

American Museum Novitates

PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY
CENTRAL PARK WEST AT 79TH STREET, NEW YORK 24, N.Y.

NUMBER 2055

NOVEMBER 17, 1961

The Harappan Civilization—New Evidence and More Theory

BY WALTER A. FAIRSERVIS, JR.

The Harappan civilization unquestionably ranks as one of the great civilizations of the early ancient world. Its importance stems largely from the fact that it represents the first of the successful achievements of civilization beyond the bounds of the lands that constitute the Fertile Crescent. Clearly, its cultural contributions not only to India but to world civilization were far from inconsequential. Its significance and uniqueness have been lucidly described in recent years by a group of British archeologists, i.e., D. H. Gordon, Stuart Piggott, V. G. Childe, and Sir Mortimer Wheeler. The last has been, in fact, not only a pioneer in reëvaluating the old data but in presenting new evidence bearing upon the origin, character, and collapse of the Indus River civilization. His recent detailed study (1953) and chapter 5 of his 1959 work, an essay, are invaluable contributions.

After reading Wheeler (1959), one concludes that interpretations of the Indus civilization have changed very little since Piggott's study published in 1950. More recent research has expanded its geographic dimension and qualified some of Piggott's conclusions, but, in general, one is impressed with the absence of any really significant addition to the body of information on the subject in the last decade. Scholars believe the Harappan civilization possesses the following features:

The Indus civilization began "explosively" as the result of successful colonization of the Indus Valley by Harappans who won out after centuries of "failure succeeding failure" by earlier "pioneers." Once established, the Indus people achieved the "lightning subjugation of the

large valley and adjacent coast." The civilization centered around two metropolitan centers, but stretched out from western Baluchistan to beyond Delhi (Alamgirpur) and from Punjab to the Narbada, forming the "most extensive civilization of the pre-classical world."

An authoritarian regime, with priestly attributes which compelled cultural uniformity, probably controlled the civilization. The implication is that the rulers controlled from dual capitals in which were situated "embattled" acropolises or citadels, centers of both ceremonial and secular functions. If this interpretation of the data is correct, then the Indus civilization exemplifies "the vastest political experiment before the advent of the Roman Empire."

Though there are outstanding differences there are also general affinities to early Mesopotamia whence the Indus people had received the "idea of civilization"; in some instances, perhaps more than an idea, for "as a scatter of Indus seals and other trifles in the Mesopotamian cities show, it traded with its neighbors of the Persian Gulf from the 800 miles of coast line which we must now allot to it."

The character of the culture is generally static, the result of a probable "complacency, even a self-satisfaction, which impeded further effort." As Piggott described it: "The secrecy of those blank brick walls, the unadorned architecture of even the citadel buildings, the monotonous regularity of the streets, the stifling weight of dead tradition all combine to make the Harappa civilization one of the least attractive phases of ancient Oriental history."

The Harappan civilization lasted perhaps one thousand years, varying in its content as little through time as through space. However, indications of decay in the late phases, especially in Sind, can be ascribed partly to man-caused deforestation which "checked the transpiration of moisture and reduced the rainfall." A more abundant rainfall and denser forests in the occupied area in earlier times are implicit. From the fauna, the quantity of fuel necessary for firing millions of bricks, the agricultural activity required to support the large cities, and the existence of drains, Piggott concluded that the climate of Sind was more moist when Mohenjo daro flourished than in modern times. Wheeler appears to concur in this conclusion. Thus "wearing out" of the landscape was a major factor that contributed to the eventual collapse of the civilization. The other major factor may well have been the militant forces from the west; among whom the Aryans are good candidates for the destroyers of Mohenjo daro.

Admitting that summaries like the preceding are unsatisfactory in that they may reduce a profound and scholarly treatise to bare bones,

I think that the abstract is a fair presentation of the current view held by colleagues and the general public as a result of the Wheeler-Piggott thesis. Certainly, it is repeatedly cited in American texts.

Objective re-analysis of the available evidence, in conjunction with new fragments derived from recent archeological investigation, indicates that there are possible alternative interpretations and, in fact, some disagreements that lead to a view of the Harappan civilization that differs from the one presently held. At this stage of our researches it seems worth while to present these alternatives in the hope that they will stimulate new investigations and suggest new ideas which will supplement and enhance the pioneer work of British scholarship. I question parts of the interpretation summarized above on several general grounds.

Climatic change in both Baluchistan and Sind is a vital subject, bearing as it does upon the environmental pressures on the cultures concerned. It is significant that only in those areas directly affected by the waters of the Indus River does the flora differ somewhat from that found in Baluchistan.¹ The delta of the Indus consists of mangrove marshes, while forested land composed of babul, tamarisk, kandi, sissu, and bahan occurs close to the banks of the river itself. However, these trees also occur in Baluch forest areas such as northern Las Bela, Kolwa, and Makran. In general the difference between Sind and Baluchistan is quantitative rather than qualitative.

Grasslands are, according to Pithawalla (1959), "now largely occupied by the area under irrigation and cultivation." One must note also the extensive, seasonally fluctuating marsh areas around Lake Manchhar. The critical fact about these forests is that they are riverine, that is, they depend upon the flood water of the river for their "sustenance and growth" (Pithawalla, 1959), not upon rainfall. Further, one must remember that the biotic region of which Sind is a part includes Punjab, Rajasthan as far as the Jumna, Cutch, and most of Gujarat; in other words, precisely that area in which the Harappan civilization flourished. Significantly, this region includes the bulk of the major grain-growing² areas of the Indian sub-continent (Spate, 1957, fig. 49).

The fauna associated with the Harappan civilization is, without exception, dependent on grassland and open forest country. In fact, in the case of the bear, tiger, and sambar deer, the open hills of steppe or scrub forest type, such as those of the Kohistan of Sind or the Bugti Hills,

¹ Note the North African affinities in the Imperial Gazetteer of India (1909, p. 179).

² Primarily wheat and millet as opposed to rice.

are probably perfectly suitable. The rhinoceros, on the other hand, as well as the elephant and the buffalo, prefers high grass. Naturalists tell me that had there been a more rainy climate in the past, we would expect to find intermittent pockets of survivals of the earlier ecology. Under those circumstances, the wild life involved would include the smaller mammals, such as shrews, moles, mice, and the like, as well as reptiles and amphibians. Such faunal pockets occur nowhere in the Indus Valley nor are pockets reported for the flora.

Unquestionably, man was the chief exterminator. The fact that the grasslands were the habitat of the big game and, coincidentally, the areas best suited for agriculture and the grazing of domesticated animals spelled the doom of the larger wild life. Spate (1957) points out that during the sixteenth and seventeenth centuries "the Moghul Emperor hunted wild elephants and buffaloes, bison, rhinoceros, lions, and tigers in the Ganges-Jumna doab." Most of these animals are now completely absent in that area as the result of man's actions.

Thus the evidence points to a similarity of climate from ancient to modern times, so that we can conclude that changes in the natural ecology were the result of man's activities.

But there is other evidence. In Baluchistan it is a remarkable but nevertheless definite fact that the bulk of the known pertinent prehistoric sites are located in close proximity to modern villages, indicating a similar dependence upon identical water and soil resources. In the Indus Valley there is clearly a similar situation, for the larger percentage of Harappan sites are in the midst or at the edge of modern cultivation, the exceptions being those of the Ghaggar River for which there is another explanation.

The three principal forest trees, the babul (*Acacia arabica*), the tamarisk (*Tamarix gallica* and *dioica*), and the kandi (*Prosopis spicigera*), as well as a group of minor trees, are the sources of local fuel today, just as they have been for centuries. It is of interest that in 1959 the new museum and rest house at Mohenjo daro were being constructed of brick made from local clays and fired harder than Harappan bricks by kandi wood fuel. This wood apparently grows abundantly and rapidly and produces a hot fire at a relatively low rate of fuel usage. Until we know more about Harappan kilns and the necessary amount of fuel for burning bricks of the hardness required by Harappans, it would appear to be inconclusive to use the quantity of bricks as a criterion for determining more extensive forests.

Similarly, drains, although their presence may be considered as a part of a ritual complex (Fairervis, 1958, p. 508; 1959, p. 308), must

also be viewed as essential to a sewage system. The latter is certainly a part of the Harappan contribution to the world. Again, we should note that many drain channels at Mohenjo daro are covered, which seems impractical if they were constructed primarily to carry off rainfall.

The need to fire brick in order to preserve structures built in moist environments possibly had its source in the necessity to resist flooding, apparently a continuous problem that was never really solved, as the mortar in any case was apparently soluble.

Lastly, I must consider the problem of the gobarbands or dams discovered by Stein and others in Baluchistan. In a forthcoming study of sites in Las Bela, I present evidence to prove that a dam discovered near an Amri site on the Upper Hab River was built to catch the meager annual run-off from the surrounding mountains and by storing it to render it available to normally arid silt tracts which the position of the site indicates were cultivated (fig. 1). The presence of bund agriculture on the daman in southwest Sind (Spate, 1957, fig. 459) and the use of an identical bund by Arabs, and earlier by the residents of a Harappan village on the edge of the Malir oasis, would indicate that these dams were constructed as a rather desperate attempt to store the available moisture.¹ Such an attempt recalls the measures of the Nabateans in the Negeb (Evenari and Koller, 1956).

We are urged by the evidence to these conclusions:

1. In all probability there has been no significant climatic change in the Indo-Iranian borderlands during the past 6000 or more years, a point that permits us to assess the ancient situation on ecological grounds familiar today.

2. There appears to have been ecological continuity between the Indus Valley and Baluchistan, the differences being a matter of biotic density brought about by a difference in quantity of moisture resources.

3. The Harappan civilization spread to the limits of the original ecological zone.

The second major basis of alternative theory can be simply stated as anthropology versus history. Braidwood (1957, p. 74) has pointed out certain basic differences in the orientation of some British and American archeologists. Such differences in orientation cannot help but affect interpretations, which is not to say that either one or the other is wrong or right, but that there is a clear difference in emphasis, and this in turn can cause a difference in interpreting the processes involved in the creation and sustaining of a civilization or culture.

¹ A study of the Malir sites will be published in a forthcoming report.

Thus in the historical approach we have dynamic processes instigated by individuals who establish, colonize, and rule. More frequently than not collapse occurs as the result of invasion, and the chronological charts are marked by "destruction" levels. This historical orientation, or emphasis upon event, directly affects one's views and even one's ex-

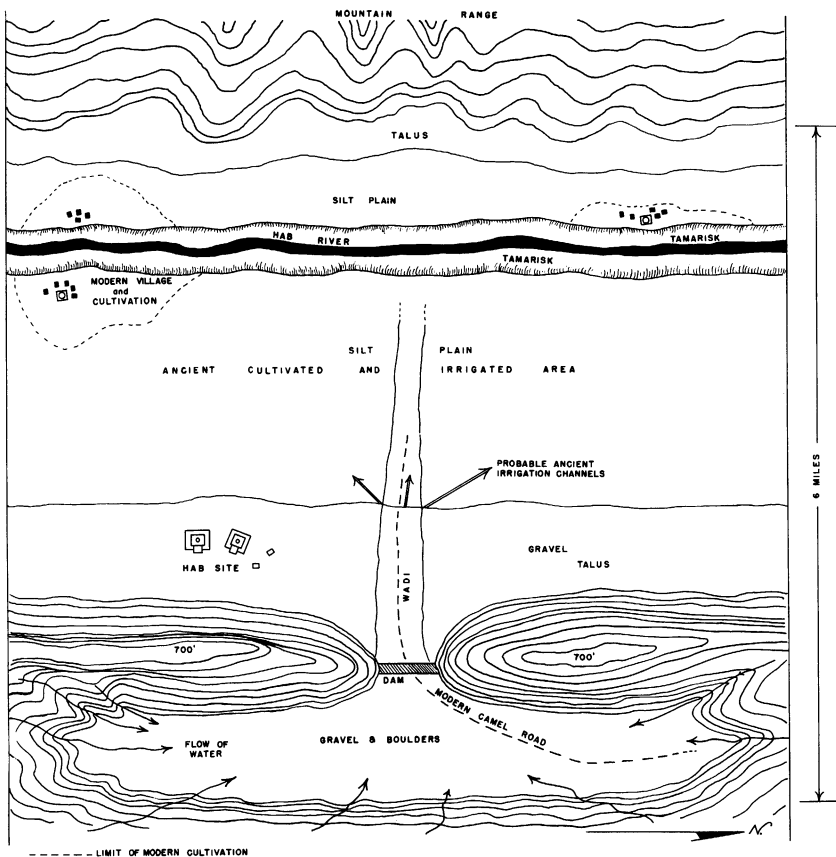


FIG. 1. Sketch map of site of prehistoric dam near Diwana on the upper Hab River.

cavation technique (Fairservis, 1956a, pp. 202–203). In contrast to this emphasis we take into consideration the anthropologist's awareness of culture as a dynamic phenomenon composed of traits continually changing through time and space. In other words, the anthropologist is aware of the evolutionary character of human cultures and factors

such as diffusion and acculturation which influence the rate and the quality of this evolution. The present discussion of the origin and character of the Harappan civilization provides a good illustration of these differences in emphasis. Basically, of course, these approaches are not at opposite poles, because archeological interpretation tends to use elements of each.

Both V. Gordon Childe and Stuart Piggott used the term "peasant" to qualify the numerous cultures of Baluchistan. This term attains meaning when contrasted with "urban" or "imperial," labels frequently used by these authorities for the Harappan civilization. In point of fact, as has been shown in another context, the bulk of the Baluch prehistoric cultures had already vanished by the time the Harappan of Sind was flourishing (Fairservis, 1956b). The data on the Baluch cultures indicate that the Harappan culture was merely the last and probably the most elaborate of a long series of cultural phases. In the Quetta Valley, for example, a continuing sequence based on archeological excavations revealed traces of phases of development beginning with villages dependent on limited agriculture and sheep and goat husbandry and expanding to an elaborate ceremonial complex, complete with monumental buildings, "fertility" figures, and the probable use of ablution and sacrifice as a part of ritual (Fairservis, 1958, 1959; Alcock, *in* Fairservis, 1956a). It is clear that this final phase in the Quetta Valley has its equivalents in Loralai, Zhob, Kalat, and Las Bela.¹ In the last-named area the number of sites is so great and they are so closely adjacent to one another as to approach urbanization.

The cultural influences discernible in this sequence indicate that its earlier phases are Iranian. Later, however, an apparent "Indianization" took place, formalizing the specific character of the later Baluch cultures and setting them off from those of the remainder of the Iranian plateau. This Indianization includes such obvious features as figurine decor, elements of ceramic design, the construction of drains, and very probably the dominance of the raising of cattle (*Bos indicus*) over that of other animals. The probability is that this Indianization took place because of the rise of equivalent but more Indianized cultures in the neighboring Indus Valley with which the Baluch cultures were in some contact.

It is now apparently an assured and accepted fact that the Near East

¹ The Las Bela material will appear in a forthcoming publication, which will report on the findings of the field season of 1959-1960 in Las Bela District in which the writer was a participant.

was the nuclear center for the beginnings of agriculture, domestication, and metallurgy, and that farming communities developed outside this nuclear center as a result either of direct migration or stimulus diffusion or both. The spread of village cultures eastward across the Iranian plateau is amply indicated by the numerous sites found there wherever patches of soil and trickles of water permitted a modicum of cultivation. In Baluchistan one finds places such as Kolwa, Welpat tahsil in Las Bela, the Quetta Valley, and the area around Duki in Loralai, where there are large concentrations of sites, presumably because the quantity of good soil and water exceeds that found elsewhere in Baluchistan. In most cases it appears that this concentration of sites began earlier than the Harappan of Sind. Again in western Sind, especially around Lake Manchhar, Majumdar (1934) has demonstrated that there existed a flourishing pre-Harappan settlement which he labeled Amri. The Amri cultures are found in Baluchistan and also have strong ties in the Nal, Kechi Beg, and Sur Jangal phases and can be regarded as much a part of Baluch cultural history as that of Sind. This point is important for it indicates that we have confused the problem by drawing a rather rigid boundary between Baluchistan and Sind, when from both the environmental and cultural point of view such a boundary is non-existent. In effect, we can say that the only important difference between the flourishing areas mentioned above and Sind is a quantitative one; there are more arable or cultivable soil and water in the Indus Valley than anywhere in Baluchistan or on the Iranian plateau. It is possible, then, that Sind must have offered a lodestone to early farmers, not a barrier. The flow of men and their cultures from west to east would naturally have moved into the Indus Valley with few obstacles. I must confess that I cannot agree with the inference behind Wheeler's description of that valley as coincidentally a place favorable to man and also so "menacing" that early man hesitated to occupy it. Certainly, compared to the situation in Baluchistan, the Indus Valley, with its ampler water supply and game, and rich plant growth, was more attractive. Whatever the problems of salinity, flood, and fever, these would appear to be minor as compared to the ever-present possibility of moisture failure so prevalent in Baluchistan. It seems to me that from the very beginning of agriculture in the Indo-Iranian borderlands people must have found Sind attractive. Accordingly, I suspect that, as our researches are intensified in Sind, we will encounter developmental phases equivalent to those found in Baluchistan. Already hints of such a development are offered by the discoveries at Kot Diji, and the demonstration of at least two phases of the Amri "culture." Re-

cent excavations at Utnoor in Andhra Pradesh have revealed a cattle-using settlement, surrounded by stockades and possessing limited pottery. This settlement is dated to about 2000 B.C. or contemporary with Early Harappan on a conservative chronology (Ghosh, 1959, p. 11). If this date is established, this discovery may indicate a considerable precedent of cultural diffusion across the Indus Valley down into the Deccan prior to the rise of the Harappan civilization and so help to confirm the idea of a long pre-Harappan occupation in the valley.

The abundant finds of artifacts of "Mesolithic" type in various places in northern and western India suggest that peoples with hunting cultures lived in and about the river valleys where game was abundant. Again, as has been suggested in another context, we can assume that a variety of "forest" hunting cultures existed in the Indus Valley as elsewhere (Fairservis, 1952). It is of course impossible to judge what contributions such forest cultures may have made to the agriculturists, but we might at least assume the beginning of Indianization. The earliest agriculturists there may have established characteristic Indian features.

It appears that the subcontinent was never really subjugated to a cultural vacuum. This fact, as far as I can see now, is the basic reason why new cultural elements were retarded in their movement from the Iranian plateau. A rather dramatic example of this retarding phenomenon appears on the Upper Hab River Valley where, as I indicate above, a site of late Amri time is found close to the dam that supplied the moisture for its crops. Here the high alluvial silt plain slopes towards the center of the valley. The modern villagers cultivate close to the banks of the Hab River which flows between high bluffs. The bluffs retard the use of the river water to irrigate the silt plain, compelling the local villagers to till only the small areas close to the banks where there is sufficient water to supply their needs. In contrast, the Amri site is situated at the edge of the arid silt plain close to the valley wall (fig. 1). Examination of that wall reveals a gap in the front range through which torrents pour following rainfall. Behind the front range is an extensive catch basin which concentrates the water. The major outlet is through the break in the front range. The Amri people sealed the gap with a stone block dam 25 feet thick, thereby forming a reservoir (fig. 2). Apparently the impounded water was released to irrigation channels that ran across the silt plain, thus permitting its cultivation. In an area that probably never had more than 10 to 12 inches of rainfall annually, the control of the water was vital and undeniably required the centralized energies of the entire community. It is of interest that the surface remains of the site, primarily stone, consist of thick walls, paved



FIG. 2. Dam on upper Hab River, discernible in middle ground of photograph.

floors, stairs, and what appear to be drains. The site may represent a control center for the irrigation system and as such may have had particular significance. Small villages were probably spread out over the plain, as the site itself appears too small to have contained the population necessary to build and maintain the dam and to cultivate the large irrigated area. The effort involved must have been very great. The site is only about 35 miles from Lake Manchhar across easily traversable passes. Certainly it could not have been an environmental barrier that forced this population concentration in an arid valley. I submit that the Indus Valley was at that time already settled by peoples who were just as knowledgeable as those of Baluchistan. However, their presence in the Indus area slowed population movements into Sind which, in turn, caused population concentrations in eastern Baluchistan to the limit of its productivity. The numerous Amri sites found in western Sind may well explain the cultural barrier in Sind in pre-Harappan times.¹

At Kot Diji the fortification found below the Harappan levels indicates a centralization comparable, perhaps, to that of the Amri culture. Our evidence then suggests not only a considerable occupation of the Indus Valley in pre-Harappan times, but one that was approaching if not achieving urbanity. A number of typically Harappan features, including figurines, bangles, and decorative elements, have been found in pre-Harappan context at Kot Diji. Most of the designs common to those of the Harappan painted wares occur within the Amri culture just as they do in Baluchistan. In fact, a comparison of the drawing techniques suggests that the Harappan pottery with its over-all patterning and generally irregular slap-dash designs had already arrived at a declining stage of pottery painting. The thickness of Harappan wares as compared to that of Amri wares should also be noted.

This pre-Harappan evidence in Sind and our awareness of the increasing cultural complexities in pre-Harappan Baluchistan, where many prototypes of Harappan traits occur, suggest that the Harappan civilization is but the latest phase in a long development (Childe, 1953, pp. 183 ff.)² It follows, then, that the term "explosive evolution," as used by Wheeler, is misleading. It would appear that the Harappan culture is the most Indianized, but I think that its essential roots are unquestionably Iranian. We can, in fact, envision two parallel, mutu-

¹ The problem of the correlation of Kot Dijian levels is not yet solved, but F. A. Khan has already hinted at similarities to pre-defense material at Harappa. There also appear to be ties to at least the last phase of the Amri where vessels with broad band decoration are common.

² The pre-defense level at Harappa is also probably indicative of this development.

ally influential developments occurring in the Indus Valley and in Baluchistan. The Indus Valley cultures became more and more Indianized, and this Indianization diffused to Baluchistan, both areas achieving greater cultural complexity as a result of these processes. Certainly the Indus Valley with its soil and water resources must have encouraged and supported denser populations. There, too, the native fauna and flora and the still hypothetical surviving forest cultures aided in the Indianization which is already apparent, for example, in pre-Harappan Kot Diji. The Harappan civilization as the last phase is the most complex of the Indianized cultures in the Indus Valley.

I have pointed out that the most elaborate cultural phase in Baluchistan, which in another context I have labeled "Zhob Cult," is among the latest in that region (Fairservis, 1959, pp. 308, 330). In northern Baluchistan this phase is non-Harappan, but in its antecedents and some of its traits it is related to the Indus Valley. However, during Harappan times contacts appear to have accelerated, and the remarkable elaboration represented by the late Kulli culture and perhaps the late Periano Ghundai material of the Zhob Valley stem directly from these liaisons.

Archeologists and historians seem not to doubt that the Harappan culture is a civilization. Though the term has been bandied about to excess, a definition has now attained general acceptance (Braidwood, 1952; Frankfort, 1951; Kroeber, 1957; writings of Childe). But it seems clear that we sometimes still tread on soft ground when we look for the origins and define the character of a civilization like that of the Indus Valley. About 1500 miles of Iranian plateau separate Mesopotamia from the Indus Valley. As Wheeler has pointed out, the "idea of civilization" crossed that region from west to east. Thus, as presently defined, we have "civilization" in the two widely separated areas. But one might ask why civilization did not occur between? Certainly there are sizable fertile areas in Baluchistan where men could and did concentrate in some magnitude. In Iran and Afghanistan there are several good sites suitable for the development of civilized communities, most of which are nearer to Mesopotamia.¹ On this basis it would seem clear that soil and water resources provide no greater impetus for the development of civilization than proximity.

Excavation in numerous sites of the Iranian plateau has revealed either the traits or their prototypes that make up civilization. We have

¹ For example, the Caspian littoral, the Middle Hari Rud, the Oxus Basin, and the Kandahar area.

evidence representing the work of specialists such as metal workers and potters, for monumental building (for example, the Amri dam), for wheeled vehicles (example, Namazga Tepe III), seal symbols, and potters' marks that suggest mutually intelligible symbolization (example, Quetta ware). Important, too, are the indications of extensive cultural contact; for example, pottery types such as Faiz Mohammad Gray ware and Quetta Wet ware are found all the way from Fort Sandeman to southern Kalat and Sind.¹ We are also increasingly aware of large irrigation projects and sizable settlements for which the term "town" might well be used.

In view of this evidence, it would appear that the seeds of civilization were planted all over the Iranian plateau as the result of the influence of the Mesopotamian area. I am not at all certain that civilization of a kind did not develop in Early Iran; however, there appears to be no doubt that a retarding factor operated to hinder its full flowering. The potters' marks generally remained potters' marks and the towns remained towns. The critical point is that civilization did develop in the Indus Valley not because that valley was in a unique position to receive Mesopotamian influences, nor because it uniquely possessed good soil and abundant water, for such resources occur also on the plateau. Actually, the Indus Valley is more remote than most of Iran from Mesopotamian influences. In other words, both the Iranian plateau and the Indus Valley stood an equal chance of developing civilization when the traits of civilization were diffusing. But something operated to select one area rather than the other.

It is obvious when we contemplate civilizations of the world that they are of different kinds. The emphases differ: in Egypt, upon local and state religion; in Crete, upon the mercantile; in Sumer, upon urban agriculture; and in Shang China, upon its warrior state. They are unquestionably unique, though they share much in common. The fact that their uniqueness can be so readily defined indicates that the basic traits of civilization centered around different factors. Thus, as Childe has pointed out, international trade and geographic position created Cretan civilization. Without that trade it is highly unlikely that mere stimulus or idea diffusion could have created a Cretan civilization in spite of the favorable position of the island in the Mediterranean. Similarly, the Sumerian development, created out of a need for intense centralization to control increasing social complexities, as well as water

¹ Note also the widespread distribution of similar figurine form, brick size, and pottery designs.

and soil resources in an arid area, died when that centralization failed to produce the unity necessary to survive in an international world.

The same causal factors that create a civilization also serve to identify it. Because anthropologists generally define a civilization as a complex culture, and use the word "intensify" to signify the heightening of cultural activity so as to produce this complexity, we might call the motivating factor the "intensifier." Accordingly, we might say that all civilizations have an intensifying factor that motivates them. In addition we could say that all cultures are influenced by a similar factor, but in the case of a civilization the intensifying factor attains a greater magnitude. It necessarily follows, then, that favorable geographic position is a prerequisite, but that the favorability of the position depends on the intensifying factor. Thus, in Iran, if trade had reached the Cretan magnitude, it is conceivable that civilization would have arisen there much earlier than it did because Iran was in a favorable geographic position.

The identification of the intensifying factor (Frankfort, 1951, p. 16)¹ that brought about the gathering of civilizing traits that produced the Indus civilization is thus a critical objective of our present researches. If we consider trade as the intensifying factor, we are then justified in comparing the Harappan civilization with the Cretan. We find that the Cretan civilization can be described as "dynamic, changing, and demonstrative of variety in its arts and crafts"—a summary that certainly does not fit our present knowledge of the Harappan. Further, serious doubt can be cast on any Harappan dependence on extensive foreign trade, because virtually all the raw materials used are found locally or at least in close proximity. The celebrated lapis mines of Badakshan, for instance, scarcely merit consideration in view of the poor quality and scattered quantity of lapis found at Mohenjo daro, as Marshall (1931) has observed.²

If we speak of an empire, as has been indicated, we are hard put to determine the kind of empire we really mean. Childe (1953, pp. 173–174) was bothered by this and could find no true parallel in the West. Obviously, we cannot mean a militant type on the order of the Achaemenid, Assyrian, or Aztec empires, because the simplicity of weapons,

¹ Frankfort calls the character of a civilization its "form," described as "a certain consistency in orientation, a certain cultural style." This "form" might be regarded as a passive definition of the intensifying factor which I regard as an active ingredient rather than the "shape" apparently implicit in Frankfort's definition.

² The seal evidence from Mesopotamia and possibly Bahrein is not demonstrative of extensive trade but only of occasional contact, as far as I can see—a not unexpected phenomenon in view of the accessibility of each area.

the lack of war machinery, and the absence of the usual oriental display of victories are very marked in the Indus Valley culture. Fortifications are attested, but some are earlier than the Harappan (Tharro Hill, Kot Diji), and some, such as those of Harappa and Mohenjo daro, are equally efficacious for defense against flood as against invasion, the former more likely than the latter in view of the site situation.

Political control does indeed require power in the hands of an authoritarian regime, and the use of citadels is almost inevitable. Here we can make comparisons with the urbanized agricultural civilization of Sumer, where political control was the natural result of the centralization of authority in order to make most efficient the control of irrigation and land. What qualities are involved here? First, we note that the city was a center in the cultivated area. The Sumerian farmer generally worked the fields by day and returned to the city environs by night. To a considerable degree the city control of the land depended upon proximity, i. e., the distance conveniently traveled by the city farmers to reach the outlying fields from the city center. Thus in a limited cultivable zone we have a multiplicity of cities and equivalent states. Interurban strife was commonplace, an inducement to centralization. Though religion, language, writing, and technology were generally similar, there was still a considerable variation in crafts, worship emphasis, and external contacts. Battles to gain dominance were accelerated by the struggle for resources and became international as the need for raw materials became acute. Sumerian expeditions to Iran, Arabia, and the Persian Gulf islands are well attested. We can assume, then, that the centralization of Sumerians, initially perhaps the result of agricultural need, was intensified because of military and industrial demand, until they lost control of their environment and thus collapsed. Particularly in the later phases are we aware of dynamic progress which ranges from the improvement of writing and the formulation of laws to the improvement of metallurgy and the creation of exchange codes.

What a contrast meets our eye when we view the Harappan civilization in the light of Sumer (fig. 4)! Most striking is the fact that in contrast to a multiplicity of urban sites we have a majority of village sites and only two, perhaps four, settlements large enough to be labeled cities.¹ If one draws a 30-mile circle with Mohenjo daro at its center, one finds such sites as Lohumjo daro, Kot Diji, and Jhukar encompassed. Further, in wandering north or south from the "citadel" of Mohenjo

¹ Mohenjo daro, Harappa, and perhaps Chanhudaro and Judeirjo daro.

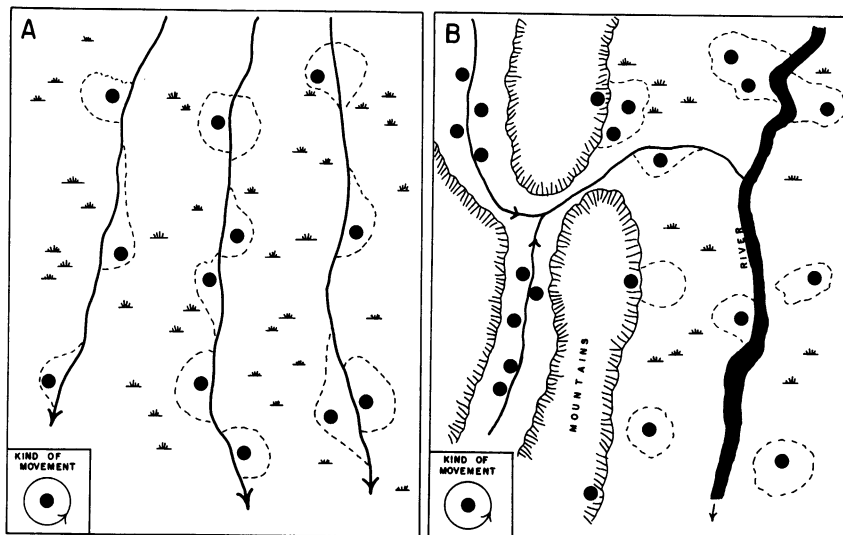


FIG. 3. Diagrammatic comparison of settlement patterns in Sumer and the Indus Valley. A. Settlement in pre-urbanized Sumer. B. Settlement in pre-urbanized Indus Valley. Dotted lines indicate limit of cultivation; local movement centered around village and fields, i.e., settlement patterns nearly identical.

daró, one encounters any number of detached sites in each direction. If we consider the number of Harappan sites already discovered by Majumdar north of Lake Manchhar on his last expedition, I think we can have little doubt that many others occur along the western Nara branch of the Indus. Thus Mohenjodaro lies at the heart of a cluster of smaller settlements, and this cluster appears to become denser as one moves to the center. I suspect that this means that the Indus farmers were villagers through whose labors the urban centers were nourished. It may also indicate that there were probably no large canal systems or other monumental engineering works that required strong central control. Quite the contrary, it would appear that the flood waters of the Indus and the broad alluvium of the valley permitted widespread easy settlement requiring only limited irrigation and did not provide the impetus to centralization any more than did warfare (Adams, 1960).¹

¹ Adams deals in some detail with the problem of urbanization. Storage is regarded as a significant factor by Adams. It may well have been so in the Indus Valley as there is evidence for warehouses and large jars, but storage can be localized in villages too. The importance of excavation in Harappan village sites is further emphasized.

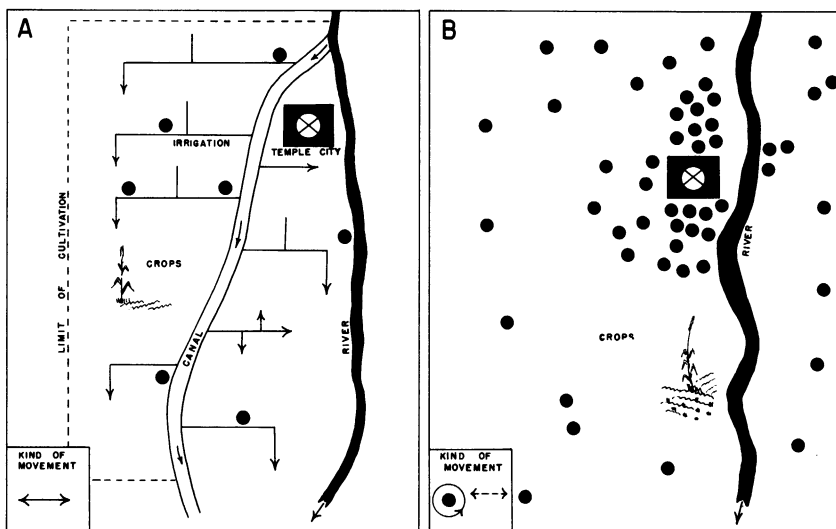


FIG. 4. Diagrammatic comparison of settlement patterns in Sumer and the Indus Valley. A. Urbanized Sumer. Population movement between fields and city. B. Urbanized Indus Valley. Principal population movement centered about village and fields; occasional movement to urban center.

In fact, as agronomists have discovered during the past several decades, the problem of Sind is not lack of water but too much of it. Salinity and flood are commonplace and can occur anywhere between the eastern and western Nara branches of the Indus. Thus the problem is not to bring water to the fields but to take it away, an engineering task that almost exceeds the skills of the twentieth century, and one certainly not solved by the Harappans. Irrigation apparently was not a true centralizing factor as it was in Mesopotamia. Accordingly, we can assume that the life of the Indus farmers centered on the village and not the town or city and, under such conditions, the dispersal of fields was at a maximum (figs. 3, 4).

This assumption is critical for it places the majority of the population at a distance from the known urban centers. It renders the spread of new ideas more difficult and the rate of progress considerably slower, primarily because human interaction is given limited scope. Further, if the Indus River region were not on the highroad between east and west, as its location on the far side of the Iranian plateau indicates, alien ideas would only filter in and be further filtered by a decentralized situation. I believe these factors account for a considerable part of the seemingly

static quality of the Harappan civilization.

At this point in our understanding, we find that villages of the Indus Valley differ in no way in essential features from those of the Iranian plateau. However, the intensifying factor that created civilization forced some portion of village settlement to urbanization. Here again we search for comparative material. Our search requires a comparable civilization possessing a generally static aspect in the arts, crafts, writing, and technology, with a basic village economy. Unquestionably, we have a good parallel in Egypt, especially in the Old Kingdom, but, as Piggott (1950, pp. 140–141) has pointed out, there are equally good parallels in pre-Columbian Mesoamerica. In Egypt religion appears to have been the intensifying factor. Art, writing, architecture, and even social form (at least in Egypt) were religion-oriented. As Childe (1950, pp. 95 ff.) acknowledged, the control of arts and crafts was of such strength that they remained static through centuries. Whereas in Egypt a certain degree of state control contributed to this static quality, the religious forces were dominant. The resistance of ancient Egyptians to change, in part the result of isolation, has been noted by many (for example, Wilson, 1946, pp. 31 ff.). Similarly, the general uniformity and considerable longevity of Maya style might be accredited to a combination of isolation and religion orientation. Hence, the basic settlement pattern in the Maya area appears to have been one of scattered dwelling units radiating in diminishing number from a ceremonial center (Bullard, 1960, pp. 355 ff.).

In view of this evidence, it appears that religion was the intensifying factor that created and gave form to the Harappan civilization. I submit that Mohenjo daro was almost purely a ceremonial center and that its functional intent was similar to the centers of the Old Kingdom Egyptians and the Mayans. Consequently, I think there are grave doubts that trade had much influence on its location or its upkeep. I suspect that the political or military orientation involved in the term “empire” is unwarranted by the present evidence.

The character of Harappan religion is fundamental to this thesis. We are fortunate in possessing a body of useful facts in this regard: (1) the occurrence of female and bull figurines in all Harappan sites and in a large percentage of sites in Baluchistan; (2) the construction of large buildings at prominent points and their association with drains, baths, cisterns, storage areas, and the like; and (3) the formality in appearance of the seals as a whole and the character of the seal writing, apparently ritualistic in content.

These three elements are not individually conclusive. Each might be otherwise interpreted, for example as: (1) toys; (2) secular structures;

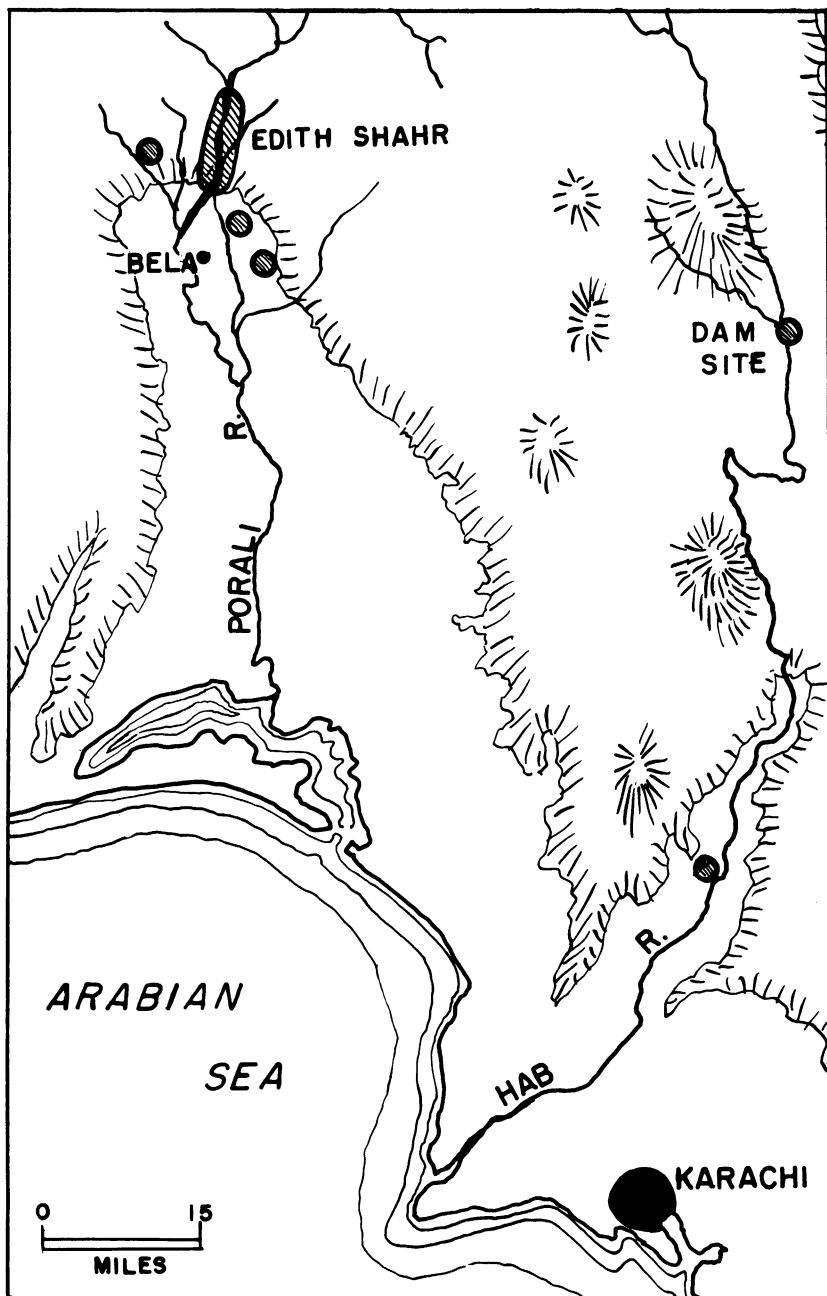


FIG. 5. Map of sites investigated by the American Museum of Natural History expedition, 1959-1960.



FIG. 6. Air view of Edith Shahr Site, southernmost of the Complex A settlement, Las Bela.

(3) ownership stamps, but as a whole their religious character seems manifest. Some hint of the ritual nature of the Indo-Iranian borderland religion was revealed by our excavations in the Quetta Valley in 1950–1951. Leslie Alcock unearthed a portion of a large platform situated on the top of the mound of Damb Sadaat (Mian Ghundai). Stone drains were located in the midst of this mud-brick structure, and there is good evidence for the existence of buildings on top (Alcock, *in* Fairervis, 1956a, pp. 214–216). There is also some evidence for a massive outer wall which may have enclosed the central structure. Associated with this complex are the well-known Zhob mother-goddess and bull figurines, some of the latter painted with ovoid markings between the horns



FIG. 7. Air view of sites of Complex A and Complex B cultures located in proximity. Those of Complex B occur in the foreground; Complex A Site indicated by arrow.

(Fairservis, 1956a, fig. 18). Bovines with painted bodies and horns also occur. A small stone cache in one corner of the platform at the foundation level contained a detached human skull.

Apparently this Quetta material, representing the last major prehistoric phase in the Valley, is of a religious character. On the basis of this evidence we can readily envision ritual bathing, human and animal sacrifice, and the intentional placing of ceremonial structures at the highest point in the village.

There is evidence for the widespread existence of this religious complex, which I have labeled the "Zhob cult," in Loralai, the Fort Sande-



FIG. 8. Pottery and figurines of Complex A, Las Bela.

man area, and in southern Afghanistan (Fairservis, 1959, pp. 308, 330; 1958, p. 510; and 1952, p. 14). Contemporary sites in southern Baluchistan reveal that the principal Kulli culture occupations were the most recent. Bull figurines and goddess figurines are found at the type site and at Mehi on the upper slopes of the sites. At Kulli, at the top of the site, there is evidence for a large building. Kulli figures are found in rooms of this building.

In the course of my recent field trip to Las Bela district, the discovery of an enormous complex of ruins along the middle Porali Valley north of Bela town gives us further evidence (figs. 5, 6). Here the fertile plain, an area of well-cultivated farm land some 10 miles square, is located in the midst of the braided river area surrounding Bela town. This area diminishes until, about 10 miles north of Bela, it virtually fades out as the valley narrows. For about 8 miles north of this point the Porali flows south, out of the canyon country that marks the border of Kalat, between low gravel banks formed by old terraces and by talus from the surrounding hills. These terraces are arid, inhospitable to agriculture. However, on these gravel terraces on both sides of the river, from the border of Kalat to the beginning of the cultivated area, there occur a great many contiguous sites representing two complexes, both of which are generally found together (fig. 7). The earlier, Complex A, is clearly of late Kulli affiliation, and both the characteristic pottery and the figurines are found in some abundance (fig. 8). Notably the Complex A people took advantage of the readily available stone boulders found in the talus of the area and constructed formidable foundations for their buildings. Some of these walls now stand approximately 6 feet in height; the whole complex is in such a state of preservation that the building plan, settlement layout, streets, ramps, and doorways are clearly observable. Initial observation revealed a consistent plan: Large structures, on the bluffs overlooking the river, consisted of ascending stages receding as they rose in ziggurat fashion, and crowned at the top with platforms supporting brick buildings. These platforms were reached by ramps or steps. There are two good examples of drains let into the body or edge of a platform. Surrounding these high structures, some of which rose over 30 feet above the surrounding area, are complexes of structures with intervening lanes or streets, stone-paved floors and drains or cisterns located in these floors, apparently in small chambers. Beyond these structures groups of rectangular buildings, some over 70 feet long and compartmented, present a formal appearance, suggesting hierarchial living quarters or perhaps tombs (fig. 9).

Aside from the structural and artifactual parallels to those of the north-

ern cultural phases, this Las Bela Complex A culture presents one very important feature. The location of the complex north of the cultivated area and the concentration of specialized population, indicated by the 8-mile stretch of ruins, are a clear demonstration, it seems to me, of a ceremonial hierarchy supported by farmers. Actually, as Stein (1943) already had discovered, there are several contemporary village sites in the cultivated area. Thus the so-called "Zhob cult," which includes this Kulli material, can be summarized as being involved with probable fertility symbols in women and cattle, the building of large structures in prominent places, ritual bathing, and support by a farming populace.

From the typological view it would appear that the late Kulli culture, Damb Sadaat III, the pertinent levels of Loralai-Zhob, and Afghan sites are all about contemporaneous and range from slightly earlier than, to full contemporaneity with, the Harappan of Sind (Fairervis, 1956b, pp. 153-156). There is no question at Mohenjo daro that there are strong similarities to the Zhob cult. The elevation of formal buildings, drains in high places, and the presence of figurines in association are undoubtedly close parallels.

It is, however, the seals that furnish strong evidence for a formal religious cult and give us a further clue to its nature. Already well known are the "Sivaite" elements, including the multifaced god, the yoga position, the horned deities, the tree figure, and the "Lord of Beasts." Familiar, too, is the multiheaded creature with the bovine body.¹ But by far the commonest subject represented on the seals is a bull, with horns thrust forward and curving upward. This representation goes beyond merely suggesting the powerful bull of the Mediterranean area; it may as well depict the extinct aurochs. It is noteworthy that in the majority of examples in which this animal occurs, a flowing, heart-shaped design, upside down, is engraved upon the shoulder. Other incised areas include the snout, horns, and neck; these vary from example to example. I suspect that these represent the painting of sacred marks which play the same role as those upon the bull figurines of the Zhob cult. One also notes the repeated occurrence of a double stand, manger, or symbol in front of this animal which appears very rarely elsewhere.

In view of the common occurrence in historical and modern India of sacred cattle, branded or painted with sacred emblems, and on the basis of the foregoing, I do not think it unwarranted to assume that these are indeed sacred cattle dedicated to some religious entity symbolized by the objects before which the beast stands.

¹ Most of these seal subjects are depicted in Marshall (1931).



FIG. 9. Rectangular structures on the western side of the site of Edith Shahr, Complex A culture.

While much of this may be obvious, and certainly few have denied the religious aura of the Harappan civilization, it seems very clear that our present evidence so overwhelmingly supports the ceremonial side that it is difficult to find an equal place for other possibilities. In the bull represented on the seals, we are dealing with an animal that not only must

have been a principal factor of the religious scheme but a significant entity in the economy—perhaps the *raison d'être* for its sacrosanct character. It is worth quoting Robert Wallace who, as Professor of Agriculture and Husbandry at the University of Edinburgh, visited India in 1887 to study methods of improving the breed of Indian cattle. In the course of his work he arrived at a conclusion important to our present investigations:

“The first, and by far the greatest and most important object for which cattle are reared, is to provide the motive power required by the ryot to cultivate the soil, to raise water for irrigation and minor needs, when wells form the water supply, also to convey by cart, or more rarely by back-load or burden, his produce to market” (Wallace, 1888, p. 1).

Anthropologists and historians have long known the relation between cultural growth and the control of energy. Leslie White (1959) expresses it as: “Culture advances as the amount of energy harnessed per capita per year increases, or as the efficiency or economy of the means of controlling energy is increased, or both.”

Is it possible that the origin of the sacredness of cattle in India derives from the advantage cattle gave man in his battle for control of his environment? The prevalence of the dominance of goats and sheep over cattle in the early Iranian village cultures probably indicates the minimal use of cattle as a food animal. Cattle as draught animals made possible the cultivation of Iranian fields, limited though most of them were. But one wonders what kind of symbiosis between cultivation and cattle grazing was achieved. The more cultivation the less natural grass and the greater the need for fodder; accordingly either a human or bovine population increase affected the food margin of the other. One could not be abandoned for the other. Unlike sheep and goats, the grazing of which can and most frequently does take place outside the bounds of cultivation, cattle are generally dependent on exactly the same soil resources as man. In effect, man needs to increase his cattle to open more fields, but he cannot have those additional cattle without additional fields—a rural paradox of widespread significance.

It is clear that if cattle and man in symbiosis are major factors in the development of advanced village cultures, the environment sets bounds to that development. If increase in the amount of energy harnessed each year leads to the development of civilization (without extenuating factors), the bulk of the villages of Iran could not achieve that cultural level.

However, prehistoric man in the Indus Valley had almost limitless boundaries. The same grassy plains that supported the rhinoceros, ele-

phant, and buffalo were ideal for the breed of western Asiatic cattle that presumably first descended there. The spread of Iranian prehistoric cultures in the Indus Valley resulted from the situation in an almost limitless favorable ecology, at least compared with that of the plateau. Here cattle must have increased in great numbers, probably in part adapted by interbreeding with humped bovines indigenous to the region. The critical point is that man harnessed this waxing energy font and so increased his food resources. As population increased, and such increase must have been rapid, the demand for new pastures and fields was a motive for movement north and south. By Harappan times this movement was in full swing, primarily because the limits of the original Indus plains had been reached, and food production was, if anything, falling short of the needed quota.

The dependence on cattle for energy is thus tightly linked with the idea of increase, and thus to fertility. It does not seem difficult to envision an original sacred allusion to cattle among early agriculturists. The bull figurines of the plateau sites appear to suggest this relation. But the Indus Valley cattle may well have become a major feature of the religion as a direct outcome of their essential role in food production. The Zhob cult of Baluchistan is probably a direct reflection of the religious orientation of the Indus Valley. Cattle seem to have played an increasingly important role in Baluchistan. In Sur Jangal III, for instance, cattle almost completely replaced goats and sheep.

The picture of a religion-oriented civilization is not a really clear one. We can assume a numerous priesthood and a correspondingly large food contribution by villagers. We might assume that an essential rite of priesthood was purification and thus account for the baths and drains. Much has been written, and by many, on these matters and needs no repetition here. However, one point should be emphasized: that is, the effect of religion on secular culture traits. If we compare religion-oriented civilizations such as the classic Maya, the Egyptian, and the Harappan, the phenomenon of generally static trait style, in time and space, stands out as an important characteristic. This static quality appears to reflect a stable productive economy and a paucity of interaction with other cultures outside the culture. Change, therefore, is given little basis, as the status quo has favorable advantages.

This cultural characteristic gives us some understanding of both the time span of the Harappan civilization and the reason for its fall. Anyone who has visited Mohenjo daro will realize the precarious situation of the site, close to the banks of the Indus and continually in danger of flooding. It is doubtful that the depth of deposit here represents a great

span of time. Flood-caused destruction and rebuilding could have taken place in 25 years as well as in 250. In this regard, an examination of the Harappan levels at numerous village sites in Sind reveals a surprisingly narrow band of occupation as compared to earlier occupations. One thinks of sites such as Kot Diji, Dabar Kot, and Amri, as well as the group around Lake Manchhar. In any case, I suspect that the focus of the Harappan culture was in northern Sind, Kachhi, the Bugti Hills, and perhaps the Derajat, especially in view of the recent reports of large Harappan sites in these areas.¹ A degree of contemporaneity with the last phase of the Amri is, therefore, not out of the question. However, I am not convinced that the Harappan of Sind at least represents an occupation by that culture of anything close to the thousand-year span which is accepted at present. On the basis of the foregoing, I would expect that it was nearer 500 years. The static quality previously noted may represent a shorter cultural life, and the slight phases illustrating gradual shift in style and technique, which closer study is now revealing, emphasize that Harappan culture was undergoing an evolution. Earlier I pointed to the coincidence of distribution between the wheat-growing regions of India and the presently known Harappan sites. It has been generally accepted that the Harappan occupations at Harappa, Rupar, Alamgirpur, the Bahawalpur area, Lothal, and the Narbada represent late phases of the culture, though the details of these phases have yet to be clearly defined. At Mohenjo daro and at Chanhudaro there is clear evidence for progressive deterioration in the latest phases, as Sir Mortimer Wheeler has described. If we assume that Mohenjo daro is within the general area of the earliest Harappan cultures, it is obvious that that culture moved generally north (northeast, more accurately) and south from its place of origin and that, as deterioration occurred at the source, movement to the limits of the culture area took place. It is of great interest, though it is as yet not fully determined, that village sites in Sind, such as Kot Diji and Ghazi Shah, demonstrate the earlier but not the later phases of the Harappan. If confirmed, it would indicate that the latest phases of the Harappan in Sind existed primarily at the ceremonial centers and would accord with the assumption of the existence of a sacred center which gradually became obsolescent as populations moved away and/or support for the faith waned. The geographic extent of the Harappan civilization becomes less formidable then, if we consider that oc-

¹ This focus would be the epi-center which Subbarao (1958) has pointed out as a necessary identification for understanding the spread of the culture.

cupation of vast areas was not contemporary.

Wheeler has pointed out that the probable cause for the “collapse” of the civilization is the “wearing out of the landscape.” I would interpret such a collapse as occurring because the growing population of men and cattle spread to the limits of the feasible cultivated area so that the symbiotic balance was upset when no further expansion was possible, at least within the original areas of settlement. Unquestionably over-cultivation, over-grazing, salinity, and floods took their toll, but I doubt that tree-cutting for fuel had as significant a role in the change of conditions as Wheeler indicates. I can find no evidence that the kind of trees involved affects the rainfall by means of transpiration, particularly in a land where rainfall sources are outside the provincial limits. The removal of the grass cover for cultivation, the decrease in fertility of the soil due to over-use, and the fluctuations of salinity because of the shift of the riverine situation are far more serious matters, in that they affect the food production more than does the naturally sparse rainfall dictated by geography.

By the time these spreading movements reached their zenith, we can assume that the Harappan farmers almost invariably followed a specific pattern. This pattern seems to have included the placement of villages near a good source of moisture, the establishment of a ceremonial center once village settlement was large enough (usually involving the construction of a bund for protection against flooding), the laying out of dwellings on a rough grid plan, and the building of a structure or group of structures for ceremonial purposes. Of course, we may discover that such centers became rarer towards the extremes of the Harappan expansion, probably as the result of greater dispersion of settlements. In such cases it is likely that a ceremonial area was designated within each village—a speculation not unwarranted in view of the apparent maintenance at all sites of the more formal aspects of the Harappan, including the seals, figurines, and vessel forms, and possibly the evidence for such shrines in modern village India.

A point to consider in this regard is the possible motivation involved in elaborating religion, that is, the increased need for religion as population increased and the perils of famine thereby intensified. In more prosperous situations, as, for instance, at the time of the initial Harappan settlement of East Punjab and Gujarat, when famine and similar disasters were not an immediate threat, the religious needs were perhaps not so acute and a reason for large religious centers was minimized, i.e., the urge to centralization waned.

In other words, as the balance between men and nature becomes pre-

carious, religious activity intensifies. If this axiom is valid, then we have a rough gauge for estimating a stage in early civilization, i.e., the more temples, rituals, and similar paraphernalia, the more uncertain the economic situation. On this basis, the Harappan stage would represent the most economically precarious in the evolution of the food-producing cultures of the Indus Valley, a seeming contradiction to the stable economics indicated by its style character.

The word "collapse" is perhaps too dynamic a term for the end of the Harappan civilization. Perhaps "eclipse" is a better one. Wheeler, Subbarao, and others have pointed to the occurrence of Harappan elements in "post-Harappan cultures," including Jhukar; a considerable survival is indicated in Kathiawad. Subbarao, in a brilliant regional analysis, has pointed out the survival patterns in North Central India, his so-called proto-historic tri-junction (Subbarao, 1958, p. 101), suggesting "the possibility of a Harappan survival in the peripheral regions at the east, west, and south of the main Indus basin." All this indicates a shift of the cultural focus away from Sind and a long survival in the southern and peripheral areas. It does not explain certain occurrences. One is the failure of the Harappan farmers to move into the middle and lower Ganges and adjacent areas when they were readily accessible. In fact, nowhere is the Harappan known beyond the bounds of the wheat-millet-growing regions. The answer is that apparently the more tropical areas were unsuited to the cultivation of wheat-millet. The Harappan farmers and their local descendants had reached the limits of their range.

It is with no little interest, then, that we find the next substantially traceable occupation of the Ganges region represented in the so-called Gray ware period, by a people using rice as well as the wheat cereals. The movement of Gray ware cultures eastward along the Ganges is indicated by finds such as those at Kausambi. Copper-hoard sites have been found as far east as the Mahanadi River in Orissa. These two cultural entities provide evidence for the penetration of the lower Ganges region from the west; both are post-Harappan in time (Subbarao, 1958, pp. 151 ff.).

The continental situation in the earlier half of the second millennium B.C. indicates that both in China and India developed agricultural groups were pressing up to the boundaries of tropical Asia, which were already inhabited by hunting cultures and probably by primitive agriculturists. These southern areas were extensively occupied more and more after 1500 B.C. By shortly after 1000 B.C., full-scale clearing and cultivation were penetrating deep into tropical Asia as far, at least, as the Indonesian islands. Rice was the basis of this elaborate southerly agriculture. Although the details of this dramatic shift are lacking, it is clear

that grain agriculture until after 1500 B.C. had been confined to a narrow band along the flanks of mountains and deserts and in the river valleys south of about latitude 40° N. The civilizations of Shang and Harappa were foci of cultural developments within this band. After 1000 B.C. these foci shift into or depend on another geographical region, as expressed in the waxing influences of kingdoms in South China and the rise of the Ganges civilizations. The coincidence of the development of the cultivation of rice and the rise of these new foci is thus significant and wide-ranging. Again the details presently escape us. However, I suspect that the final blow to Harappan civilization as such was the opening of the rice areas.

The difficulty is that we are dealing with cultural events that as yet we can only poorly grasp. For instance, it becomes increasingly clear that in Baluchistan during the Damb Sadaat III-Rana Ghundai-Kulli period there were sizable populations in every watered valley. The contemporary Harappan of Sind was even more populous. But if the latter relieved their economic stress by moving to fairer pastures, what happened in Baluchistan? Did the Baluch farmers occupy the already impoverished Sind region, as suggested by the Jhukar pottery, or did they simply deteriorate in place—a fact for which we have no good evidence as yet? On a wider scale, the evidence in the Iranian plateau region, especially on the south, indicates that populations decreased markedly after about 2000 B.C. and were not immediately replaced. Was this the result of the eventual deterioration of each landscape or the pressure of invaders? I suspect the former is the answer. Certainly enough remained to preserve an immemorial way of life from Kerman to Sind and beyond. Nevertheless a kind of cultural vacuum must have developed across which accelerating international contacts gave news of greener pastures. The Aryans, Megalithic folk, the Sialk B carriers, and so on, moved across impoverished land where cultural retardation did not occur as it had in pre-Harappan times. For the Aryans, the Ganges, with its populations and established cultures, was a new and rich homeland; for others, the Deccan. For the Harappans it was a gradual submergence into a new cultural form, but fundamentally still essentially the village-urban settlement patterns of old.

To summarize, I believe that there is now sufficient evidence to suggest that the climate at the time of the development of the Harappan civilization was essentially the same as that of today.¹ Accordingly, we

¹ Evidence for the similarity of modern and ancient climate accumulates. For example, refer to Chowdhury and Ghosh (1951).

can understand the physiographical changes that must have occurred when full-scale agriculture developed in the region in pre-Harappan times as the result of the spread of farming cultures across the Iranian plateau. On this plateau the populations lived in villages, but these villages tended to cluster in certain areas to take advantage possibly of united efforts to maintain dams and irrigation under arid conditions. In the Indus Valley, however, such clustering was no longer necessary for these reasons, and the result was a dispersement of villages in Sind during pre-Harappan times. With the use of cattle as a means of increasing the sources of energy necessary for the wide cultivation of the grassland, a symbiosis developed on a large scale which brought large areas into the food-production scheme. An Indianization process developed as a result of contact with older forest hunting cultures, primitive agriculturists, and the Indian environment, thus insuring a special civilization style. As the populations of cattle and men increased, the religious needs provided reasons for centralizations that served to intensify certain interactions so as to create civilization from seeds already planted by stimulus diffusion. Ceremonial centers became a feature of the last major prehistoric occupation of Sind (Harappan) and most of eastern Baluchistan. The village economy provided the support for the centers. Cattle, particularly the bull, were prime factors in the religious cult, with fertility as the assumed motivating force. The religious character of the Harappan civilization underlies its formal and static aspect. However, in Sind general Harappan occupation was limited in time, as the cultivated boundaries of the valley were at their most far-reaching extent during that period. The urban aspect of the civilization was in contrast to that of Sumer-Akkad with which it had only chance and occasional contact. In fact, in the Indus Valley isolation was probably an important force in maintaining the status quo.

The economic needs of an expanding population gradually brought about the movement of the Harappan culture to the northern and southern areas of the Doab and to Gujarat-Kathiawad. Gradual economic and cultural deterioration in Sind and increasing settlement on the extremes of the grain-growing regions characterize the late phases of the Harappan. The exhaustion of soil resources in the Indo-Iranian borderlands caused a drastic falling off of population and a kind of cultural vacuum. In addition, the development of rice cultivation after 1500 B.C. changed many of the premises on which the Harappan character of these early agriculturists were founded, and the culture as such disappeared, except in localized situations. The influx of new peoples across the Iranian plateau after 1500 B.C. was virtually unopposed.

These new groups provided numerous ideas and energies that contributed to the development of later civilization in India, but they were not primarily responsible for the collapse of the Harappan civilization. They merely eclipsed the remnant which stood in their path and built on an already Indian foundation.

A point that helped to initiate this essay derives from a personal view that the Harappan civilization is basic to the development of the specific character of India. In the broadest sense it becomes difficult to reconcile Nehru's concept of India as a land of villages and religion with the present ideas of a unified Harappan empire, West Asiatic in aspect. On another plane, we are constantly faced with the problem of defining materially what we mean by civilization. The problem becomes particularly difficult when we find essential differences in form when comparing contemporaneous ancient civilizations. It is clear that the Harappan civilization is not a watered-down Sumeria with Indian embellishments, nor a Sumerian civilization far from home. It is definitely Indian in its important features. One of these features, it appears, is the peculiar situation of a society possessing civilization but dwelling largely in villages with ceremonial centralization, and decentralization for almost all other purposes. What effect does this situation have upon the evolution of the culture involved? What happens to new ideas and techniques when they are introduced into this cultural ground? We can arrive at conclusions by inference, but we need concrete evidence. Indian culture, especially that of Hindu India, seems to me, furnishes enormously important evidence that, despite the pitfalls of hind sight, we cannot ignore. In Hindu India we have villages and ceremonial centers in quantity. Local trade is on the village level, but town bazaars are typical. Was Mohenjo daro a center for local trade as well as religion? While we freely search for contacts with Sumer, do we understand the interactions that occurred at the village level? What was exchanged between villages? I am more than ever convinced that to know more about the Harappan culture we must know more about Indian village life. Perhaps then we can hold a glass and see more clearly the dynamics of the Harappan past, dynamics which most surely were motivated by Indian values.

Much of the foregoing thesis is admittedly speculative, but it may be of some importance as a stimulant to further research and increasingly valid conclusions. It seems time for those who are involved to re-assess what we know, and what we think, and hope that ensuing discussion will bring us nearer the truth.

My gratitude should be expressed to Dr. F. A. Khan, Director

of Archaeology, Government of Pakistan, for the opportunity to pursue inquiries in the field, and to the late and deeply lamented Lauriston Ward of the Peabody Museum, Harvard University, for scholarly foresight in the problems of the Indo-Iranian borderlands and for his constant encouragement, without which these inquiries would not have been possible.

BIBLIOGRAPHY

ADAMS, R. M.

1960. The origin of cities. *Sci. Amer.*, vol. 203, no. 3, pp. 153-168.

ALCOCK, LESLIE

1956. *In* Fairervis, Walter A., Jr., Excavations in the Quetta Valley, West Pakistan. *Anthrop. Papers Amer. Mus. Nat. Hist.*, vol. 45, pt. 2, pp. 214-216.

BRAIDWOOD, ROBERT J.

1952. The Near East and the foundations for civilization. An essay in appraisal of the general evidence. Condon lectures. Eugene, Oregon State System of Higher Education.
1957. Jericho and its setting in near eastern history. *Antiquity*, vol. 31, pp. 73-81.

BULLARD, W. R., JR.

1960. Maya settlement pattern in northeastern Peten, Guatemala. *Amer. Antiquity*, vol. 25, no. 3, pp. 355 ff.

CASAL, J. M.

1956. L'Afghanistan et les problèmes de l'archéologie Indienne. *Artibus Asiae*, vol. 19, pp. 213-220.

CHOWDHURY, K. A., AND S. S. GHOSH

1951. Plant-remains from Harappa, 1946. *Ancient India*, no. 7, pp. 3 ff.

CHILDE, V. G.

1953. New light on the most ancient East. New York, pp. 183 ff.
1958. The prehistory of European society. Harmondsworth, Middlesex.

DEPARTMENT OF ARCHAEOLOGY, GOVERNMENT OF INDIA

1959. Indian archaeology, 1958-1959. New Delhi.

EVENARI, MICHAEL, AND DOV KOLLER

1956. Ancient masters of the desert. *Sci. Amer.*, vol. 194, no. 4, pp. 39 ff.

FAIRSERVIS, WALTER A., JR.

1952. Preliminary report on the prehistoric archeology of the Afghan-Baluch areas. *Amer. Mus. Novitates*, no. 1587.
- 1956a. Excavations in the Quetta Valley, West Pakistan. *Anthrop. Papers Amer. Mus. Nat. Hist.*, vol. 45, pt. 2.
- 1956b. The chronology of the Harappan civilization and the Aryan invasions. *Man*, vol. 56, art. 173.
1958. The ancient East. *Nat. Hist.*, vol. 67, no. 9, p. 508.
1959. Archeological surveys in the Zhob and Loralai districts, West Pakistan. *Anthrop. Papers Amer. Mus. Nat. Hist.*, vol. 47, pt. 2.

FRANKFORT, HENRI

1951. The birth of civilization in the Near East. London.

- GHOSH, A. (ED.)
 1959. Indian archaeology, 1958–1959—A review. New Delhi.
- GORDON, D. H.
 1958. The pre-historic background of Indian culture. Bombay.
- IMPERIAL GAZETTEER OF INDIA
 1909. The Indian Empire, Vol. 1, Descriptive. Oxford.
- KROEBER, A. L.
 1957. Style and civilization. Ithaca, Cornell University Press.
- MAJUMDAR, N. C.
 1934. Explorations in Sind. Mem. Archaeol. Surv. India, no. 48.
- MARSHALL, JOHN
 1931. Mohenjo-Daro and the Indus civilization. Being an official account of archaeological excavations at Mohenjo-Daro carried out by the Government of India between the years 1922 and 1927. London.
- PIGGOTT, STUART
 1950. Prehistoric India to 1000 B.C. Middlesex, England, Penguin Books.
- PITHAWALLA, M.
 1959. A physical and economic geography of Sind. Karachi.
- SPATE, O. H. K.
 1957. India and Pakistan. London.
- STEIN, AUREL
 1943. On Alexander's route into Gedrosia. Geogr. Jour., vol. 102, nos. 5–6, pp. 193–227.
- SUBBARAO, B.
 1958. The personality of India. Baroda.
- WALLACE, R.
 1888. India in 1887. Edinburgh.
- WHEELER, R. E. M.
 1953. The Indus civilization. In The Cambridge history of India. Cambridge, England, suppl. vol.
 1959. Early India and Pakistan. London
- WHITE, L. A.
 1959. The evolution of culture. New York.
- WILSON, J.
 1946. In Frankfort, Henri (ed.), The intellectual adventure of ancient man. Chicago, pp. 31–121.

