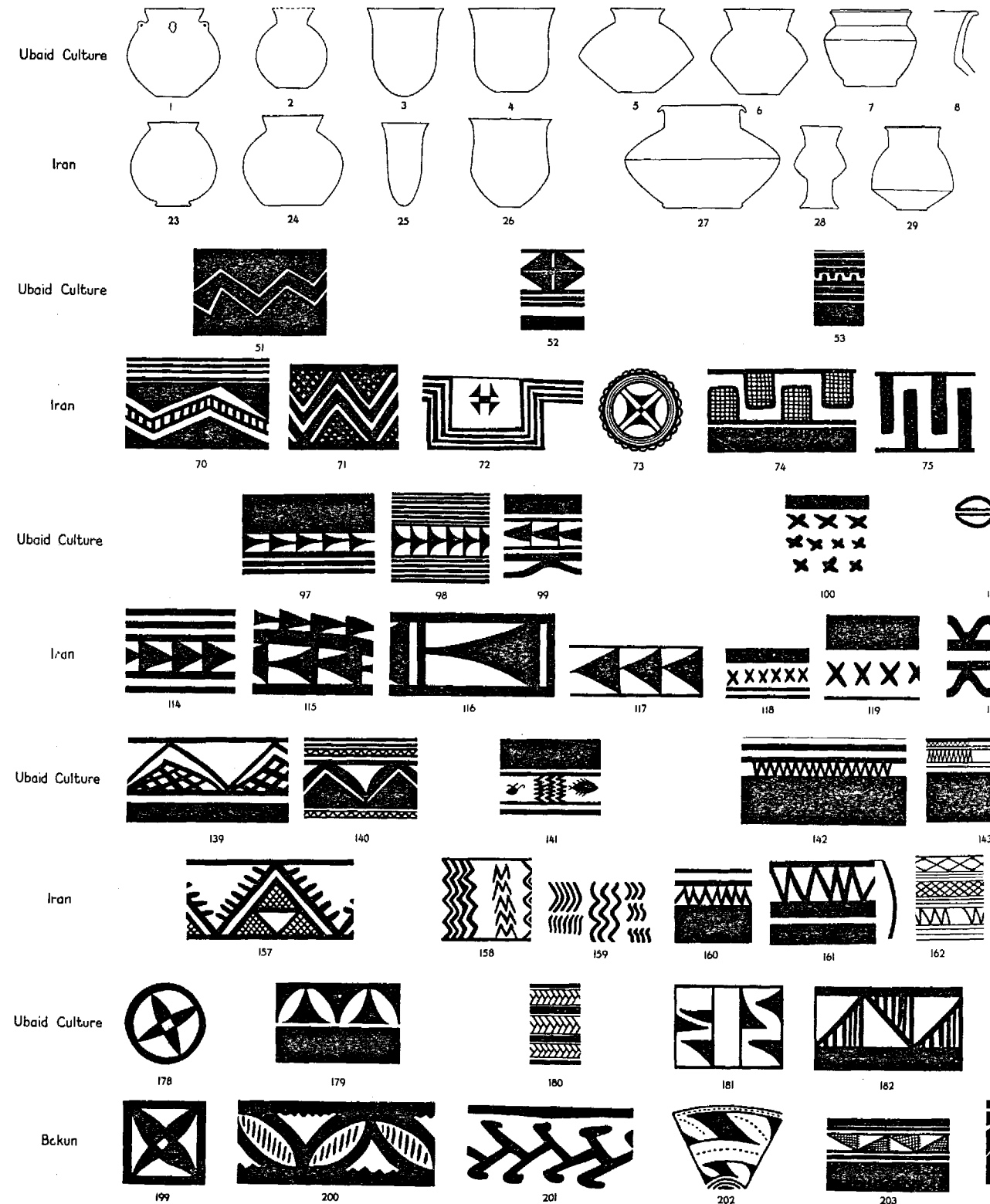
No. 198. This element is known from Eridu also. No. 219, an element found in Susa I only, and a similar motive from Kuzagaran (Stein, '40, Pl. VII 20) may not be comparable with the Ubaid motive.

1. Mallowan-Rose, '35, Fig. 34:6, Arpachiyyah
2. *Ibid.* Fig. 35:6, Arp. (somewhat taller than No. 24)
3. *Ibid.* Fig. 33:10, Arp. (a little shorter than No. 25)
4. Speiser, '37b, Fig. 10, Gaura XIII
5. Mallowan-Rose, '35, Fig. 37:5, Arp. (shorter than Nos. 27-28)
6. *Ibid.* Fig. 36:3, Arp. (shorter than Nos. 27-28)
7. Hall-Woolley, '27, Pl. LI P.xi, al-Ubaid
8. *Ibid.* Pl. LI P.xi r, al-Ubaid
9. Woolley, '35, Pl. 4, Ur-Ubaid II
10. Mallowan-Rose, '35, Fig. 30:6, Arp. (taller than No. 30)
11. Woolley, '30, Fig. 13, Ur-Ubaid I
12. Woolley, '35, Pl. 2b, Ur-Ubaid I
13. Hall-Woolley, '27, Pl. XVI 1650, al-Ubaid
14. Woolley, '35, Pl. 2b, Ur-Ubaid I
15. Speiser, '37b, Fig. 7, Gaura XIII
16. Woolley, '35, Pl. 2b, Ur-Ubaid I
17. Nöldeke *et al.* '38, Pl. 37 a, Hajji Muhammad
- 18-19. Speiser, '37b, Fig. 7, Gaura XIII
20. Hall-Woolley, '27, Pl. XLIX T.O. 515, al-Ubaid
21. Speiser, '38a, Fig. 2, Gaura XVI
22. Nöldeke *et al.* '38, Pl. 40 e, Hajji Muhammad
23. Langsdorff-McCown, '42, Pl. 13:19, Bakun A III
24. Pottier, '23, I C a, Pl. 11:12, Susa I
25. Langsdorff-McCown, '42, Pl. 15:8, Bakun A III, base surf.
26. Ghirshman, '38, Pl. LXVI S.1547, Siyalk III 5
27. Langsdorff-McCown, '42, Pl. 12:13, Bakun A IV
28. Ghirshman, '38, Pl. LXIII S.412, Siyalk III 2
29. Langsdorff-McCown, '42, Pl. 13:9, Bakun A III
30. Pottier, '12, Pl. XX 9, Susa I
31. Mecquenem, '38, Fig. 4, Susa I
32. Langsdorff-McCown, '42, Pl. 78:1, Bakun A
33. Pottier, '23, I C a, Pl. 9:15, Susa I
34. Langsdorff-McCown, '42, Pl. 69:13, Bakun A I
35. *Ibid.* Pl. 31:1, Bakun A III
36. Pottier, '12, Pl. XIII 7, Susa I
37. Stein, '36, Pl. XXV 29, Fars
38. Contenau-Ghirshman, '35, Pl. 48:7, Giyan V C, -12-13 m.
39. Langsdorff-McCown, '42, Pl. 4:9, Bakun A III
40. Ghirshman, '38, Pl. LXXXIX C 8, Siyalk III 4 or 5
41. *Ibid.* Pl. XLIV D 13, Siyalk I 5
42. Langsdorff-McCown, '42, Pl. 46:1, Bakun A IV
43. *Ibid.* Pl. 33:7, Bakun A III
44. Bakun B II
45. PPA 3924, Rm. VII 2, Bakun A III
46. Contenau-Ghirshman, '35, Pl. 53:15, Giyan V C, -11-12 m.
47. Ghirshman, '38, Pl. LXXVII C 6, Siyalk III 2 or 3
48. *Ibid.* Pl. LXXXVI A 18, Siyalk III 1
49. Langsdorff-McCown, '42, Pl. 48:3, Bakun A surf.
50. Pottier, '23, I C a, Pl. 12:46, Susa I
51. Hall-Woolley, '27, Pl. XIX 1916, al-Ubaid
52. Speiser, '37b, Fig. 7, Gaura XIII
53. Hall-Woolley, '27, Pl. XVI 1543, al-Ubaid
54. Woolley, '35, Pl. 2b, Ur-Ubaid I

55. Nöldeke *et al.* '38, Pl. 38 c, Hajji Muhammad
56. *Ibid.* Pl. 40 a, Hajji Muhammad
- 57-59. Woolley, '35, Pl. 2b, Ur-Ubaid I
60. Nöldeke *et al.* '38, Pl. 39 g, Hajji Muhammad
61. *Ibid.* Pl. 39 b, Hajji Muhammad
62. Woolley, '35, Pl. 2b, Ur-Ubaid I
63. Nöldeke *et al.* '38, Pl. 38 a, Hajji Muhammad
- 64-65. Woolley, '35, Pl. 2b, Ur-Ubaid I
66. Hall-Woolley, '27, Pl. XLIX T.O. 254, al-Ubaid
67. Nöldeke *et al.* '38, Pl. 38 e, Hajji Muhammad
68. Woolley, '35, Pl. 2b, Ur-Ubaid I
69. Speiser, '37b, Fig. 7, Gaura XIII
70. Bakun B II
71. Pottier, '12, Pl. XX 3, Susa I
72. Contenau-Ghirshman, '35, Pl. 42:16, Giyan V A
73. Pottier, '12, Pl. XVI 7, Susa I
74. Bakun B II
75. Stein, '36, Pl. XXV 7, Fars
76. Langsdorff-McCown, '42, Pl. 51:7, Bakun A III
77. *Ibid.* Pl. 38:12, Bakun A IV
78. PPA 4185, Bakun A
79. Langsdorff-McCown, '42, Pl. 23:18, Bakun A surf.
80. Pottier, '12, Pl. XVII 4, Susa I
81. Langsdorff-McCown, '42, Pl. 78:25, Bakun A I
82. Contenau-Ghirshman, '35, Pl. 45:2, Giyan V B, -15-16 m.
83. Langsdorff-McCown, '42, Pl. 47:8, Bakun A IV
84. Ghirshman, '38, Pl. XLIII B 13, Siyalk I 4
85. Contenau-Ghirshman, '35, Pl. 43:4, Giyan V B, -17-18 m.
86. PPA 4249, Rms. XII 1-3, Bakun A III
87. Contenau-Ghirshman, '35, Pl. 41:19, Giyan V A
88. Langsdorff-McCown, '42, Pl. 80:18, Bakun A
89. Ghirshman, '38, Pl. L B 16, Siyalk II surf.
90. Contenau-Ghirshman, '35, Pl. 43:7, Giyan V B, -17-18 m.
91. *Ibid.* Pl. 42:12, Giyan V A
92. Pottier, '12, Pl. V 2, Susa I
93. Bakun B II
94. Stein, '36, Pl. XXVIII 33, Fars
95. Langsdorff-McCown, '42, Pl. 76:11, Bakun A, top III(?)
96. Mecquenem, '35, Fig. 3, Juwi
97. Woolley, '35, Pl. 2b, Ur-Ubaid I
98. Speiser, '37b, Fig. 7, Gaura XIII
99. Mallowan-Rose, '35, Fig. 77:40, Arp. TT 1-4
100. Hall-Woolley, '27, Pl. XIX 1616, al-Ubaid
101. Woolley, '35, Pl. 2b, Ur-Ubaid I
102. Speiser, '37b, Fig. 7, Gaura XIII
103. Nöldeke *et al.* '38, Pl. 39 c, Hajji Muhammad
104. Speiser, '37b, Fig. 7, Gaura XIII
105. Mallowan-Rose, '35, Fig. 37:5, Arp.
106. Hall-Woolley, '27, Pl. XIX 2168, al-Ubaid
107. Woolley, '35, Pl. 2b, Ur-Ubaid I
108. Mallowan-Rose, '35, Fig. 28:3, Arp.
109. Hall-Woolley, '27, Pl. XVIII 1807, al-Ubaid
110. Mallowan-Rose, '35, Fig. 77:36, Arp. TT 1-4
111. Hall-Woolley, '27, Pl. XVIII 1959, al-Ubaid

112. Nöldeke *et al.* '38, Pl. 40 b, Hajji Muhammad
113. Mallowan-Rose, '35, Fig. 33:10, Arp.
114. Bakun B II
115. Contenau-Ghirshman, '35, Pl. 43:8, Giyan V B, -17-18 m.
116. Stein, '36, Pl. XXI 24, Fars
117. Pottier, '23, I C a, Pl. 7:5, Susa I
118. Pottier, '12, Pl. V 3, Susa I
119. Langsdorff-McCown, '42, Pl. 35:2, Bakun A III
120. Bakun B II
121. Langsdorff-McCown, '42, Pl. 30:9, Bakun A III
122. Pottier, '12, Pl. XVI 5, Susa I
123. Langsdorff-McCown, '42, Pl. 34:3, Bakun A
124. *Ibid.* Pl. 45:9, Bakun A III
125. Pottier, '12, Pl. XXI 4, Susa I
126. Ghirshman, '38, Pl. XLVII D 3, Siyalk II 1
127. Contenau-Ghirshman, '35, Pl. 49:15, Giyan V C, -12-13 m.
128. Ghirshman, '38, Pl. LXIX S.66, Siyalk III 6
129. *Ibid.* Pl. XLIX B 17, Siyalk II 2
130. Contenau-Ghirshman, '35, Pl. 44:17, Giyan V B, -16-17 m.
131. PPA 2451, O 28, +3.0 m., Bakun A IV
132. Pottier, '12, Pl. X 8, Susa I
133. Contenau-Ghirshman, '35, Pl. 40:10, Giyan V A
134. PPA 3763, L 29, +2.37 m., M 30, +2.97 m., Bakun A surf.
135. Pottier, '12, Pl. XX 4, Susa I
136. Contenau-Ghirshman, '35, Pl. 42:17, Giyan V A
137. Pottier, '12, Pl. V 8, Susa I
138. Ghirshman, '38, Pl. LXIV S.308, Siyalk III 3
139. Hall-Woolley, '27, Pl. XVII 1537, al-Ubaid
140. Speiser, '37b, Fig. 7, Gaura XIII
141. Mallowan-Rose, '35, Fig. 35:3, Arp.
142. *Ibid.* Fig. 29:6, Arp.
143. Speiser, '38a, Fig. 2, Gaura XVI
144. Mallowan-Rose, '35, Fig. 35:4, Arp.
145. Speiser, '37b, Fig. 7, Gaura XIII
146. Woolley, '35, Pl. 2b, Ur-Ubaid I
147. Mallowan-Rose, '35, Fig. 38:1, Arp.
148. Woolley, '35, Pl. 2b, Ur-Ubaid I
149. Speiser, '37b, Fig. 7, Gaura XIII
150. Mallowan-Rose, '35, Fig. 38:1, Arp. (smaller than No. 171)
151. *Ibid.* Fig. 77:25, Arp. TT 1-4
152. Speiser, '37b, Fig. 10, Gaura XIII
153. *Ibid.* Fig. 7, Gaura XIII
154. Nöldeke *et al.* '38, Pl. 40 g, Hajji Muhammad
155. *Ibid.* Pl. 40 c, Hajji Muhammad
156. *Ibid.* Pl. 39 d, Hajji Muhammad
157. Stein, '36, Pl. XXII 34, Fars
158. Contenau-Ghirshman, '35, Pl. 45:17, Giyan V B, -15-16 m.
159. Ghirshman, '38, Pl. LXXVI C 8, Siyalk III 1
160. Contenau-Ghirshman, '35, Pl. 47:20, Giyan V B, -14-15 m.
161. *Ibid.* Pl. 45:18, Giyan V B, -15-16 m.
162. Ghirshman, '38, Pl. LXIV S.248, Siyalk III 4

163. Contenau-Ghirshman, '35, Pl. 47:17, Giyan V B, -14-15 m.
164. Ghirshman, '38, Pl. LXXVIII C 7, Siyalk III 4
165. Contenau-Ghirshman, '35, Pl. 50:9, Giyan V C, -12-13 m.
166. Pottier, '12, Pl. XX 10, Susa I
167. Contenau-Ghirshman, '35, Pl. 42:29, Giyan V A
168. *Ibid.* Pl. 49:4, Giyan V C, -12-13 m.
169. PPA 3948, Bakun A
170. Contenau-Ghirshman, '35, Pl. 46:3, Giyan V B, -14-15 m.
171. Langsdorff-McCown, '42, Pl. 15:5, Bakun A IV
172. *Ibid.* Pl. 31:3, Bakun A IV
173. *Ibid.* Pl. 54:1
174. *Ibid.* Pl. 34:9, Bakun A III and surf.
175. *Ibid.* Pl. 61:9, Bakun A III, surf.
176. *Ibid.* Pl. 38:14, Bakun A III
177. *Ibid.* Pl. 40:8, Bakun A III
- 178-80. Woolley, '35, Pl. 2b, Ur-Ubaid I
181. Herzfeld, '33b, Fig. 1, al-Ubaid(?)
182. Hall-Woolley, '27, Pl. XVIII 2009, al-Ubaid
183. *Ibid.* Pl. XVI 1849, al-Ubaid
184. *Ibid.* Pl. XVI 1621, al-Ubaid
185. *Ibid.* Pl. XVII 2024, al-Ubaid
186. Nöldeke *et al.* '38, Pl. 39 a, Hajji Muhammad
187. Speiser, '37b, Fig. 7, Gaura XIII
188. Woolley, '35, Pl. 2b, Ur-Ubaid I
189. Speiser, '37b, Fig. 7, Gaura XIII
190. Hall-Woolley, '27, Pl. L P.iv, al-Ubaid
191. *Ibid.* Pl. LI P.ix, al-Ubaid
- 192-93. Woolley, '35, Pl. 4, Ur-Ubaid II
194. Mallowan-Rose, '35, Fig. 33:6, Arp. (twice as high as No. 215)
195. *Ibid.* Fig. 34:3, Arp. (slightly taller than No. 216)
196. *Ibid.* Fig. 34:5, Arp. (more than twice as high as No. 217)
197. *Ibid.* Fig. 77:24, Arp. (called Samarra ware)
198. Hall-Woolley, '27, Pl. XVII 1536, al-Ubaid
199. Langsdorff-McCown, '42, Pl. 37:10, Bakun A III
200. PPA 4917, P 31, +2.75 m., Bakun A surf.
201. Langsdorff-McCown, '42, Pl. 53:5, Bakun A IV, surf.
202. *Ibid.* Pl. 62:7, Bakun A I
203. Bakun B II
204. Langsdorff-McCown, '42, Pl. 80:2, Bakun A III
205. *Ibid.* Pl. 38:3, Bakun A IV
206. Contenau-Ghirshman, '35, Pl. 41:25, Giyan V A
207. *Ibid.* Pl. 41:4, Giyan V A
208. *Ibid.* Pl. 48:13, Giyan V C, -12-13 m.
209. Ghirshman, '38, Pl. LI A 4, Siyalk II surf.
210. *Ibid.* Pl. LXXVIII C 9, Siyalk III 4
211. Pottier, '12, Pl. XI 1
212. *Ibid.* Pl. XIX 3
213. *Ibid.* Pl. XX 8
214. *Ibid.* Pl. I 1
215. *Ibid.* Pl. XIX 9
216. *Ibid.* Pl. XXI 2
217. *Ibid.* Pl. XIX 10
218. *Ibid.* Pl. VIII 1
219. *Ibid.* Pl. V 3



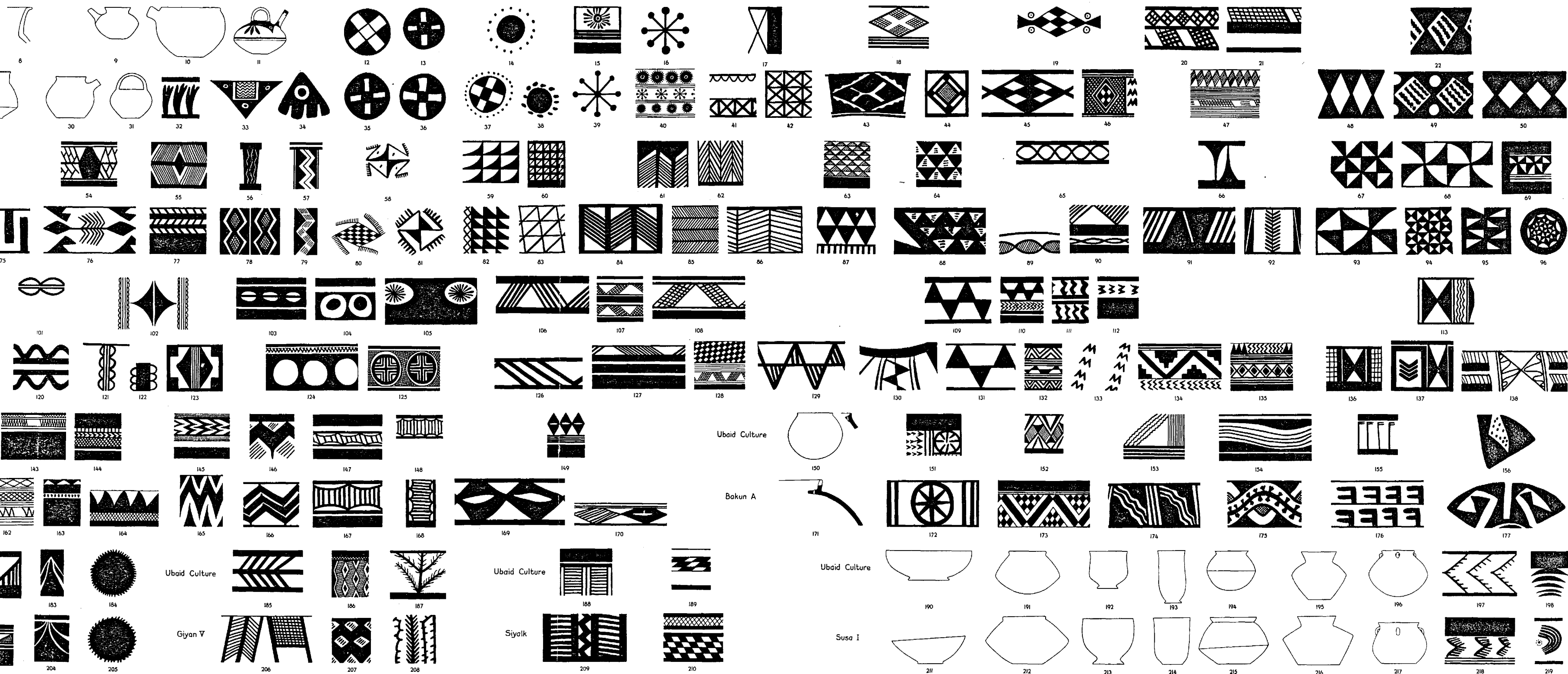


FIG. 13.—The Ubaid culture and Iran

STRATIFICATION OF SUSA THROUGH THE EARLY DYNASTIC PERIOD 43

THE STRATIFICATION OF SUSA THROUGH THE EARLY
DYNASTIC PERIOD

In the area occupied by the buff-ware culture Susa is the only site which seems to afford an unbroken sequence after the disappearance of that culture. From the latest preliminary reports of de Mecquenem it is possible to determine in somewhat broad outlines the stratigraphic succession. The best sequence is that from the second sounding of the Acropolis (Mecquenem, '34, pp. 188-206).⁵⁸

Between -9.1 and -11.2 m. in the southeast and -12.6 m. in the northwest end of the trench occurs painted pottery of Susa I with unpainted red ware and clay slingballs (*ibid.* pp. 204 f.).⁵⁹ The red ware of Acropolis I is occasionally painted (*ibid.* p. 183).⁶⁰

Above the level of Susa I, which we will designate as level A,⁶¹ lies a stratum between -5.6 and -9.1 m. (*ibid.* Fig. 20), which should probably be subdivided into B 1 (-8 to -9.1 m.) and B 2 (-5.6 to -8 m.). This subdivision is suggested by the absence of burials with beveled-rim bowls below -8 meters (*ibid.* pp. 197 f.) and the presence of a structure with thick walls at -8 meters (*ibid.* p. 200). It is not clear precisely what sort of pottery appears in stratum B 1, but since red ware is said to accompany bones with graffiti (Scheil, '30, p. 190) which came from above the building at -8 meters (Mecquenem, '34, p. 198 and Fig. 20) it should occur in B 1 as well.⁶² We know that in B 2 the area was used as a cemetery. Though some of the objects *ibidem*, Figure 32, come from B 2 (*ibid.* p. 196), only No. 12 is definitely ascribed to this layer along with beveled-rim bowls (*ibid.* pp. 197 f.), which first appear at Warka in level XII.

The interval between -3.8 and -5.6 m. (*ibid.* Fig. 20 and pp. 194-97) may be designated as stratum B 3. Here we have pots with twisted handles (*ibid.* Fig. 33), which find their closest parallels in Warka VIII (Nöldeke *et al.* '32, Pl. 18 C *p, u*). Burials of the same type as those in B 2 occur and are furnished with vessels which have analogues in Warka VIII-VI.⁶³ In this same level is found pottery belonging to the Jamdat Nasr period (Mecquenem, '34, Fig. 32:15), which is not surprising since the stratum above it (C) is not horizontal but slopes down from southeast to northwest. It is interesting (cf. n. 103) to note that in B 3 occur pins with animal and spiral-wire heads (*ibid.* Fig. 34) and in children's graves small clay "toys" comparable with those of Warka IV (*ibid.* p. 196; cf. p. 193 and Fig. 28). Inscribed tablets and cylinder seals are absent, though seals of flat or button form occur (*ibid.* p. 197).

⁵⁸ Hereafter called "Acropolis II."

⁵⁹ Though at Siyalk such slingballs are known from I and II (unmentioned in III), at Bakun they seem to appear in number in A V with the plain red ware.

⁶⁰ It is difficult to determine whether this ware is painted on its first appearance in Susa I or only toward the top of that stratum. Such painted ware may possibly be represented by Pottier, '23, I C b, Pls. 7:19, 8:7; Frankfort, '24, Pl. III 5.

⁶¹ The following stratigraphic designations, used for convenience, are based on Mesopotamian divisions: A for Susa I, B roughly covering the Uruk period, C the Jamdat Nasr period, and D the Early Dynastic period. It is to be hoped that such makeshift terms will be replaced by the excavators with more precise stratigraphic terminology which will reflect the development and the changes of culture on the site.

⁶² Cf. Mecquenem, '30, pp. 225-28, where red ware is said to come immediately above Susa I. This, however, is an earlier report than Mecquenem, '34, where on p. 204 is described a bottle neck in red ware from Susa I which corresponds to the complete red-ware "bottle" from Susa B of Mecquenem, '30, p. 226.

⁶³ Though the objects of Mecquenem, '34, Fig. 32, are not all from B 3, some of them being from B 2 and C, cf. No. 3 with Nöldeke *et al.*, '32, Pl. 17 D *p* (Warka XIII), No. 2 with *ibid.* Pl. 18 D *s'* (Warka VII), No. 10 and Mecquenem, '28, Fig. 2, right, 3d from top (from Acropolis I) with Nöldeke *et al.* '32, Pl. 18 C *v* (Warka VIII) or Pl. 19 B *u* (Warka VI).

Between 0 and -3.8 m. (*ibid.* Fig. 20 and pp. 189–94) are two strata (C and D 1), each of which is on a slope. This is indicated by the occurrence of proto-Elamite tablets at -3.8 m. in the northwest end of the trench and midway between 0 and -3.8 m. in the middle of the trench (*ibid.* p. 191). Tombs richer than but similar to those of B 2–3 occur below the level of the tablets in the southeast end of the trench (*ibid.*), where beveled-rim bowls are numerous at about -2 meters (*ibid.* p. 194). These tombs and the proto-Elamite tablets belong to what we call level C. The seals found in the tombs of adults (*ibid.* Fig. 30) are of the Jamdat Nasr period. Very little pottery from the tombs is shown (*ibid.* Fig. 32:1, 9 and p. 194). A band-painted jar from the northwest part of the trench (*ibid.* Fig. 23:1), aside from its base and spout, is very similar in shape to jars of Siyalk IV (Ghirshman, '38, Pl. LXXXIX S.80). It is, incidentally, the first painted vessel since the level of Susa I (Mecquenem, '34, p. 190).⁶⁴

Above the proto-Elamite tablets, and thus mainly in the northwest end of the trench, were found vessels and seals, some of which are of the Jamdat Nasr period.⁶⁵ The Jamdat Nasr stratum, C, thus doubtless extends somewhat above the level of the proto-Elamite tablets⁶⁶ and graves.

Layer D 1 (see below) starts somewhat above the tablets with the appearance of vessels with non-fast polychrome design (*ibid.* p. 190), spearheads with bent tang-tip (*ibid.* Figs. 24:22, 25:1), and a sherd painted with an upfringed semicircular element (*ibid.* Fig. 22) typical of Tepe Aliabad (see p. 46).

Before we proceed further it is relevant to see whether the stratigraphy just described can be correlated with Mesopotamian periods so as to give a rough final date for Susa I. The Jamdat Nasr level, C, perhaps extends into the top of the level found at -3.8 to -5.6 m. (B 3) in the northwest part of the trench, unless the Jamdat Nasr material from B 3 (see above) is due to tombs sunk deeper than usual. The pottery of B 3 is in part comparable with that of Warka VIII–VI (see above). It includes pots with twisted handles, which at Warka are shown from level VIII only. Pots with handles⁶⁷ do occur through the Jamdat Nasr period in Mesopotamia, as they do in degenerated form at Susa (Mecquenem, '28, p. 101), but level B 3 is earlier than the Jamdat Nasr period. On this basis it seems likely that the twisted-handle pots from B 3 may be approximately contemporaneous with Warka VIII. If this is so, it is likely that the appearance of beveled-rim bowls at the beginning of B 2 corresponds to their arrival at Warka in level XII. A fair statement would be that it is quite probable that the beginning of B 2 is not earlier than Warka XII and may be a little later. How much earlier the end of Susa I is than Warka XII is completely problematical. It would be reasonable, however, to suppose that the period when plain red pottery existed alongside painted buff pottery was approximately the same at Susa and Warka, in which case Susa I would end about

⁶⁴ See Mecquenem, '38, p. 67 and Fig. 4, right. The difference in direction of the hatching of the bands would suggest polychromy if the usual drawing conventions were followed, though only red paint is mentioned. Plain bands are typical of Jamdat Nasr pottery.

⁶⁵ Mecquenem, '34, Fig. 26:2 and some of the vessels shown in Fig. 24.

⁶⁶ The proto-Elamite tablets found in Acropolis II are of the Jamdat Nasr period, though perhaps some were found in levels corresponding to level B 3 for they bear impressions of the Warka IV variety. It is interesting to note that none of the published proto-Elamite tablets from Susa bear impressions which would date them later than the Jamdat Nasr period.

⁶⁷ Dr. Perkins tells me that material from the site of Jamdat Nasr includes some twisted handles.

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the time of Warka XIV, at the beginning of the Uruk period. The above argument presupposes of course that there is no stratigraphic break between Susa A, B 1, and B 2.⁶⁸

After Susa C the stratification is best continued in the first sounding of the Royal City (Mecquenem, '34, pp. 206–18). Here, beginning at 50 cm. above virgin soil, tombs containing pottery with non-fast polychrome design occur (*ibid.* pp. 215–18 and Figs. 60–62, 63:1). This stratum corresponds to level D 1 of Acropolis II. Some of the pottery design and technique shows undoubted associations with Early Dynastic I scarlet ware,⁶⁹ but the ceramic forms either look un-Mesopotamian or are comparable in general with Early Dynastic III forms.⁷⁰ Some of the metal vases⁷¹ are of later Early Dynastic type, the pins (*ibid.* Fig. 62:1–2, 4–5) resemble some found in the Kish "A" cemetery and the Ur royal cemetery, and the seals (*ibid.* Fig. 63:1, brocade style, and p. 218) are Early Dynastic I. In this level, then, there seem to be Early Dynastic I–III tombs, which cannot be distinguished individually because tomb groups are not shown.⁷²

The next level above, D 2, is associated with D 1 by the type of its burials (*ibid.* pp. 211–15 and Figs. 55–59, 63:2–3). In them are to be recognized objects which date these tombs mainly to Early Dynastic III, though some may belong to the Akkadian period. Here painted pottery is rare, and its design is monochrome.⁷³

It is of interest that as far as can be judged there is at Susa no polychrome design of the type found at Jamdat Nasr. The earliest polychrome ornament at Susa is from level D 1 and

⁶⁸ The uncertainty in the above discussion results from lack of a comprehensive report on the stratigraphy of Susa and the fact that the ceramic sequence of the Uruk period is known from Warka only. Its weak points are the scarcity in Susa B 1 and B 2 of material, which might be comparable with finds earlier than level VIII at Warka, and the uncertainty of the position of the material in B 3 which has parallels in Warka VIII–VI. If pots with twisted handles were found only in the northwest end of the trench and close to the top of this level, they could be intrusive from the Jamdat Nasr level (C), though de Mecquenem certainly treats them as typical of level B 3. Despite the partial uncertainty of the evidence which makes B 3 as early as Warka VIII, it must not be forgotten that three levels totaling some 5 meters in thickness separate the end of Susa I from the Jamdat Nasr level. For this reason alone it is difficult to agree with those who would place the end of Susa I at the end of the Uruk period. In doing so they have overlooked the parallelism of the remains in Susa B and Warka XII–IV and have treated Susa B without subdivision and as covering a relatively short time. Furthermore, the fact that Giyan V D and Siyalk III 7b lie immediately below remains of the Early Dynastic and Jamdat Nasr periods respectively does not imply that they immediately precede those periods. In fact it is almost certain that there are gaps in both cases, gaps which cover the Uruk period at least.

⁶⁹ See Pottier, '12, Fig. 168, Pl. XXX 7; possibly Mecquenem, '34, Fig. 61 and '28, Figs. 10:4, 11; and for vessels partly in the scarlet-ware style Mecquenem, '37, Fig. 1:1–2.

⁷⁰ Cf. Mecquenem, '34, Fig. 60:12 with Woolley, '34b, Pl. 256:85; Mecquenem, '34, Fig. 60:3 with Woolley, '34b, Pl. 257:106a and Hall-Woolley, '27, Pl. LX:XCIII; Mecquenem, '34, Fig. 60:6 with Woolley, '34b, Pl. 264:2096 and Hall-Woolley, '27, Pl. LIX:LXXVI; Mecquenem, '24, Fig. 7, top center, with Mackay, '29, Pl. LIII 43.

⁷¹ Mecquenem, '34, Fig. 60:19–20; '24, Fig. 8 (from a corresponding stratum in the Apadana).

⁷² It is not unlikely that to this level or perhaps Susa D 2 should be attributed the painted pottery with red ground or slip of Pottier, '12, Pl. XXV 2 and '23, I C b, Pl. 5:5. The form of the latter supports this suggestion, but until we have illustrations of the painted red ware of Susa B 1 some uncertainty must exist, though it is known that red slips were used in Susa D 1 (Mecquenem, '38, p. 68). Vessels in a grave found by Stein ('40, p. 203) at Kuzagaran, not far north of Susa, help place the vessel of Pottier, '12, Pl. XXV 2. Nearly identical with it is one from Kuzagaran (Stein, '40, Pl. XXVII 7). Two others from the same grave (*ibid.* Pl. XXVII 6, 8) can hardly be dissociated from ridged jars of Susa D and Giyan IV (see p. 47).

⁷³ The two seals shown in Mecquenem, '34, Fig. 63:2–3 are Akkadian and Early Dynastic III respectively. A "goddess-handled" vessel (Mecquenem, '31, Fig. 11) which can be assigned to Susa D 2 (*ibid.* p. 335) is much like those of the Kish "A" cemetery. De Mecquenem ('38, p. 68) would place this type of jar later than most of the monochrome-painted vessels, at the very end of D 2. With Mecquenem, '34, Fig. 55:5–6 cf. Mackay, '29, Pls. XLVIII–L. Copper sieves (Mecquenem, '34, Fig. 55:34), pins with bead heads (*ibid.* Fig. 55:26), conical toilet sets (*ibid.* Fig. 55:27), and pairs of curved copper sheets (*ibid.* Fig. 55:31) are found in the Early Dynastic III cemeteries of Kish "A" and the 1st dynasty of Ur, though some of these objects continue in use in the Akkadian period.

seems to be of the scarlet-ware type.⁷⁴ With this occurs pottery with monochrome design⁷⁵ which then replaces the polychrome. Most of the so-called "Susa II"⁷⁶ pottery shown in Pottier, '12, has monochrome design and thus presumably is in the main Early Dynastic III and not Akkadian.⁷⁷ Also to be remarked is that much of the Susa pottery is very different in form from that of Mesopotamia. Although the predominant influence is from that quarter, from Susa B 2 onward the ceramics do not often reflect this influence as strongly as do metal objects and seals.

THE RELATIVE DATE OF THE TOMBS IN THE MUSYAN AREA

The discovery of a sherd painted with an upfringed semicircular element in Susa D 1 (see p. 44) above pottery with non-fast polychrome design (*ibid.* p. 190) helps correlate the Aliabad tombs (cf. Gautier-Lampre, '05, Figs. 266, 283–85) with the Susa stratification. The plain pottery from the tombs of the Musyan area has analogues among the pottery forms of Early Dynastic I or II,⁷⁸ and a few sherds from Khazinah represent scarlet ware (*ibid.* Figs. 250–51) and should be contemporaneous with Early Dynastic I, as also a pot with triangular lug handle (*ibid.* Fig. 285) from Aliabad. The Aliabad animals drawn in black outlines with red-filled bodies are likewise in the scarlet-ware style.⁷⁹ Less carinated, smooth, globular-bodied jars from Aliabad (*ibid.* Pl. VII, Fig. 286) may be Iranian forms, the one found in tomb A (*ibid.* Pl. VII and pp. 141 f.) being probably not later than Early Dynastic II or even I.⁸⁰ All of the published painted pottery of Aliabad has non-fast polychrome design as in Susa D 1.

The metal objects (*ibid.* Figs. 295–308) are most closely comparable with finds from Early Dynastic III, though we know too little of such weapons and tools in Early Dynastic I and II to be certain that their range does not cover these earlier phases.⁸¹

The material from the tombs of the Musyan area is, then, probably from the time of Early Dynastic I or, at the latest, II, with the possible exception of a unique white-filled incised vessel (*ibid.* Fig. 287 and p. 76) which closely resembles incised vessels from near Nineveh and from Shaghir Bazar (Mallowan, '36, pp. 39 f. and Fig. 19:1).

⁷⁴ We must await fuller publication of the grave groups and material from Susa C and D 1 to be positive that polychrome design is not found with Jamdat Nasr objects.

⁷⁵ De Mecquenem ('37, p. 149) describes an apparently monochrome-painted vessel found with a jar of the scarlet-ware technique; cf. also Mecquenem, '38, pp. 67 f.

⁷⁶ This term is not used in this discussion, for it is more confusing than useful. An originally stratigraphic term, which now has no such meaning, is bound to be confusing when applied to a certain style of painting only.

⁷⁷ Cf. Frankfort, '32, pp. 71 f. and Mecquenem, '38, p. 68. It is known now that monochrome painting does continue to a limited extent (Mecquenem, '34, Figs. 54, 78:1).

⁷⁸ Cf. Gautier-Lampre, '05, Figs. 267–80 with Frankfort, '36, Figs. 33, 34, 46, 48, Pls. II–IV.

⁷⁹ The absence of hatched animal bodies is in contrast to the Susa D 2 monochrome painting. Polychrome, hatched animal bodies are unusual at Susa (cf. Mecquenem, '28, Figs. 10–12; Pottier, '23, I C b, Pl. 7:31), for hatched animal bodies seem typical of D 2 rather than D 1. Such hatching does occur occasionally in Jamdat Nasr design, but apparently it is unknown on scarlet ware.

⁸⁰ In tomb A we see a jar (Gautier-Lampre, '05, Fig. 105:2) with apparently a triangular lug handle and a form comparable with *ibid.* Fig. 285. Yet in the same tomb were found inlaid columns such as are known elsewhere in Early Dynastic III only, though inlay was used in Early Dynastic II (Frankfort, '36, p. 46 and Figs. 38–39). So few objects other than pottery are assignable to Early Dynastic I or II that we must give most weight to the presence of the jar with triangular lug handle, which type is limited to Early Dynastic I with perhaps a slight carry-over into the second phase. The form of the inlaid columns is not dissimilar to that of a pottery support from Early Dynastic II (*ibid.* Fig. 34 c). If tomb A really showed traces of fire (cf. de Mecquenem's objections, '34, p. 218) connected with the burial (Gautier-Lampre, '05, p. 77), this demands attention in connection with a similar practice at Khafajah during Early Dynastic I and II (Frankfort, '36, pp. 55, 19). Mr. Delougaz kindly tells me that he does not know of vaulted tombs before Early Dynastic II.

⁸¹ In the al-Ubaid "later cemetery" was found an ax (Hall-Woolley, '27, Fig. 75 and p. 210) very similar to those in Gautier-Lampre, '05, Fig. 295.

CULTURE OF THE ZAGROS DURING THE EARLY DYNASTIC PERIOD 47

THE CULTURE OF THE ZAGROS DURING THE EARLY DYNASTIC PERIOD

It is an interesting historical fact that during the Early Dynastic period and perhaps the Akkadian period a fairly uniform culture is found spread through the Zagros Mountains from Susa as far as Giyan. At Mirvali, in the Rumishgan Valley in central Luristan, was found a jar (Pope, '36, Fig. 3) whose design⁸² has distinct stylistic affinities to the scarlet ware, though the nearly barbaric treatment suggests a local product. Near by, at Kamtarlan I, were found jars (*ibid.* Figs. 1-2) which in form and design are associated with the monochrome-painted vessels of Susa D 2. In Kamtarlan graves of the same period were found wide-mouthed concave-shouldered jars (unpublished) such as are known from Giyan IV.

In Giyan IV two jar types were found, one wide-mouthed with concave flattish shoulder and side vertical or usually sloping in to a round or flat base (Contenau-Ghirshman, '35, Pl. 34 T.119:1), the other with somewhat bottle-like profile and maximum diameter lower than that of the first type (*ibid.* Pl. 32 T.115:2).⁸³ The first type appears to be more at home in the Giyan area than in the south. It is found in Susa D 2 (Pottier, '12, Pl. XXIX 8), but the form is much less distinct than in the north. The more bottle-like jar of Giyan doubtless is to be connected with the jar typical of Susa at the end of the Early Dynastic period (*ibid.* Pl. XXIV 2) and seems more characteristic of the south.⁸⁴ The two jar forms under discussion are presumably related at both Susa and Giyan, as is some design of Susa D and Giyan IV,⁸⁵ but they indicate that divergent development in the north and south had produced two different forms of the same culture.

Until further publication provides more precisely defined stratigraphic material from Susa and until the gap between the early part of the Uruk period and the Early Dynastic period in northern Luristan is filled it is unproductive to speculate on the origin of this culture. At Susa certain Mesopotamian elements had been of considerable influence, and in the north a second component is suggested by the presence of smoothed red ware which is usually unpainted (see Contenau-Ghirshman, '35, pp. 35-38 and as examples Pl. 33 T.116:4, 118:5). The specifically Iranian element, which is most noticeable in the design, cannot at present be localized.⁸⁶

The appearance of this culture in the south can be dated as early as the beginning of the

⁸² Dr. Schmidt kindly tells me that it is polychrome.

⁸³ The first type is possibly older than the second at Giyan and near-by Tepe Jamshidi, if the relative depths of the individual graves have any significance. There is a possibility that this is the case with the three Giyan tombs (117-19) which are .9-1.3 m. lower than the other tombs of Giyan IV.

⁸⁴ The bottle-like form of Giyan, because of a wide mouth, looks somewhat dissimilar to the Susa jars, but when it is compared with a Kamtarlan I jar (Pope, '36, Fig. 2) and the latter with the Susa jars the similarity is more apparent. This particular Giyan jar type has a characteristic ridge which is absent from the flat-shouldered jars except in their earliest form at Giyan and Jamshidi.

⁸⁵ Cf. Contenau-Ghirshman, '35, p. 68. Among other elements, spread-eagle birds are found in Susa D 1-2 and Giyan IV, and even the "bird-comb" of Giyan IV (*ibid.*) may be known at Susa (Morgan, '00, Pl. XXII 3). More parallels between north and south at about this time will be found on publication of material excavated at Dumavizah (see Schmidt, '40, pp. 45 f.) by the Holmes Luristan Expedition of 1938.

⁸⁶ The view that the designs of the Jamdat Nasr period were inspired from Iran is attractive, but the evidence for such origin is lacking. It is not unlikely that in certain secluded areas of Iran the older styles of painting continued through the Uruk period, and there may be some real connection between the style of the designs of the end of Siyalk III and that of the Jamdat Nasr period. However, there is no direct evidence for this, for, as far as is known, painted designs do not reappear in the west until the beginning of the Early Dynastic period and then in part at least under Mesopotamian influence.

Early Dynastic period.⁸⁷ At Giyan there is unquestionably a long gap between the end of V and the beginning of IV,⁸⁸ and evidence for the relative dating of level IV is very meager. It is clear only that it began not later than Early Dynastic III, as shown by comparisons with Susa D 2,⁸⁹ and that it may have ended before the Akkadian period began or somewhat after.⁹⁰ The change from Giyan IV to III is the only event in Iran which might be connected with the Guti invasion.

FARS AFTER THE UBAID PERIOD

The plain red-ware culture of Bakun A V terminated the buff-ware civilization at this site. Very slight evidence suggests the possibility of a transition from painted buff to plain red ware, but it is quite inconclusive (see Langsdorff-McCown, '42, p. 33). The pottery forms of Bakun A V (see *ibid.* Pls. 20-21) are completely new. Characteristic are flat bases and everted and modeled rims, features which are typical of the gray ware of Hissar II also (see p. 50). The associations of this red pottery are yet to be ascertained, though the ware itself is quite similar to the earliest red ware of Warka, to which it may be related. The possibility that such red ware comes from the northeastern part of the Iranian Plateau must be kept in mind, though the evidence is far from decisive. What evidence there is does not prove that the red ware of Warka XIV comes from northern Mesopotamia and beyond. Red ware occurs there only sporadically, and the ceramic sequence of Warka XIV-X is not found at the too few excavated sites of northern Mesopotamia which contain material of the Uruk period. We know that red ware exists in Anau II. So the possibility remains that from some similar region a culture char-

⁸⁷ There seems to be enough similarity in form and design between the pottery of Susa D 1 and that of D 2 to suggest ceramic continuity, with some changes in style. The possibility cannot be excluded, however, that in Susa D 2 there is something new in which the similarities to D 1 are due to borrowing during a transitional phase.

⁸⁸ During the latter part of this interval fall Ninevite 5, Gaura VII, and Billa 7, all generally recognized as showing Iranian influence in their "chalice ware." If there is such influence it is remarkable that it is in this feature alone. These strata overlap the end of the Jamdat Nasr period and the beginning of the Early Dynastic period. The "chalice ware" could derive from Iran only at the end of the Hissar period or during Hissar II, the design only directly from the Hissar culture, unless an as yet unproved survival is postulated. A detailed comparison of forms, ware, and surface treatment leads to the conclusion that if the "chalice ware" represents Iranian influence, this amounts merely to inspiration. That there is any direct relation to the appearance of features of the Hissar culture in Giyan V D (see p. 18) seems highly improbable. (A pierced high-footed base [Contenau-Ghirshman, '35, Pl. 57:4] is almost surely intrusive in Giyan V D as a result of Giyan IV graves.) The Ninevite 5 design is at least partially Iranian but does not connect directly with an Iranian area. Similarities to design of Siyalk III are insufficient to allow for any but a hypothetical ultimate derivation (cf. Ghirshman, '38, Pl. LXXXIII D 10). Thus the affinities of the last stages of the Hissar culture to Ninevite 5 are of such general character that it is unnecessary to postulate any close connection in time, particularly in view of certain similarities between North Mesopotamian sites at this time and Hissar III (see Table I).

⁸⁹ Note the presence in Giyan IV at a depth of almost 9 meters of a lug-handled pot (Contenau-Ghirshman, '35, Pl. 68, upper right) which in ware and form can be paralleled in Mesopotamia. This type of angular body is seen as early as Ninevite 5 (Thompson-Mallowan, '33, Pl. LII 4) and as late as Early Dynastic III (Mackay, '29, Pl. LIV 7). The form most like the Giyan vessel is from Early Dynastic II (Frankfort, '36, Fig. 34 b). The presence of the Giyan vessel at this depth is attributable to disturbance due to tombs of Giyan IV.

⁹⁰ Herzfeld ('29, pp. 70 f.) has described a tomb near Khurramabad which, without knowing the vessel forms, we may assign with reasonable certainty to the time of the early part of Giyan III on the basis of the tomb form and the use of polychrome design. In this tomb were two trough-spouted metal vessels (*ibid.* Pls. VI-VII) of a type which apparently is unknown after the Early Dynastic period. This suggests that the beginning of Giyan III and the end of IV are not later than the early Akkadian period and may be slightly earlier.

In a grave at Kamtarlan II, which corresponds to Giyan III, was found a seal of a type known from the Akkadian level at Tell Asmar (Frankfort, '39, p. 142 and Pl. XXV b), from Assur G (Andrae, '22, Fig. 64), and unstratified from Susa (Péard, '11, Figs. 98-104 and pp. 109 f.). This type of seal may have a greater temporal span in Iran than in Mesopotamia.

NORTHWESTERN IRAN

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acterized by red ware moved southward and then west into southwestern Iran and then into southern Mesopotamia. Until correlations with Mesopotamian stratigraphy can be made more exact and until more precise knowledge exists of northern Mesopotamia at the end of the Ubaid period, no sure answer as to the source of this red ware can be given. To Bakun A V we would attribute a red-ware figurine (Langsdorff-McCown, '42, Pl. 6:23) and probably a plano-convex seal with quartered-circle design (*ibid.* Pl. 8:5), both of northern type.

Painted pottery does not seem to have died out everywhere, but in some cases was continued and modified. Three painted vessels found near the surface of Bakun A (*ibid.* Pl. 19:17-19) may well come from this later time (*ibid.* p. 32). Sherds of the same pottery have been found in some number on the surface of Tall-i-Jangal, about 5 miles south of Bakun near the village of Gashak.

The stratigraphic evidence of Tall-i-Siyah near Madavan reveals a deposit with comparatively rare specimens of burnished red-slipped pink ware painted with simple patterns above a stratum of the Bakun B II type and probably the A I-IV type of pottery. At Vakilabad plain or rarely painted fine red pottery (said to resemble that of Tall-i-Siyah) was found commonly along with a less abundant plain or painted gray ware and a very rare burnished black ware (Stein, '36, pp. 183 f., 153-57). The strata containing these wares probably accumulated during the Uruk and Jamdat Nasr or Early Dynastic periods.⁹¹

NORTHWESTERN IRAN

In this study the northwestern part of Iran has remained unmentioned because of lack of material. Stein's explorations in the region south of Lake Urumiyah (now called Rizaïyyah) may have revealed remains of the later periods under discussion at one site, Gird-i-Hasan Ali (Stein, '40, pp. 377-81). The position here suggested for the pottery from this site can be no more than tentative. Too little material is published, and description of individual pieces is lacking. The bulk of the pottery is said to be in a dark terra-cotta ware, though there is a small quantity of buff or gray ware, the latter often "dressed" terra-cotta, buff, or red. No differences were recognized in the pottery throughout a depth of at least 19 feet. Two different painted fabrics are recognizable. One has a light slip over a darker-colored clay (*ibid.* Pl. XXIII 1, 16-19, 27), the other is an unslipped presumably light red ware (*ibid.* Nos. 2-11, 13, 15). A preliminary consideration limits the possible relative position of these painted wares. The presence of a copper celt which appears to be cast (*ibid.* No. 22) at about 5 feet above datum suggests that this deposit cannot be earlier than the Hissar culture (cf. p. 6). The unslipped presumably light red ware is shown by its designs and forms not to be in the tradition of the Chashmah Ali culture. The designs are much more similar to those of the buff-ware culture, yet we would expect closer similarity to Giyan V C or D if contemporaneity with those levels were to be assumed. This design should not be as late as Giyan IV, for from that time there is much less similarity to buff-ware design than we have here. Furthermore, there is painted pottery from the near-by site of Dinkha (*ibid.* pp. 367-76) which is not earlier than the end of the 3d millennium B.C.⁹²

⁹¹ This suggestion rests merely on the presence of a double cup at Vakilabad (Stein, '36, Pl. XXII 8), since very little of the pottery from these strata is published.

⁹² The painted pottery of Dinkha is contemporary with Billa 4; cf. designs of Stein, '40, Pl. XXII and Speiser, '33, Pl. LXXII. A Dinkha jar form (Stein, '40, Pl. XXII 17, 19) finds parallels in Assur E (Andrae, '22, Fig. 87).

There are some similarities to the pottery of Ninevite 5 in that of Gird-i-Hasan Ali. A series of bowls with beaded rims (*ibid.* Pl. XXIII 2-3, 6-7, 10-11, 15) is comparable to a class of Ninevite 5 bowls (Thompson-Mallowan, '33, Pl. LIV 4 and p. 172). The design of Stein, '40, Plate XXIII 13 is found in Ninevite 5 (unpublished, but I have sketched such a design in a British Museum display case) and Billa 7 (Speiser, '33, Pl. LXIX). A series of broad bands below the design zone is not uncharacteristic of Ninevite 5. A sherd with apparently polychrome design (Stein, '40, Pl. XXIII 8) and an incised sherd (*ibid.* No. 14) from Gird-i-Hasan Ali could also belong to this time. This pottery, therefore, may tentatively be equated with Ninevite 5, though it could be somewhat earlier or later but not as late as Giyan IV.

Too little of the light-slipped pottery from Gird-i-Hasan Ali is published to suggest any connections. The position of one peculiar partly slipped piece (*ibid.* No. 27 and p. 378) at about 2 feet below datum shows that it is not later than the unslipped painted pottery.

LATER CULTURES OF NORTHEASTERN IRAN

HISSAR II AND III

In the further study of northeastern Iran, Hissar is the most important site, for only here habitation did not cease at the time of the disappearance of the Hissar culture (see Table II). A new era began with the coming of the gray ware of Hissar II, but this change cannot be fixed temporally with any precision, though indications are that it must have happened during the latter part of Siyalk III (see p. 11). In the level of Hissar II were found two or three building periods, not exceeding 1.50 m. in thickness (Schmidt, '37, pp. 26, 106, and Fig. 62), from which we may conclude that either this period was short or occupation was not continuous.⁹³

Hissar II A is a transitional period. Despite the fact that the painted ware shows schematized design (*ibid.* pp. 108-12), its forms reveal absence of gray-ware influence. This is peculiar, for the gray ware (*ibid.* pp. 112-14) appears to have borrowed some of the earlier painted-ware forms such as footed bowls and pots (*ibid.* Pl. XXIII H 2999, 3060). Distinctive new features of the gray ware are modeled rims and feet, unusually high stemmed feet, and flat bases (*ibid.* Pl. XXIII H 2890, 2998, 2992).

With Hissar II B the infiltrational phase was terminated. Few elements from the culture of I survived, and new artifacts and customs appeared. This may reasonably be considered to represent an invasion of peoples with a culture similar to that of the bearers of the gray ware of II A, for the evidence indicates that the culture of II B is related to but not identical with that of II A. Some of the new features of II A do continue, but unless it is assumed that II A and B are not identical it is difficult to explain why some of the most distinctive elements of II B are unrepresented in II A (*ibid.* pp. 119 f., 123 f.).

Superimposed on Hissar II are the three phases of Hissar III (*ibid.* p. 155). Hissar III A is an ill-defined stratum not over 1 meter thick. Hissar III B, with a maximum depth of 2 meters, may include two building levels, though one of these may belong to III C. If the latter is the case, the last phase of Hissar III would have two building levels in a present thickness of 1 meter (*ibid.* pp. 155, 174, and Figs. 85-86). The fragmentary character of the Hissar III C building remains suggests denudation as much as poorer architecture, for the wall fragments are of much the same thickness as those of III B (cf. *ibid.* p. 174).

⁹³ It is well to note again that material from tombs could provide a continuous sequence not fully represented in architectural levels. This appears to be the case in Hissar III (see. n. 97).

Hissar III A is a transitional layer with distinctive features of II B occurring alongside new features of III. Despite the survival of a limited Hissar II tradition, when the remains of III B and II B are compared there is no doubt that a new element has appeared. The differences between III B and C, on the other hand, are to be explained as development and influence from other forms of the third culture (cf. p. 55). Notwithstanding the pronounced differences between the cultures of Hissar II and III, they share certain traits, particularly in ornaments and the type of ware used. It may be that this should be interpreted as showing a basic relationship, though the available evidence is insufficient to allow any assurance in this respect.

Hissar II and III show connections with the west which are of value chronologically and therefore will be considered before levels of other northeastern sites are compared with Hissar II and III.

In Hissar II the sole certain link with the west is a flat square bead, pierced diagonally at two corners (Fig. 14), a type which in Mesopotamia is commonest in the Jamdat Nasr period but does continue to be used in the succeeding period.⁹⁴

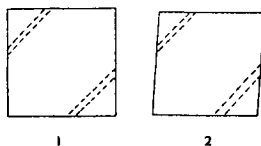


FIG. 14.—Beads from Hissar II (1) and Khafajah (2)

1. Schmidt, '33, Pl. CVIII H 1202

2. Frankfort, '36, Fig. 43, Early Dynastic II

Other comparisons may be made with the nearer site of Siyalk (Fig. 15), whose fourth level is safely ascribed to the Jamdat Nasr period (see p. 54). Pins with double-spiral heads (Fig. 15:1, 8) are found in Siyalk IV and at Hissar in II B and III A only (*ibid.* pp. 119, 205). They are unknown at Susa. Pins with double-loop heads (Fig. 15:2, 9) also occur in Siyalk IV; at Hissar they probably are not present before III A (*ibid.* p. 206). Thus these two types of pins occur together in Siyalk IV, a condition which if present at Hissar is found in III A only. Peculiar triangular beads (Fig. 15:3, 10) occur in Siyalk IV and at Hissar in either II B or III A.⁹⁵ A rare cup form (Fig. 15:5, 12) from Siyalk IV is paralleled in Hissar III B. It is unknown at Susa.

The Hissar III cylinder seals are considered to be in the Jamdat Nasr tradition (Frankfort, '39, pp. 227 f.), and the chariot scene appearing on one of them is a subject of Early Dynastic I vase-painting also (Frankfort, '36, Fig. 51), though not appearing on seals until Early Dynastic III.

In the light of the above-mentioned evidence it seems most probable that the beginning of Hissar III comes at the beginning of the Early Dynastic period and closely follows the end of Siyalk IV. Hissar II ends, then, in the latter part of the Jamdat Nasr period.

⁹⁴ Professor Frankfort and Mr. Delougaz kindly informed me of its occurrence in Mesopotamia. The Hissar beads were found in burial CG 25 X-30 (Schmidt, '33, Fig. B), which otherwise contained a bracelet only. Other graves at nearly the same level belong to Hissar II B, to which this grave should probably be assigned, though there may be some II A graves as well at this level.

⁹⁵ Such beads occur also at Khafajah in the Jamdat Nasr period, Professor Frankfort tells me.

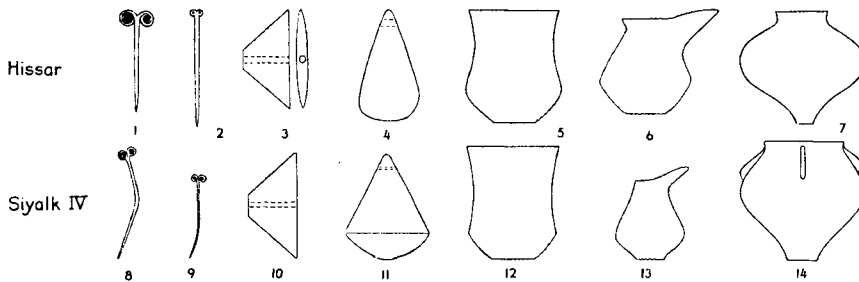


FIG. 15.—Hissar II-III and Siyalk IV

1. Schmidt, '37, Pl. XXIX H 4856, Hissar II B
2. Schmidt, '33, Pl. CXXI B H 8, Hissar III
3. Schmidt, '37, Pl. LXVIII H 2107, Hissar II B or III A
4. *Ibid.* Pl. XXXII H 2187, Hissar II B
5. *Ibid.* Pl. XXXVIII H 2526, Hissar III B
6. *Ibid.* Pl. XXXVII H 5040, Hissar III B
7. *Ibid.* Pl. XXXIX H 4098, Hissar III B (a funnel, somewhat larger than No. 14)
8. Ghirshman, '38, Pl. XCV S.1602e
9. *Ibid.* Pl. XCV S.1602a
10. *Ibid.* Pl. XXX 1
11. *Ibid.* Fig. 9
12. *Ibid.* Pl. XC S.31
13. *Ibid.* Pl. LXXXVIII S.40
14. *Ibid.* Pl. XC S.45

The comparisons shown in Figure 16 and Table I establish Hissar III as contemporaneous with the Early Dynastic period and place its end in the Akkadian period. Hissar may have ceased to be inhabited at the very beginning of the Akkadian period, for beads from a hoard of III C (Schmidt, '37, Pl. XXXV) show three types (Table I 3, 6-7) which are known at the end of the Early Dynastic period though more typical of the succeeding period. The numerous signs of contact between Hissar III and Mesopotamia (Table I) are not surprising if it is remembered that Hissar lay on the road to the east through which came the lapis lazuli so commonly used in Early Dynastic III. In this connection it is interesting to recall Woolley's comments ('34b, p. 372) as to the decline in the amount and quality of the lapis used in the Akkadian period.⁹⁶ May not the changes and the possibly disturbed conditions which caused the end of Hissar III explain the falling-off in the lapis traffic?

To allocate positions to Hissar III sublevels relative to the phases of the Early Dynastic period is much more difficult. It should be not too far wrong, however, to consider that Hissar III B overlaps Early Dynastic II. Features do appear in Hissar III B which are known so far in Early Dynastic III only, but again this may be because the first and second phases of the Early Dynastic period are less well known than the last.⁹⁷

⁹⁶ Confirmed orally by Mr. Delougaz.

⁹⁷ Hissar II and III do not show the building remains which we should expect according to the Mesopotamian correspondences. Mr. Delougaz and Dr. Jacobsen on different grounds consider that the Early Dynastic period is one of considerable length. Transitional periods such as Hissar II A and III A may actually represent considerable periods of time with only scanty building remains on the site. Thus the appearance of new cultures at Hissar in the strata of transitional nature may be separated by considerable time from the more intensive settlements (II B and III B). Hence there may be an architectural gap between II B and III A, with III A ending in Early Dynastic II and III B coming at the beginning of Early Dynastic III. For another alternative see n. 17.

TABLE I: HISSAR III AND MESOPOTAMIA

No.	TYPE OF OBJECT	HISSAR III (SCHMIDT, '33, WHERE NOTED; OTHERWISE SCHMIDT, '37)	MESOPOTAMIA						
			Jamdat Nasr period*	Early Dynastic period			Early Dynastic III-Early Akkadian period		3d dynasty of Ur
			Gaura VIII-VII (Speiser, '35)	Gaura VI (Speiser, '35)	al-Ubaid (Hall-Woolley, '27)	Ur "predynastic" cemetery (ED III) (Woolley, '34b)	Ur "2d dy- nasty" ceme- tery (Woolley, '34b)	Kish "A" cemetery (Mackay, '29)	
1	Crescentic beads	Pl. LXXVIII H 2107 (A)	Pl. LXXXIII 4 (VIII)						
2	Octagonal beads	Pl. LXIX H 1773 (A)	Pl. LXXXIII 10 (VIII)						
3	Etched carnelian beads	Pl. XXXV (C)				pp. 373 f.	pp. 373 f.	Pl. XLIII 9	Assur G (An- drae, '38, Pl. 11, p. 80)
4	Gold-sheet beads with tube	Pl. LXVI H 2360- 61 (B)				Fig. 70 and p. 371 (types 16, 19)	Fig. 70 and p. 371 (types 16, 19)	Fig. 70 and p. 371 (types 16, 19)	
5	Biconical beads	Pl. LXX H 2788 (C)	Pl. LXXXIII 11 (VIII), 16 (VII)			Fig. 70 and p. 371 (type 8)		Fig. 70 and p. 371 (type 8)	
6	Pentagonal beads	Pl. XXXV (C)					Pl. 132 U.12474	Fig. 79 and p. 372	
7	Cat's-eye beads	Pl. XXXV (C)					Pl. 132 U.12474	p. 372	
8	Rhomboidal beads	Pl. LXVII H 3592 (C)				Figs. 70:20, 77, and p. 371	Figs. 70:20, 77, and p. 371		
9	"Amulet" beads	Figs. 133-34 (B)				p. 375	p. 375		
10	Scalloped beads	Pl. LXIX H 2374, 2856 (B-C)						Pl. LX 39-40	
11	Double-scroll pendants	Pl. LIV H 4333 (A-C)				Pl. 134 U.9656			
12	Metal ornaments	'33, Pl. CXXII H 162				Pl. 138 PG/1237			
13	Metal ornaments	Pl. LIV H 3043				Pl. 219:2 (ear- ring) chap. xiii			
14	Inlay work	Pl. LXI H 3257 (C)		Pl. XXXIV 3 (ED III)					
15	Single-loop pins	Pl. LIII H 3141 (B-C)	Pl. LXXXII 16 (VII)	Pl. LXXXII 14		Pl. 231:4			
16	Decorated bone pins	Pl. LXV H 2900 (C)	Pl. LXXXII 15 (VIII)						
17	Spiral rings	Pl. LIV H 2375 (A-C)		Pl. LIV b 1					
18	Frontlets	Pls. LV H 4321, LVI H 2362 (B-C)				Pl. 139	p. 523	Pl. LIX 3	p. 246
19	Metal razors	'33, Pl. CXXI H 867		Pl. XLIX 2		Pl. 231 U.7932 etc. and p. 310	p. 310		Assur G (An- drae, '22, Fig. 17)
20	Poker spears	Pl. L H 3229 (C)				p. 303	p. 303		See p. 53.
21	Ornamented spear shafts	Pl. XXXIV (C)				Pl. 153 PG/789			
22	Chisels	Pl. LII H 3562 (B)	Pl. LXXXII 2 and p. 107	Pl. LXXXII 2 and p. 107		Pl. 229 U.8307 (type 1)			
23	Tridents, bidents	'33, Pl. CXX A (C)					Pl. 230 U.15313, 17926	Pl. 230 U.9004?	
24	Metal dippers	'33, Pl. CXX C (C)				p. 521 (type 92)			
25	Stemmed vessels	Pl. LIX H 2769, 3529 (C)				Pls. 239:102, 250:101			
26	Stone bowls	Pl. LIX H 3615 (C)				Pl. 246:66			
27	Stone jars	Pl. LIX H 1847 (C)			Pl. LXI:I (ED I)	Pl. 246:60b, 61b		Pl. LVI 3	
28	Stone jars	Pl. LIX H 3523 (C)			Pl. LXI:II (ED I)	Pl. 241:7			
29	Concentric circles on stone vessels	Pl. LX H 3494-95, 3498 (C)			Pl. LXXII:XXV (ED I)	Pl. 245:53		Pl. 245:52	
30	Concentric circles on beads	Pl. LXX H 2788 (C)		Pl. LXXXIII 19					
31	Concave-based arrowheads	p. 220; '33, Pl. CXLIII A H 606 (B?)	Pl. LXXXI 1 (VIII)						
32	Oval arrowheads	p. 219 and Pl. XLIII H 1800, 1884 (B)	Pl. XXXVIII a 13-16 (VII), 12, 18 (VIII C)	pp. 84 f.¶					
33	Stemmed arrow- heads	pp. 219 f.; '33, Pl. CXLIII A (C)	Pl. XXXVIII a 17 (VII)						

* Except arrowheads from Gaura VIII C (see No. 32), which belongs to the Uruk period (Speiser, '35, p. 183).

† Possibly II B (Schmidt, '37, p. 231).

‡ Perhaps in II B also (Schmidt, '37, pp. 232, 123).

§ Found in II B also but commoner in III (Schmidt, '37, p. 206).

|| Found as late as III (Speiser, '35, p. 107).

¶ Found in V (Sargonic period) and III (Hurrian period) also (Speiser, '35, p. 84).

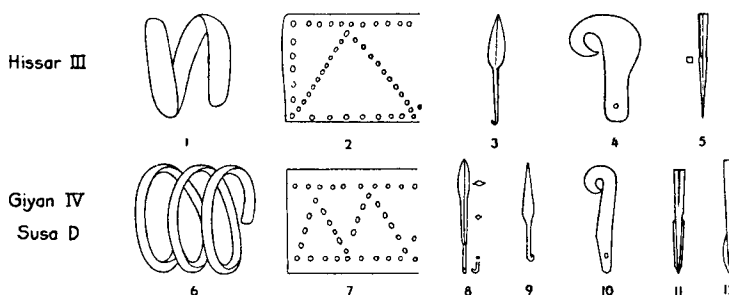


FIG. 16.—Hissar III and Giyan IV, Susa D

- | | | |
|---|--|---|
| 1. Schmidt, '37, Pl. LIV H 2375, Hissar III B | 4. Schmidt, '37, Pl. XLVI H 2810, Hissar III B | 8. <i>Ibid.</i> Pl. 32 T.112:3, Giyan IV |
| 2. <i>Ibid.</i> Pl. LIV H 4112 | 5. <i>Ibid.</i> Pl. L H 2779, Hissar III C | 9. Mecquenem, '34, Fig. 25:1, Susa D 1 |
| 3. Schmidt, '33, Pl. CIII H 1040, Hissar III A (see Schmidt, '37, p. 119) | 6. Contenau-Ghirshman, '35, Pl. 31 T.108:8, Giyan IV | 10. Contenau-Ghirshman, '35, Pl. 32 T.112:4, Giyan IV |
| | 7. <i>Ibid.</i> Pl. 30 T.104:1, Giyan IV | 11. <i>Ibid.</i> Pl. 31 T.110:5, Giyan IV |
| | | 12. Mecquenem, '34, Fig. 55:33, Susa D 2 |

NOTES ON TABLE I AND FIGURE 16

Though some of the features compared in Fig. 16 and Table I continue in use for some time, they are included because it is significant that they appear elsewhere at the time of Hissar III. The comparisons of Hissar III with Giyan and Susa are more important than those with Mesopotamia because they are with sites closer to Hissar. In this respect it is interesting that the spearhead with bent tang-tip from Giyan IV (Fig. 16:8) is closer to the type of Hissar III B-C (Schmidt, '37, Pl. L H 3582) than is the example from Susa D 1 (Fig. 16:9), though the Hissar III A type (Fig. 16:3) is close to that of Susa D 1. This type of blade is unknown or unpublished from Mesopotamia, so far as I can discover, but it does occur farther west. It has been found in the final phase of Troy II, i.e., the burned city (Schliemann, 1880, Nos. 811-15, 901; cf. also Bittel, '34, pp. 51-53 and Pls. XIX 6, XXI 8). Troy II is now dated by Blegen ('40) to 2600-2300 B.C. A peculiar and probably advanced type is known from a tomb at Alaca Hüyük (Ank., '37, Pl. CCLXXV). Two examples found at Gözlü Kule date from the end of the Early Bronze Age (Goldman, '38, Fig. 14 and pp. 35 f., 53 f.; '40, Fig. 19 and p. 67). Mr. Braidwood tells me he would date the tombs of Til Barsip in which such weapons appear (Thureau-Dangin-Dunand, '36, Pls. XXX-XXXI and pp. 107 f., 117) about 2200 B.C. In Cyprus they have a much longer range, appearing as late as Middle Cypriote III (Gjerstad *et al.* '34). At Ras al-Shamrah, Schaeffer ('36, Fig. 16:3 and p. 44) would date them about 2100-1900 B.C. The Cypriote form, however, except for a bent tang-tip with or without button end, is not similar enough to the examples from Iran to be strictly comparable. An example purchased at Tiflis (Zakharov, '31, p. 133) may be a modern import there. Thus perhaps as early as the latter part of Hissar III this type begins in the west, where it has a long range in Cyprus and Syria only. The two examples from Giyan and Susa belong to levels which are shown by other evidence to be contemporaneous with Hissar III.

Some objects which now seem distinctive for cross-dating Hissar III and Mesopotamia may be found to have a somewhat longer range than is shown in Table I because at present there is remarkably little stratified material published from the time of the 3d dynasty of Ur and the 1st dynasty of Babylon. A poker spear (cf. Table I 20) from Luristan is dated to the time of the 3d dynasty of Ur (Langdon, '32, p. 282). Peculiar gold-sheet beads with central tube (Table I 4) do not occur later than the Akkadian period (cf., however, those from the burned city of Troy; Schliemann, 1880, pp. 460 f., No. 712, and pp. 501 f., No. 912), nor does an oddly shaped type of razor (Table I 19). Etched carnelian beads (Table I 3) seem to have gone out of use in Mesopotamia after the 3d dynasty of Ur (Beck, '33, pp. 387 ff.). Thus the latest possible date indicated by Table I for the end of Hissar III would be the 3d dynasty of Ur. On the whole it seems more likely, however, that it comes in the Akkadian period.

A tripod pot from Hissar (Schmidt, '33, Pl. CXVI H 59 and p. 399) provides additional evidence that Hissar III ended at about the time the Akkadian period began (see also p. 52), for, though it is in gray ware and therefore not an import from the west, the idea and the form are to be connected with the tripod vessels characteristic of Giyan III (see Contenau-Ghirshman, '35, pp. 70 f. and Pls. 25-29), which began at about the same time as the Akkadian period (see p. 48). This vessel was found in burial DG 10 x-3 (see Schmidt, '33, Pl. CXLIX), which contained alabaster vessels and hence belongs to Hissar III C. I have seen from the middle level of the west mound at Turang Tepe (Wulsin, '32, p. 9) sherds of a burnished-gray-ware, long-legged, flat saucer-bowl which again betrays a western idea rather than a detailed copy. The other vessels of this type from Turang Tepe are in red ware (*ibid.*), which is characteristic of Giyan III (see Contenau-Ghirshman, '35, pp. 70 f.).

Space is not available here to show that comparisons of Hissar III material with that of later periods of Iran and the Caucasus are of a very general character and cannot be made in essential details. Bidents and tridents (Table I 23) have often been used to suggest a late date for Hissar III. It has never been noted that the known Hissar specimens are never socketed (Schmidt, '33, Pl. CXX), while those of the latter part of the 2d millennium B.C. are socketed. Furthermore, the later vessel shapes which are somewhat similar to shapes of Hissar III have handles, a different form of spout, and in the case of the biconical-bodied jar completely different neck and rim. In this connection it is well to remember that if Hissar III is dated to the latter part of the 2d millennium, its few meters of deposit must cover a tremendously long time.

SIYALK IV

At Siyalk the evidence indicates a break between levels III and IV. Against this is the discovery of two painted pots of level III types associated with remains of IV (Ghirshman, '38, p. 61), but both may be considered to have been re-employed in view of the circumstances of their use. There is no indication here of a limited painting tradition from the Hissar culture as there is in Hissar II and III (Schmidt, '37, pp. 178, 181). It is not easy to explain the employment of bricks of the same dimensions ($30 \times 30 \times 10$ cm.) as those of Siyalk III, though they may come from a later period (Ghirshman, '38, p. 59).⁹⁸ The absence of other carry-overs from Siyalk III in Siyalk IV makes it probable that there is a real discontinuity between the two periods. The relative date of Siyalk IV is assured by the seal designs and the presence of proto-Elamite tablets (cf. p. 44) as well as other features paralleled in Susa C. The polychrome jars from the upper part of Siyalk IV (Ghirshman, '38, p. 63 and Pl. XC S.23) are in the Jamdat Nasr tradition; hence the level falls wholly within the Jamdat Nasr period.

SHAH TEPE

The interesting excavations at Shah Tepe in the Gurgan Plain have revealed two distinct layers which are relevant here. We must rely almost exclusively on grave material published in the preliminary report (Arne, '35). The lowest level, III, has a maximum thickness of 3 meters (in Shaft F) and contains graves throughout (*ibid.* pp. 8, 22). Sublevel IIb has a maximum depth of about 2 meters, while IIa ranges in thickness from 2 to over 3 meters.⁹⁹

Level III contains black-on-red ware throughout but mostly outside the graves. Despite differences in detail it shows associations in pottery design and form with the Hissar culture, and some of its designs are paralleled in the Chashmah Ali culture.¹⁰⁰ A developed stage of a provincial form of the Chashmah Ali culture which has not undergone the changes which produced the Hissar culture seems to be represented here. The near absence of buff-colored pottery north of the Elburz Mountains confirms the impression that the change from red to buff pottery which occurred in the Hissar culture was due to influence from the buff-ware culture.¹⁰¹

The tombs of Shah Tepe III are not earlier than Hissar II A, however, for they contain painted red ware alongside plain gray ware. Hissar II B is presumably represented in Shah Tepe III by tombs without painted pottery. Figure 17 indicates further correlations of Shah Tepe III and Hissar II. At the same time differences in ceramic forms suggest that the culture of Shah Tepe III was a variant form of that known from Hissar II.¹⁰²

⁹⁸ In contrast to the square bricks of Siyalk IV those of Hissar II and III and Susa are rectangular, except for bricks from Susa B 1 found at -8 meters (Mecquenem, '34, p. 200). Larger square bricks were used in later constructions at Siyalk (Ghirshman, '39, pp. 24 f.).

⁹⁹ Arne, '35, pp. 8, 22, 45 (grave C II, S.2). The upper limit is difficult to define.

¹⁰⁰ *Ibid.* Fig. 8, if it had a foot, would be comparable with a footed pot of Siyalk III (Ghirshman, '38, Pl. LXVIII S. 173). A large jar form (Arne, '35, Figs. 9-10 and p. 17) has analogues in Chashmah Ali I A and Siyalk III (Ghirshman, '38, Pl. LXIX S.1405). Shah Tepe III shares a preference for vertical designs with Hissar I A, but much closer parallels for its design occur in Siyalk II (*ibid.* Pl. LI A).

¹⁰¹ Cf. Arne, '35, p. 43 and Fig. 92. The presence of a sherd with a knob-ended star motive shows sure contact with the Hissar culture, presumably at the time of Hissar I C.

¹⁰² It is strange that pins with double-spiral heads (see p. 51) are not reported from Shah Tepe. The absence of the ring foot at Shah Tepe confirms the impression gained at Hissar that this feature is not a characteristic of the gray ware, though the high stem is (see p. 50). Comparison of Hissar II and Shah Tepe III pottery shapes demonstrates how much Hissar II assimilated from Hissar I.

It is difficult at present to distinguish transitional graves at Shah Tepe corresponding to those of Hissar III A, but Figure 17 shows that Shah Tepe IIb may be equated with Hissar III B. The pottery of these two levels, however, differs considerably, again demonstrating the variation to be expected in the different aspects of this particular type of gray-ware culture. Shah Tepe IIb provides some indications that elaborate burnishing and the use of handles occur earlier in the Gurgan Plain than they do south of the Elburz. It was probably from the Gurgan Plain that such features came to Tepe Hissar.¹⁰³

Shah Tepe IIa, despite differences, is shown in Figure 17 to be temporally equatable with Hissar III C.¹⁰⁴ It is of great interest to discover a vessel of truly Aegean appearance (Arne, '35, Fig. 29) in northeastern Iran not later than the Akkadian period, though a satisfactory explanation can hardly be advanced. In this connection it is interesting to recall that spear-heads with bent tang-tips occur in both Hissar III (Fig. 16:3) and Troy II (see notes to Fig. 16 and Table I) and to point to two unusual handled vessels from Giyan IV (Contenau-Ghirshman, '35, Pl. 31 T.108:4-5).

TURANG TEPE

Turang Tepe lies in the Gurgan Plain not far from Shah Tepe, with which it shares much the same series of strata. In the west mound were found two levels of graves with which we are concerned here. In the lowest level, 96.7-98 meters (Wulsin, '32, pp. 7 f. and Pl. III), two graves, with incised or bossed gray ware, all unburnished (*ibid.* p. 9 and Pl. XII 3-5),¹⁰⁵ were found in debris containing sherds of black-on-red ware which became more numerous with increasing depth. These two graves of Hissar II B type were, then, in a deposit from the end of the Hissar period. The nearly complete absence of painted buff ware at Turang Tepe (*ibid.* p. 10) confirms the observations made concerning Shah Tepe (see above).

A large number of graves occurred between 102 and 105.20 m. Here burnished gray ware is very common (*ibid.* p. 9), and the pottery (*ibid.* Pls. IV-XII 1-2) shows closest connections with that of Hissar III B and Shah Tepe IIb. It is interesting to find here (*ibid.* Pl. VI 4) the Hissar type of bottle-flask, which is not shown from Shah Tepe. The metal weapons closely resemble those of Hissar III B. It is indeed doubtful whether the Hissar III C stage is represented, since those vessel forms which resemble pottery of Hissar III C would naturally appear earlier at Turang Tepe than at Hissar,¹⁰⁶ for they are found in Shah Tepe IIb also (see

¹⁰³ It is significant that trough-spouted pots are found at Susa and Siyalk before they reach northeastern Iran. In this connection Susa B 3 pins with spiral-wire and animal heads (Mecquenem, '34, Fig. 34) also are of interest, because they are reminiscent of Hissar III pins and wands. Trough-spouted pots are rare and such pins unknown in Mesopotamia in the latter part of the Uruk and in the Jamdat Nasr period. From these facts it seems not improbable that toward the end of the Uruk period Susa was influenced by a northern culture some representative of which was to arrive in northeastern Iran at a considerably later time. This probability and the absence of the above-mentioned features at Anau provide a slight indication that the gray-ware culture of the Hissar III stage did not come from the Turcoman Steppe.

¹⁰⁴ The comparisons of Shah Tepe and Hissar have been mainly ceramic. On the appearance of a final report on Shah Tepe it should be possible to make detailed comparisons of other types of objects also. Those already published merely confirm that Shah Tepe II corresponds to Hissar III.

¹⁰⁵ I was given the opportunity to consult Wulsin's records in the University Museum at Philadelphia and to verify that the three vessels concerned came from the two tombs in the lowest level.

¹⁰⁶ An exception may be vessels such as Wulsin, '32, Pl. VIII 3, with which compare Arne, '35, Fig. 69, left, which by level is from a IIa grave (*ibid.* pp. 35, 23). Cf. also Wulsin, '32, Pl. XIII 1 and Arne, '35, Fig. 25. The absence of most elements typical of Hissar III C and Shah Tepe IIa is against the existence of contemporary material in these graves. The "Sumerian treasure of Astarabad" from Turang Tepe indicates that there are burials of Hissar III C type somewhere in the vicinity.

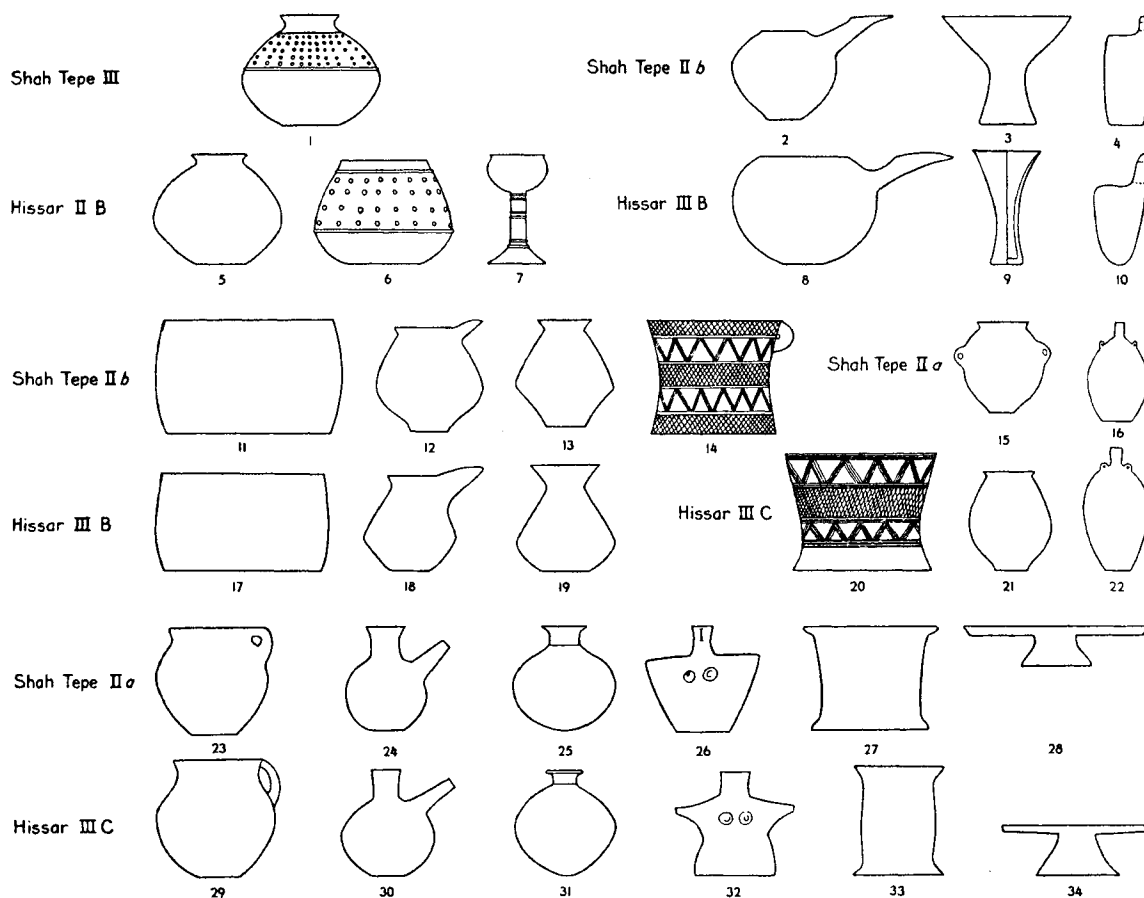


FIG. 17.—Shah Tepe III-II and Hissar II-III

1. Arne, '35, Fig. 14
2. *Ibid.* Fig. 36
3. *Ibid.* Fig. 33 b
4. *Ibid.* Fig. 50 (much larger than No. 10)
5. Schmidt, '37, Pl. XXVI H 1822 (much larger than No. 1)
6. *Ibid.* Pl. XXVI H 4783
7. *Ibid.* Pl. XXV H 5070
8. *Ibid.* Pl. XXXVIII H 5089
9. *Ibid.* Pl. XXXVIII H 2434
10. *Ibid.* Pl. XXXIX H 1734
11. Arne, '35, Fig. 33 a
12. *Ibid.* Fig. 43 (larger than No. 18)
13. *Ibid.* Fig. 24 (somewhat larger than No. 19)
14. *Ibid.* Fig. 18 b (larger than No. 20)
15. *Ibid.* Fig. 45
16. *Ibid.* Fig. 44 a
17. Schmidt, '37, Pl. XXXVIII H 4227
18. *Ibid.* Pl. XXXVII H 5040
19. *Ibid.* Pl. XXXVII H 2391
20. *Ibid.* Pl. XLII H 3493
21. *Ibid.* Pl. XL H 5231
22. *Ibid.* Pl. XL H 4219
23. Arne, '35, Fig. 26 (somewhat larger than No. 29)
24. *Ibid.* Fig. 69
25. *Ibid.* Fig. 30 (somewhat smaller than No. 31)
26. *Ibid.* Fig. 53 a (somewhat larger than No. 32)
27. *Ibid.* Fig. 54 a
28. *Ibid.* Fig. 54 b
29. Schmidt, '37, Pl. XLI H 5235
30. *Ibid.* Pl. XLI H 4296
31. *Ibid.* Pl. XLI H 3490
32. *Ibid.* Fig. 115
33. *Ibid.* Pl. LIX H 3523
34. *Ibid.* Pl. LIX H 3506

above). At Turang Tepe occurred an unusual type of figurine (*ibid.* Pls. XV–XVI and pp. 10 f.), which is known from Shah Tepe IIb also.¹⁰⁷ These gray and red clay figurines occurred in refuse of the top part of the upper level, at 106–104.50 m. Occasional plain red-ware sherds were found in the upper level, but they were commonest near the surface of the mound (*ibid.* p. 9). This suggests that the gray ware of Hissar III type was followed by a culture characterized by plain red pottery, as at Hissar (Schmidt, '37, p. 308). Red-ware handles and vase legs at Turang Tepe (Wulsin, '32, p. 9) suggest comparison with Giyan III, where red pottery is characteristic and handles and vessels with tripod legs were found (see Contenau-Ghirshman, '35, pp. 70 f. and Pls. 25–29). It is of interest also that at least 7–8 meters of deposit at Turang Tepe correspond to Hissar levels II B through III B.

A few words should be devoted to the "Sumerian treasure of Astarabad" (Rostovtzeff, '20), which doubtless came from some part of the west mound of Turang Tepe unexplored by Wulsin. It has already been correctly assigned as contemporary with Hissar III C (Schmidt, '37, p. 326). Here again are examples of Mesopotamian influence or imports.

ANAU II AND III

It will be recalled that in the absence of specific evidence the end of Anau I was considered to come at approximately the same time as the end of the Hissar culture (see p. 12). Anau II is represented by a roughly 15-foot deposit of three building levels superimposed on Anau I (Pumpelly, '08, Figs. 24, 29, 31). Most traits of the culture of Anau II, except ceramic, derive from Anau I (*ibid.* p. 43). The pottery, however, provides evidence of a significant change between Anau I and II which proves the appearance of a new cultural element. In contrast to Iran proper, where either a plain red or a plain gray ware superseded painted buff ware, fine gray and coarser red pottery appear here together. There is no certainty that these two wares are in any sense distinct, for they share the same forms (*ibid.* pp. 133 f.).

In addition, two types of painted ware were present (*ibid.* pp. 135 f.). One has monochrome designs on burnished red or unburnished whitish-green slip or on unslipped and unpolished light brown or whitish-green surface. The excavator would associate the red-slipped variety

¹⁰⁷ Found in debris in which IIa graves were sunk, though one occurred near the surface (Arne, '35, Fig. 87a and pp. 37 f.).

NOTES ON FIGURE 17

No. 7. Cf. fragments of such stems from Shah Tepe at least one of which was found in level III (Arne, '35, Fig. 41 and p. 29).

Incised design is found in both Shah Tepe III (*ibid.* p. 19) and Hissar II (Schmidt, '37, p. 308).

A bowl form from Shah Tepe III (Arne, '35, Fig. 40) is similar to one from Hissar II B (Schmidt, '37, Pl. XXV H 5119).

No. 3 has a hollow foot (Arne, '35, pp. 25 f.).

No. 13. The same sort of concave lower side is known from Hissar III B (Schmidt, '37, Pl. XXXVII H 2406).

No. 20 is the only example of such a vessel in Hissar III C.

No. 21. This type is unusual in Hissar III C.

Nos. 16 and 22. This type of vessel is decorated with snakes in relief (Arne, '35, Fig. 44 a; Schmidt, '37, Pl. XL H 3522) or panels burnished in herringbone patterns (Arne, '35, Fig. 44 b; Schmidt, '37, Fig. 108).

No. 29. This type is unusual in Hissar III C.

Stone cups are found in Shah Tepe IIa (Arne, '35, Fig. 53 b) and Hissar III C (Schmidt, '37, Pl. LIX H 5225).

Similar types of incised bone pins are found in Shah Tepe IIa (Arne, '35, Fig. 95 a) and Hissar III C (Schmidt, '37, Pl. LXV H 4094). Such pins probably do not occur in Hissar III B (*ibid.* p. 222).

Etched carnelian beads are found in Shah Tepe IIa (Arne, '35, Fig. 90 c) and at Hissar in III C only (Schmidt, '37, p. 223).

with the plain red ware of Anau II, the second variety with the light-colored ware of Anau I (see p. 5), and the last with a buff ware of Anau III (*ibid.* p. 135). Two of these associations seem likely, but it is much more uncertain that the pottery with greenish-white slip is related to the light-colored ware of Anau I.¹⁰⁸ They may be related, but what little is known of the design of Anau II shows too general a connection to relate it to that of Anau I. The Anau II design is in a style of the buff-ware culture rather than in that of the provincial Chashmah Ali culture of Anau I. The other type of painted pottery occurs in the middle third (between +32 and +36 ft.) of Anau II (*ibid.* p. 95, group *v*). It has polychrome designs in tones of black and red on buff-slipped or unslipped buff pottery with gray core. Sometimes, at any rate, straw temper was used. The designs may be in a buff-ware style and possibly are associated with those of the Fars aspect of the buff-ware culture.¹⁰⁹

Present inadequate knowledge prevents discovery of the source of the new wares which distinguish Anau II, nor can relative upper and lower limits be assigned to this culture. In certain respects Anau II shows a transitional character comparable with that of Hissar II A.

A shift in settlement from the north to the south kurgan accompanied changes which resulted in Anau III. During the course of this period some 60 feet of deposit accumulated (*ibid.* pp. 106, 108). Only shafts penetrated below +20 feet, so that most of the artifacts excavated came from the uppermost 20 feet, in which five occupational layers were distinguished (*ibid.* Figs. 37-38, 43, 48-49). Sherds of gray ware from the lower part of Anau III in forms typical of Anau II assure an element of continuity with the preceding period.¹¹⁰

The pottery of the lower strata of Anau III (*ibid.* pp. 143-45) is predominantly an unpolished buff ware with greenish tones, already mentioned in connection with Anau II, though a burnished gray-slipped ware with incised decoration and a burnished red-slipped ware occur. A painted brown ware also was found, near the base of the deposit, but it shows no certain connection with the monochrome-painted pottery of Anau II. In the upper part of Anau III the same buff, gray (often with incised decoration), and red wares were found. The gray and red wares were commonest toward the top, being displaced as the excavation descended by the buff ware (*ibid.* pp. 108, 116-18). Fusion with the ceramic tradition of Anau II is shown by the appearance in the upper strata of Anau III of light ware in forms typical of the gray ware of Anau II and the lower part of Anau III as well as light-ware forms in the gray ware.¹¹¹ A painted ware (*ibid.* p. 143 and Pls. 34:6, 35:1-6) occurs between +20 and +32 feet. The surface is greenish buff or white, slipped or plain, with design in black paint. The ware is buff,

¹⁰⁸ Note that neither of these painted wares of Anau II contains mica particles as do the unpainted gray and red wares. Furthermore, few if any of the distinctive forms of Anau I and II are comparable. This renders uncertain a possible connection of the red wares of the two periods. However, a painted vessel of Anau II (Pumpelly, '08, Fig. 135) which I have seen in the Peabody Museum does contain straw temper.

¹⁰⁹ Suggested merely because of the diagonal pattern *ibid.* Pl. 32:4 (cf. Fig. 13:153, notes). Polychromy is widespread in Baluchistan, the Indus Valley, and the Zhob-Loralai region at approximately this time, as I hope to show in another study.

¹¹⁰ Cf. Pumpelly, '08, Figs. 118, 121, from Anau II, with Figs. 197-98, from Anau III.

¹¹¹ A bowl form (*ibid.* Fig. 161) is found in both light and gray ware in the upper part of III (*ibid.* pp. 138 and 141 respectively), and a similar bowl is found in gray ware (*ibid.* Fig. 197) in the lower part of III (*ibid.* p. 144). With another bowl form (*ibid.* Fig. 164) in light ware from the upper part of III (*ibid.* p. 138) cf. a fragment in gray ware (*ibid.* Fig. 119) from II (*ibid.* p. 134). Another bowl shape (*ibid.* Fig. 167) is found in light ware in the lower part of III (*ibid.* p. 144) but in gray ware in the upper part of III (*ibid.* p. 141). A ribbed cup shape (*ibid.* Fig. 169) is found in both gray (*ibid.* p. 148) and light (*ibid.* p. 138) ware in the upper part of Anau III. More broadly spaced ribbing (*ibid.* Fig. 128) occurs in Anau II in gray ware.

cream, or brick-red. The peculiar use of bands or geometric elements with denticulated edges associates this pottery with painted wares scattered throughout Sistan¹¹² and Baluchistan.¹¹³

Figure 18 shows that Anau III has a good many associations with Hissar III B-C which are significant enough to indicate contemporaneity. Since all the objects of Anau III (excluding pottery) which have analogues to the southwest were found between +20 and +30 feet, the temporal equation with Hissar III B-C is exact for this stratum only. It is uncertain exactly when Anau III ended, though it must have been during or after Hissar III C. At Anau, as in northeastern Iran, the archeological sequence stops at this stage and is not continued until a much later time.

The important pottery comparisons shown in Figure 18 and mentioned in the notes are difficult to interpret. There are some similarities between Anau III and Hissar III and some between Anau III and the Hissar II stage. It may be that an element of the culture of Hissar II is present in Anau III; but this question must remain open because the culture of Anau III is less similar than it is dissimilar to the Hissar II type of culture.

The reader will remark that the depth of deposit of Anau III is far greater than that of any contemporary culture in northeastern Iran. Our inability to place the beginning or the end of Anau II relative to the Iranian sequence produces obvious difficulties in this regard. In Anau II and III, however, we have a thickness of deposit greater than 75 feet by an unknown amount (representing the denudation of the second stratum and a possible interval between Anau II and III). The thinness of the deposit of Hissar II and III has already attracted our attention (p. 50). These two levels together are less than half the minimum thickness of Anau II and III. This confirms the necessity for supposing that the remains of Hissar II and III do not represent a continuous or intensive occupation at all times (see n. 97) and makes possible the equation of Hissar III with a very long Early Dynastic period.

POSSIBLE RELATIONSHIPS OF THE RED- AND GRAY-WARE CULTURES

Only a few remarks can be made concerning the origin of the gray- and red-ware cultures of the Iranian Plateau, for the problem is much too complex for any solution with the present limited evidence. Vessels on high stands with bulbous expansion below the join to the body, known from Shah Tepe III (Arne, '35, Fig. 33e) and at Turang Tepe (Wulsin, '32, Pl. XIII 3) from the Hissar III stage, suggest comparison with forms of the Alishar Chalcolithic. Small bowls of Shah Tepe III (Arne, '35, Fig. 17a) also may have Anatolian analogues. Similar to Ninevite 3 forms are the carinated bowls of Anau II and III, the horizontally fluted bowls of Anau II, and the modeled jar rims of Anau III. The buff ware of Anau III also may be comparable to that of Ninevite 3. We may only note these similarities to pottery of the Uruk period in Mesopotamia and of the Chalcolithic period in Anatolia but cannot offer a reasonable explanation. Since distances between the sites where such similar features appear are so great, these comparisons are of uncertain significance. Until we are sure of the home or the homes of the gray and red wares and whether they are representatives of an originally homogeneous culture or are distinct, any hypothesis will be premature. One fact based on negative evidence may be stated. Evidence from Anau makes it unlikely that the gray and red wares came from one direction only to the Iranian Plateau. The material cultures of Anau II and III are too

¹¹² Stein, '28, Pls. CXIV S.S.066, CXIII S.S.074, etc.

¹¹³ Stein, '29, Pl. XX S.J.v.17-18, from Sur Jangal; '31, Pl. XXXIII Nat.17; '37, Pl. XIX Hus.254, from Chah Husaini. This type of design is found also at Muhammadabad inside Iran but in the mountainous region just south of Anau; Hall, '24, Pls. XV 9, XVI.

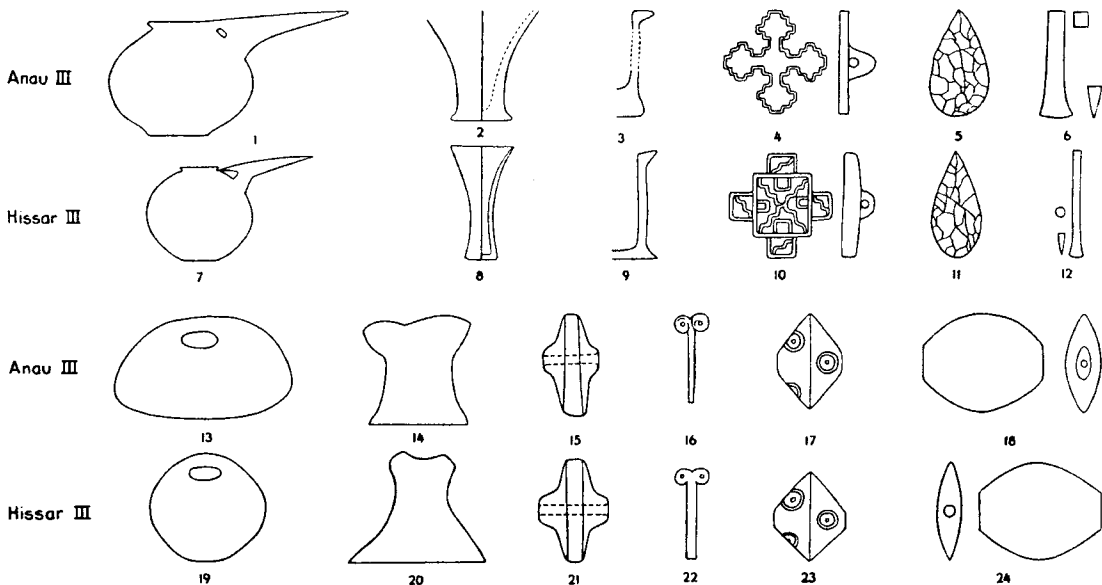


FIG. 18.—Anau III and Hissar III

- | | |
|---|--|
| 1. Pumpelly, '08, Pl. 12: 1, +23'5" | 13. Pumpelly, '08, Fig. 506, Anau II, +30' |
| 2. <i>Ibid.</i> Fig. 174 | (somewhat smaller than No. 19) |
| 3. <i>Ibid.</i> Fig. 406, +18-30', and Fig. 407, +21'5"-23'7" | 14. <i>Ibid.</i> Pl. 47:8, +20-23' |
| 4. <i>Ibid.</i> Fig. 257, +21'5"-23'7" | 15. <i>Ibid.</i> Fig. 418 |
| 5. <i>Ibid.</i> Fig. 386, +25' | 16. <i>Ibid.</i> Fig. 251, +19-21' |
| 6. <i>Ibid.</i> Fig. 267, +25'5"-29' | 17. <i>Ibid.</i> Fig. 320, +23'7"-25' |
| 7. Schmidt, '37, Pl. XLI H 3511, Hissar III C | 18. <i>Ibid.</i> Fig. 314, +19-20' |
| 8. <i>Ibid.</i> Pl. XXXVIII H 2434, Hissar III B | 19. Schmidt, '37, Pl. LXII H 2895, Hissar III B |
| 9. <i>Ibid.</i> Pl. LIX H 3523, Hissar III C | 20. <i>Ibid.</i> Pl. XLV H 2921 |
| 10. <i>Ibid.</i> Fig. 118 H 2697, Hissar III B | 21. Schmidt, '33, Pl. CXLIII C H 283 |
| 11. <i>Ibid.</i> Pl. LXIII H 1884, Hissar III B | 22. <i>Ibid.</i> Pl. CXXI B H 8 |
| 12. <i>Ibid.</i> Pl. LII H 3562, Hissar III B | 23. Schmidt, '37, Pl. LXX H 2788, Hissar III C |
| | 24. <i>Ibid.</i> Pl. LXVIII H 3594, Hissar III C |

NOTES ON FIGURE 18

No. 3. A similar, complete profile is shown from Anau III (Pumpelly, '08, Fig. 405).

No. 5. Apparently few arrowheads were found in Anau III (*ibid.* p. 167 and Figs. 384-85). They were not uncommon in Hissar III (Schmidt, '37, pp. 219 f.).

No. 13 is from Anau II, but similar objects were found in the south kurgan, probably in Anau III rather than IV though this is not stated (Pumpelly, '08, p. 478 and Figs. 509-10).

Pots with tubular spouts occur in Anau III (*ibid.* p. 139 H). Vessels similar to *ibid.* Fig. 177 are known from Hissar III C (Fig. 17:30) and Shah Tepe IIa (Arne, '35, p. 23 and Fig. 28).

Certain vessel shapes of Anau III are comparable with forms from the Hissar II stage. Carinated bowls on high stemmed feet occur in Anau III (Pumpelly, '08, p. 138 C) and Shah Tepe III (Arne, '35, Fig. 40 and p. 29). High stemmed feet (Pumpelly, '08, p. 139 F) first occur at Anau in III and are comparable with similar bases from Hissar II (Fig. 17:7) as well as with those from Shah Tepe III. Horizontal raised rings are found on such feet in all three levels. The value of these comparisons is uncertain because the Anau III vessels are in light ware, while the Hissar and Shah Tepe specimens are in gray ware.

STRATIGRAPHIC SUMMARY

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unlike those of the Hissar II and III stages to have passed through northeastern Iran before they arrived in Turkestan. Conversely, the cultures of the Hissar II and III stages did not derive from the Turcoman Steppe only (see n. 103). To go further than this we should have to understand the relationship of the plain red ware of southwest Iran (see p. 48) to the gray ware of the northeast and the relationship of both of these to red pottery of the Harappa culture, which supplanted the cultures with painted buff pottery typified in the Indus Valley by Amri and in Baluchistan by Nal.

STRATIGRAPHIC SUMMARY

A brief review of the stratigraphy of the Iranian sites and the Mesopotamian sequence presented in Table II may be useful, with special emphasis on the relative upper and lower limits of the levels and Mesopotamian periods (indicated by the horizontal, opposed half-lines joined vertically by arrowheaded lines separated by question marks). In this summary only those levels or periods are mentioned together from which there is material evidence for possible contemporaneity. We do not mention together levels at two sites contemporary with a third level at another site—levels which are thus only by inference parallel in time. The vertical height of column covered by a period obviously does not indicate length of time. Virgin soil is abbreviated "v.s."

Mesopotamia.—We may only infer that the Samarra culture started in Mesopotamia at about the time of the beginning of Bakun B II (p. 36). Nor is there direct evidence to determine the end of the Samarra culture relative to Iranian cultures, though it must have fallen sometime during the Chashmah Ali period. The Halaf culture began during the same period, for in the Chashmah Ali culture there are signs of contact with both the Samarra (p. 35) and the Halaf (p. 33) culture. The Ubaid period (pp. 36–39) should not have started earlier than the time of the gaps between Siyalk II and III and Bakun B II and A and the time of the end of Giyan V B, or later than the first phases of Siyalk III and Bakun A and the lowest part of Giyan V C. The beginning of the Uruk period (p. 44) should not have preceded the end of Susa I and was most probably not later than Susa B 1. The Jamdat Nasr period was contemporaneous with Susa C (p. 44), Siyalk IV (p. 54), and at least part of Hissar II B (p. 51). The Early Dynastic period began probably at the same time as Hissar III A, though it might have overlapped the end of Hissar II (p. 51). It was contemporaneous with Susa D 1 and perhaps all of D 2 (pp. 45 f.). The Akkadian period began at least as early as the latter part of Hissar III C (p. 52) and possibly during the latter part of Susa D 2 (p. 45).

Anau.—Level I A appears to be not earlier than Siyalk II (p. 5), though at what time during Siyalk II it may have begun we are unable to say. The end of Anau I B was apparently not previous to Hissar I B (p. 12) and is presumed to have been not much later than the first part of Hissar II A (p. 12). The beginning of Anau III is assumed to have come at the end of Hissar II or the beginning of Hissar III; its end was not before Hissar III C (p. 59).

Shah Tepe.—Level III began to accumulate not later than Hissar I C (n. 101), while the tombs of this level were dug not earlier than Hissar II A (p. 54). Shah Tepe IIb was not earlier than Hissar III A; indeed in this level at Shah Tepe we cannot yet recognize a transitional stratum analogous to Hissar III A (p. 55). Level IIa began about the time of Hissar III C (p. 55) and is inferred to have lasted about the same length of time.

Turang Tepe.—The earliest tombs were contemporary with Hissar II B, the later in the main with Hissar III B, though a few may have belonged to the time of Hissar III C (p. 55).

Chashmah Ali.—The lower part of Chashmah Ali I A may have been slightly earlier than Siyalk I (p. 1), with which it was mainly contemporaneous. The upper part of level I A corresponded to Siyalk II (p. 3) but may have covered the gap between Siyalk II and III as well. Level I B began at the time of Siyalk III 1 and ended not earlier than Siyalk III 4 or presumably not later than Siyalk III 5 (p. 7) and the end of Hissar I B.

Hissar.—Level I may be inferred to have begun not earlier than Siyalk III 1 and the beginning of Chashmah Ali I B or not later than Siyalk III 2 (p. 7). Hissar I B may have begun as early as Siyalk III 3 and was certainly contemporaneous with Siyalk III 4 (p. 7). The beginning of Hissar I C may have been as early as Siyalk III 5 or as late as Siyalk III 6 (p. 9). The beginning of Hissar II A should not have preceded the end of Siyalk III 6 or have come later than the end of Siyalk III 7b (p. 11). No precise point may be given for the start of Hissar II B, but its end was not later than Siyalk IV (p. 51). About the end of the latter stratum Hissar III A commenced (p. 51) and was probably contemporaneous with Susa D 1 (see Fig. 16). Hissar III B probably overlapped Giyan IV and Susa D 2, while Hissar III C was certainly in part coexistent with those two levels (see Fig. 16).

Siyalk.—The correlations of Siyalk I–III will be found in the comments on the other sites. Siyalk IV was contemporaneous with Susa C but whether with all or only part is unknown.

Giyan.—We can say no more than that Giyan V A began sometime during Siyalk II, as did also Giyan V B (pp. 13 f.). Giyan V C may well have commenced at the inception of the Ubaid period (p. 37 and Fig. 13, notes, particularly Nos. 142–44) or not later than Siyalk III 3 (p. 14) and the first phases of Bakun A (cf. Fig. 10:72). It ended during the latter phases of Siyalk III (p. 17), during or after the end of Hissar I C (p. 18), and not earlier than the termination of Susa I (p. 22). The end of Giyan V D is inferred to have come early in the time of Hissar II, the gap between Siyalk III and IV, and Susa B. We do not know how early, in relation to Susa D, Giyan IV may have commenced, but this was certainly not later than Susa D 2 (p. 48). The end of Giyan IV is fixed with some assurance to just before or in the Akkadian period (p. 48).

Susa.—Susa I is inferred to have begun at about the start of the Ubaid period (n. 52). It is unlikely to have terminated earlier than Siyalk III 6 (p. 22), the middle of Giyan V C (p. 22), and Bakun A V (p. 26) or later than the end of Giyan V C (p. 22) and the start of the Uruk period (pp. 44 f.). Susa C, as defined, is equated with the Jamdat Nasr period (p. 44). Susa D 1 by definition begins with Early Dynastic I (n. 61). The end of Susa D may have fallen at the end of Early Dynastic III or have overlapped part of the Akkadian period (p. 45).

Bakun.—Level B I is only known to have been earlier than B II (p. 23) and may have come sometime during Siyalk I. Bakun B II, with some probability, is to be considered as having been contemporaneous with Giyan V A (n. 30), Siyalk II (p. 23), and the Samarra culture (p. 35), but its beginning and end cannot be located precisely. Bakun A I can be assigned no relative point, though it is unlikely to have been later than the early phases of Siyalk III (pp. 24 f.). The end of Bakun A IV probably was not earlier than Siyalk III 4 or later than Siyalk III 5 (p. 25) or the end of Susa I (p. 26). Bakun A V commenced presumably but a short time after A IV. It may have been contemporaneous with the end of Susa I and doubtless existed into the time of Susa B 1.

Thus, though uncertainties do exist as to the relative positions of the ends and beginnings of some periods, these are being narrowed down and with the available material we are already able to approach a fairly clear picture of cultural and temporal relationships in Iran.

TABLE II: THE COMPARATIVE STRATIGRAPHY OF EARLY IRAN AND ITS MESOPOTAMIAN RELATIONSHIPS

Mesopotamia	Anau	Shah Tepe	Turang Tepe	Chashmah Ali	Tepe Hissar	Tepe Siyalk	Tepe Giyan	Susa	Tall-i-Bakun
Akkadian	?	II <i>a</i>	?		III <i>C</i>		?	?	
Early Dynastic	III	II <i>b</i>	106 m.		III <i>B</i>		IV	D 2	
					III <i>A</i>			D 1	
Jamdat Nasr	v.s. Gap ?		97 m.		II <i>B</i>	IV	Gap	C	
Uruk	II	III	?					B 3	
						Gap		B 2	
Ubaid		v.s.			II <i>A</i>		V <i>D</i>	B 1	?
	?	?			?	III 7b	?	?	?
	IB				IC	7			AV
						6			
						5	V <i>C</i>	I	
Halaf				IB	IB	4			A IV
						3			
					IA v.s.	2		v.s.	AI v.s.
						III 1 v.s.		?	?
Samarra	IA v.s.			Upper IA		Gap	V <i>B</i>	Gap	Gap
						II	V <i>A</i> v.s.		B II
				Lower IA v.s.		I			BI v.s.
						v.s.			?

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