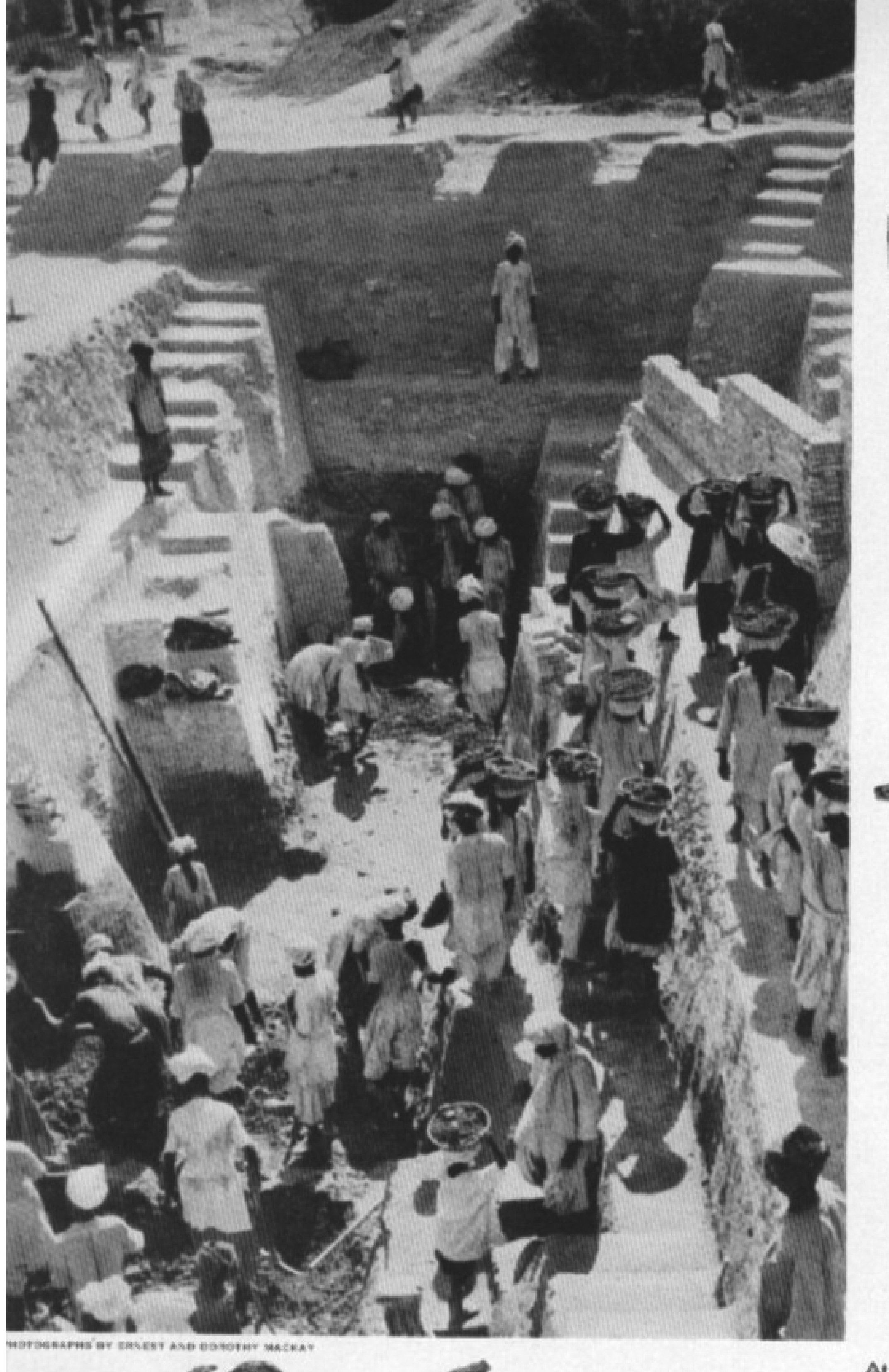
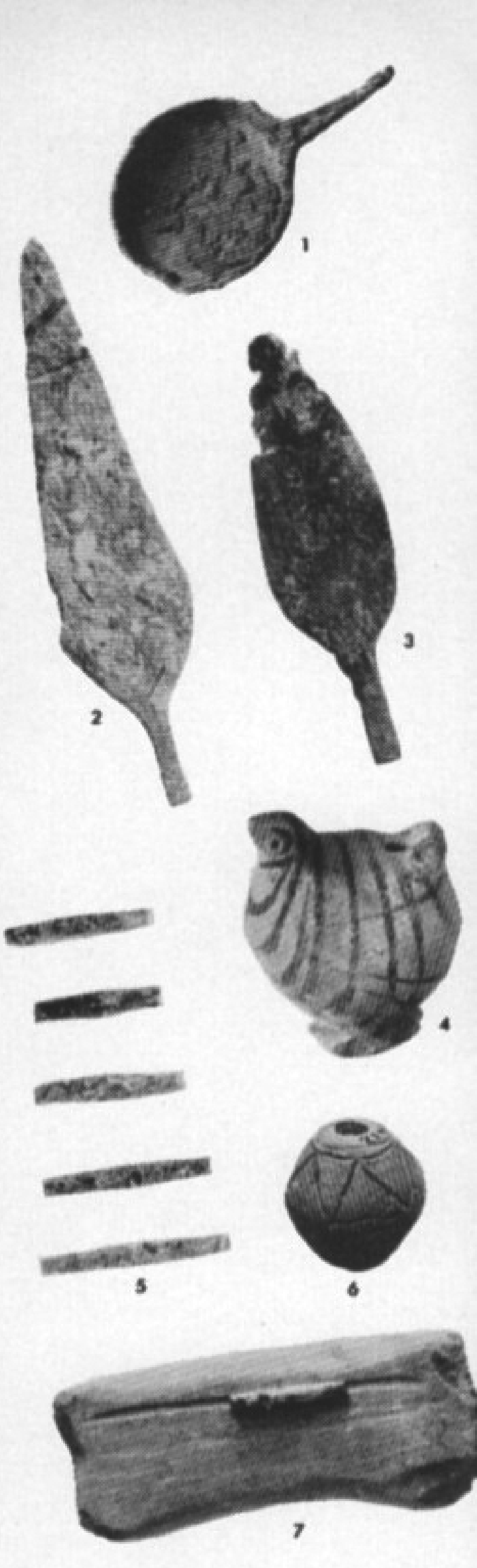
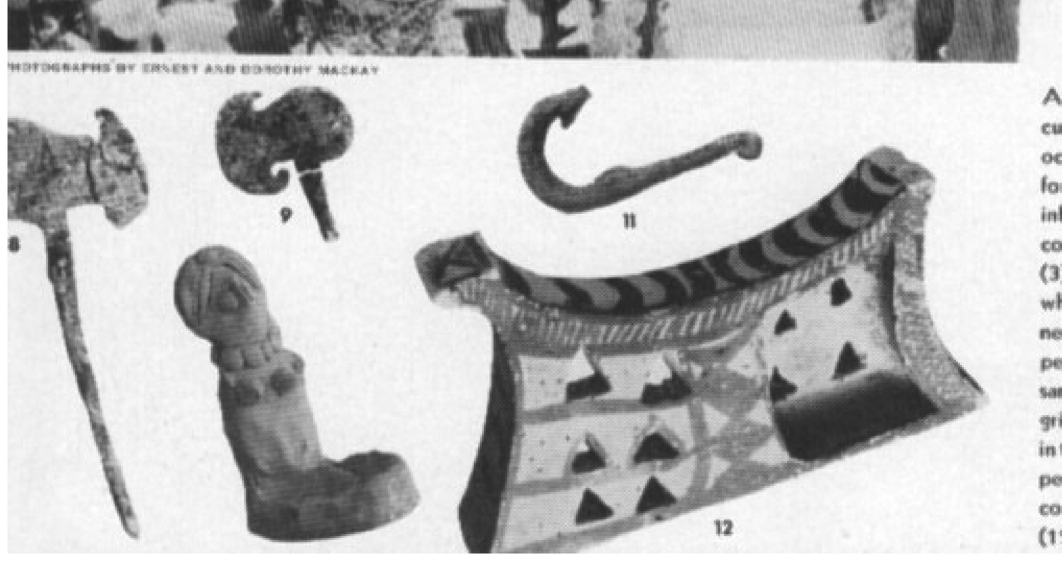


PHOTOGRAPHS BY ERNEST AND DOROTHY MACKAY





At the Chanhu-daro diggings a deep pit was cut down to the water level to test the earlier occupations of the site. Clear evidence was found of several floods which drove out the inhabitants. Some of the special finds were: (1) copper—or bronze—frying pan and (2) and (3) spearheads, Harappa period; (4) pottery whistle shaped like a hen; (5) unfinished carnelian beads, not bored or polished, Harappa period; (6) pottery bead, Jhangar period; (7) sandstone block grooved by the process of grinding into shape beads like the one shown in the groove; (8) and (9) copper razors, Harappa period; (10) toy figure of woman grinding corn in a pan; (11) fish hook, Harappa period; (12) painted pottery head rest, Jhukar period

FINDS AT CHANHU-DARO

By DOROTHY MACKAY

THREE low mounds, isolated in the semijungle of arid Sind, have recently given yet another tantalizing glimpse into the ancient history of India. The excavations made by the Archæological Survey of the Government of India at Harappa and Mohenjo-daro in the Indus Valley during the decade 1923–1932 had lifted the curtain on a totally unexpected scene: a great civilization settled in large, well built, well laid-out cities, wealthy, teeming with life, and trading with Sumer and other lands to north and west. Until then, the history of India, land of great distances and an immense variety of peoples, tongues, geographical conditions, philosophies and religions, seemed to have sprung into a full and fiercely pulsating life out of a void. Practically all that was known of the predecessors of the Aryan-speaking peoples, who penetrated into the alluvial plains of India by the passes of the northwest about the middle of the second millennium B.C., was contained in the references in the earliest Aryan literature, the *Rig Veda*, to "the dark-skinned Dasyus," who were also described as having flattened noses. A few stone age implements had been found, and dolmen burials in southern India; the remains of walls of high antiquity were known at Rajagriha, in Bihar; and hoards of copper implements and utensils of uncertain date, from Gungeria in the Central Provinces and elsewhere, appeared to be pre-Aryan.

Careful excavations at the two Indus sites threw a strong light on the urban and domestic life of those pre-Aryan cities; there is little left to the imagination in this matter of household equipment, the water-supply and drainage, the food that was eaten and the clothing, ornaments, amusements and toys of their inhabitants. But the fundamental questions of race and language, of their views concerning an after-world, and the mode of disposal of the dead still remained unanswered. For, though some four hundred characters were used in their semipictographic writing, these had been gleaned solely from their seals and amulets, and a few adze-axes of copper or bronze, with short inscriptions only. The people of the ancient Indus cities clearly wrote their records and letters on some perishable material. Gone were all the contracts, bills, inventories and other business documents that must have regulated not only their trade with the Sumerian cities, of which there is ample evidence, but the local trade of people so advanced in civilization as to have a strong civic control.

With these gaps in our picture of these people to be filled up, it soon became apparent that yet more sites must be excavated in the wide Indus plains. Unhappily, just at this stage the financial crisis obliged the Government of India entirely to close down all active archeological exploration instead of extending it. There seemed no prospect of resuming it for several years to come, and the alternative was adopted of throwing open to other countries this important task. In 1934, Dr. W. Norman Brown, president of the American School of Indic and Iranian Studies, with the promise of collaboration by the Museum of Fine Arts in Boston, went to India and obtained the concession of a promising site—Chanhu-daro, in Sind—to be excavated by an American expedition.

The leadership of the expedition was entrusted to Dr. E. Mackay, who from 1926 had been in charge of the excavations at Mohenjo-daro, whither he had come from Kish, the reputedly oldest city of Sumer. Several of his staff at Mohenjo-daro gladly returned to work. There was of course no camp: only the desolate mounds, scarred by Mr. Majumdar's two trial trenches, dug in 1930, with beside them the booths of tamarisk branches already built by the Brahui tribesmen from Baluchistan who, as in previous years, had made the arduous three weeks' journey from their mountain home on foot, for the sake of winter work in the less inclement Indus plains. But soon tents were up, and equipment and provisions brought by ox-cart through the jungle from the train that twice daily formed a link with the distant world. For water there was fortunately an ancient well, sunk some five thousand years ago and by a lucky chance discovered, filled with débris, in one of Mr. Majumdar's trenches. A considerable number of Sindis from the villages around Mohenjo-daro also rejoined the expedition, and, with this nucleus of experienced men and basket-boys, local labor was attracted and the work speedily got under way.

The largest of the mounds was the first attacked—the Mound II of Mr. Majumdar's survey; the ground around having first been trenched to see where débris could safely be dumped. Untouched, it stood a height of twenty-three feet and six inches above the level of the surrounding plain. After five months, a depth of seventeen feet had been removed in layers corresponding with four occupations of the site, each layer being carefully surveyed and photographed before it was removed to lay bare the next below, thus working back through history to earlier and earlier periods. Even now the mound still stands some five feet high, its wide flat top covered with the remains of ancient houses, a bath establishment, and, perhaps, administrative buildings, alongside a

well aligned, well drained main street and narrower streets all at right angles to one another.

There is thus still a great mass to be similarly explored; for the area of the mound beneath the alluvium deposited during the ages is considerably more extensive than above it. And it is at least some nineteen feet in depth, as shown by a great pit that was cut later in the season right down to water-level in the soil on the outskirts of the mound. To the experienced eye, the sides of this pit read like a book—but from the bottom upwards—telling how the inhabitants of the little city were driven from their homes, not once but several times, by devastating floods. Each time a deep band of greenish river silt, uniform in texture and free of potsherds and other traces of man's activities, covered over and buried such of his puny handiwork as lay on the outskirts of the city. Yet, back man came and settled once more on the selfsame spot; at least it had the virtue of standing slightly above the surrounding land.

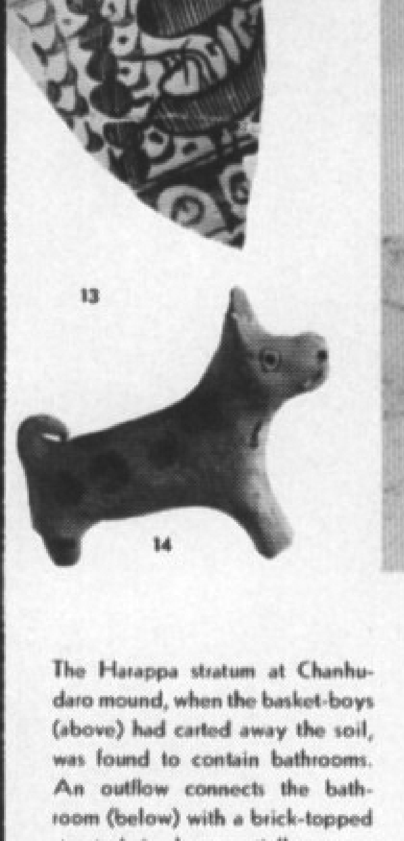
From the moist earth where the subsoil water seeped into a pool on the pit floor, there came a few animal bones, and little jars whose somewhat unusual shape points to a period probably slightly earlier than that of the lowest occupation reached at Mohenjo-daro. Yet already there was an advanced civilization in the little city; but, whether it had developed there or been brought thither, it is at present impossible to say. Only further excavation to a yet lower level where virgin soil is reached will answer that question. In the present state of knowledge, the so-called "Indus civilization"—better called "the Harappa culture," after the site at which its remains were first found—hangs suspended in the course of history, with no definitely proved connection with any culture of contemporary or earlier date, nor with the subsequent known history of India. To establish its relationship to the other early cultures of western Asia and Egypt, and in India to the growth of Brahmanism and all else that followed on the coming of the Aryans some ten or twelve centuries later, are the two urgent lines of inquiry on which archeological research in India needs to concentrate.

In the mound's topmost strata, four in number, which were examined in detail during the five months' campaign, the two lowest were Harappa occupations. Though separated by a layer of sterile soil which proves the city to have been deserted sufficiently long for the builders of the upper level not to have located the remains of the walls beneath to use them as foundations, as was repeatedly done at Mohenjo-daro, these two strata contained pottery and seals and beads and tools so closely similar as to proclaim them the property of people of the same civilization—the selfsame race as the people of Mohenjo-daro. Their houses were arranged on the same plan; their streets wore the same town-planned aspect; their drainage was the same, brick-covered channels along each side of a street receiving outfalls from each house. There was even a building with flues beneath the floor, a *hammām*, almost precisely similar to, though on a smaller scale than, one found at Mohenjo-daro. So far, however, all the indications are that Chanhu-daro was a less wealthy community than Mohenjo-daro. There is little or no evidence of the heavy overcrowding that led to more than one family's occupying the houses of the poorest quarters of the large city; where, in fact, flats were a common feature, the upper floor being reached by an outside staircase. At Chanhu-daro only one staircase was found, and the walls, which were completely devoid of decoration, were mostly too thin to have taken the weight of upper floors. One wall only was as much as five feet thick. Discovered when trenching ground that it was proposed to use for dumping, this wall ran a considerable distance in a direction that would set it at right angles to a city wall if that had existed. Its inner end turned with a remarkably well built angle to pass beneath a comparatively modern Muslim tomb, where a *pir*, or saint, lies buried beside an ancient thorn tree. Perhaps it will one day be possible to trace that imposing wall on the other side of the tomb which must be left undisturbed. It may prove to be part of a temple or, more probably, on the analogy of Mohenjo-daro, an administrative building or a *khan*.

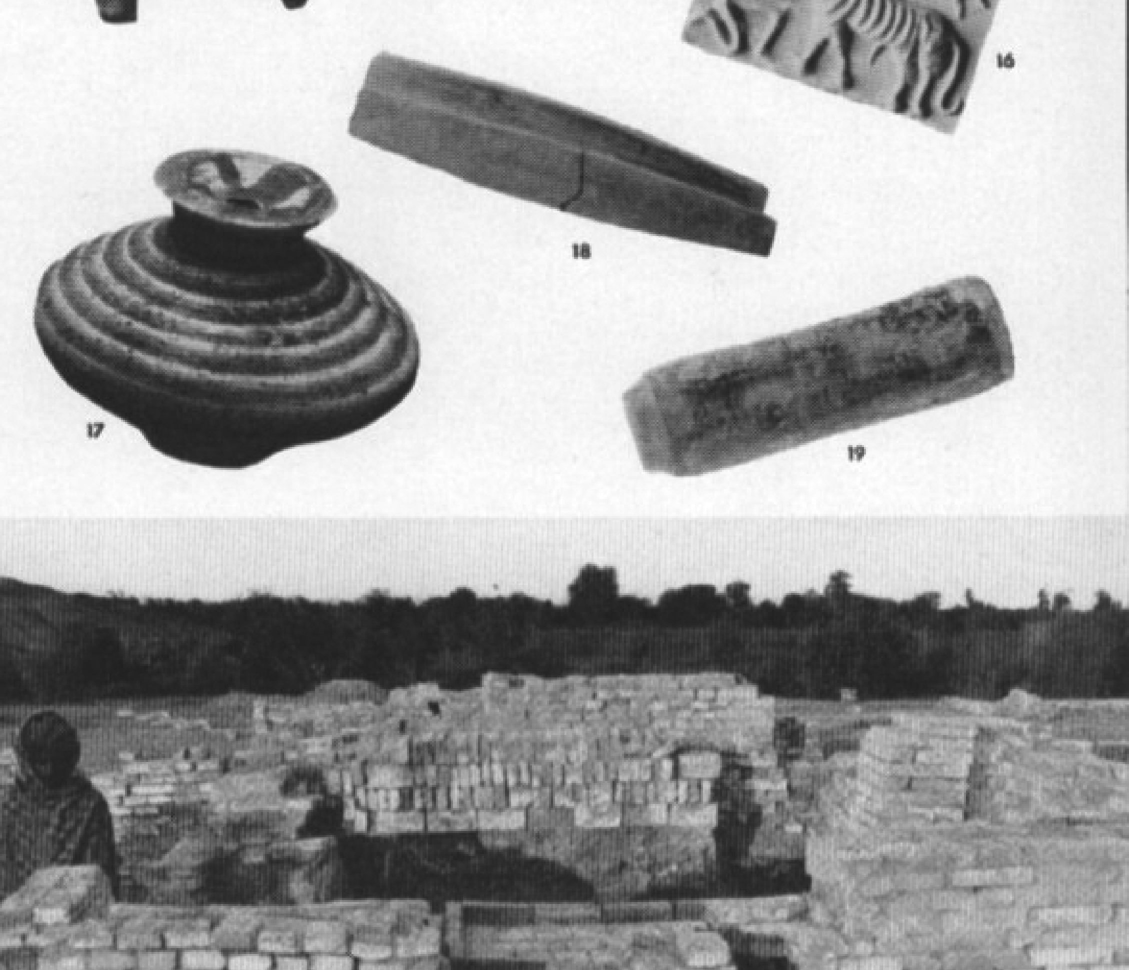
Curiously, it is the drains of these two strata of Chanhu-daro that make one realize vividly its kinship with its mightier sister city. The selfsame care was bestowed on their making, even to carefully rounding off the corners where one drain entered another to prevent any obstruction to the flow. Precisely similar pottery drain-pipes also were found, with a spigot or a tapered end so as to fit into each other; but, the little city being less wealthy, there were no stone covers to the main street drains, such as were a striking feature of Mohenjo-daro at the zenith of her prosperity.

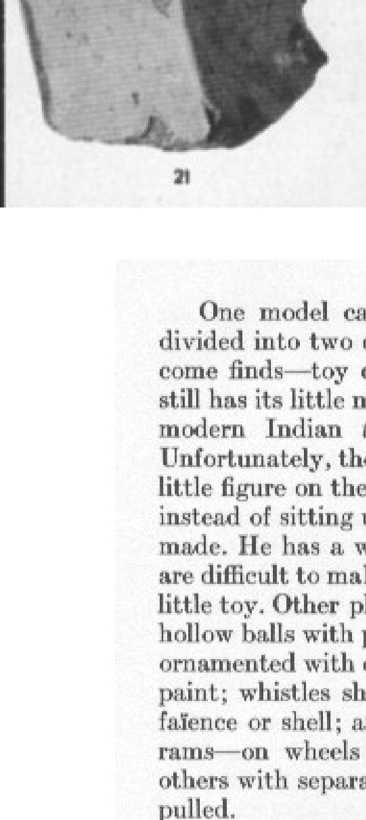
Chanhu-daro seems, in fact, to have lived by manufactures—of beads and toys and seals and weights—which were perhaps traded to the cities of Sumer as well as the other cities in the Indus plains. There were far too many toys for the local population, and, though unfinished beads were found in many of the houses, finished beads were noticeably scarce. Numbers of seals were found, left in the process of making, and one or two of the weights unearthed were of such remarkable accuracy and finish that one is tempted to think they were test pieces for maintaining the proper standards.

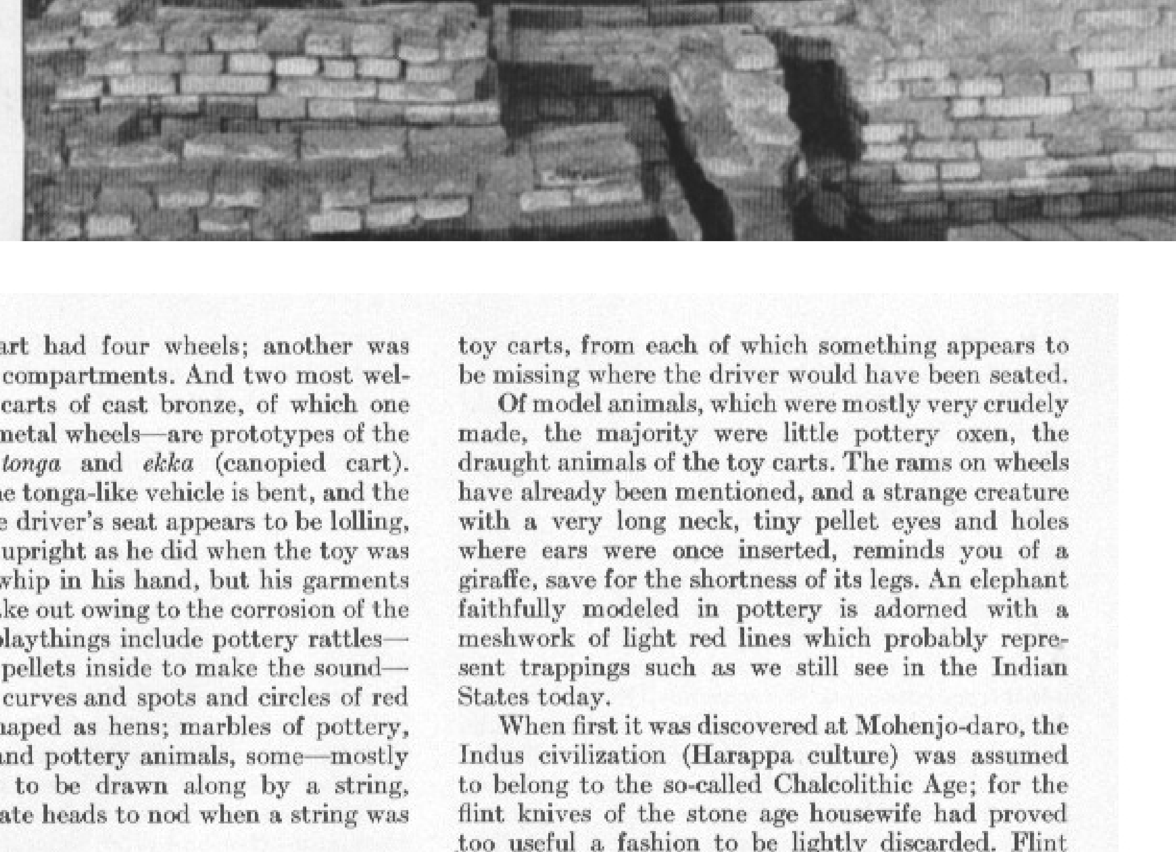
The toys included a large range of model carts, mostly with little pottery wheels; and from one of the latter which has corresponding wide bands of red paint across the middle of each side we deduce that the wheels of those days were solid, being made of three pieces of wood joined together, with the middle piece including the hub. The commonest form of cart was almost precisely similar to the modern farm cart of Sind, which has wooden uprights stuck in holes along the sides of a flat frame. In such a cart the country produce is held in by a coarse netting. We see a similar netting represented by a criss-cross of light red lines on several of the toy carts of five thousand years ago.



The Harappa stratum at Chanhu-daro mound, when the basket-boys (above) had carted away the soil, was found to contain bathrooms. An outflow connects the bathroom (below) with a brick-topped street drain, here partially uncovered. Other important Chanhu-daro relics of the Harappa period are: (13) potsherd, decorated in black on polished red slip; (14) pottery toy dog; (15) toy animal with a head that can be moved by pulling the string; (16) inscribed seal, showing tiger and kneeling man; (17) kohl jar ornamented with red on cream; (18) pottery gutter for drainpipe; (19) pottery drainpipe, with one end tapering to fit into the next length; (20) a piece of red ocher, used as a "lipstick"; (21) pottery inkpot







One model cart had four wheels; another was divided into two compartments. And two most welcome finds—toy carts of cast bronze, of which one still has its little metal wheels—are prototypes of the modern Indian *tonga* and *ekka* (canopied cart). Unfortunately, the tonga-like vehicle is bent, and the little figure on the driver's seat appears to be lolling, instead of sitting upright as he did when the toy was made. He has a whip in his hand, but his garments are difficult to make out owing to the corrosion of the little toy. Other playthings include pottery rattles—hollow balls with pellets inside to make the sound—ornamented with curves and spots and circles of red paint; whistles shaped as hens; marbles of pottery, faïence or shell; and pottery animals, some—mostly rams—on wheels to be drawn along by a string, others with separate heads to nod when a string was pulled.

Of gamesmen there were so few as to suggest that the busy craftsmen of Chanhu-daro had less time to give to games of leisure than the wealthier community of Mohenjo-daro, where not only gamesmen but dice were found in considerable numbers.

The seals of these Harappa strata show all the features now familiar in the well-known seals of Mohenjo-daro: the perforated boss for threading on a cord, the animal with cult-object or manger beneath its muzzle and the line of pictographs above. The animals are the same, the so-called "unicorn" (urus-ox), the Brahmani and short-horned bulls, the elephant, tiger and rhinoceros; and one particularly interesting seal portrays a bull or bison trampling a fallen man who had perhaps been taking part in the ancient bull-grappling sport well known from the excavations at Knossos, Crete. A seal impression in clay shows two goddesses standing on either side of a *pipal* branch which they both hold; they wear the plaits associated with goddesses, or their attendants, on the sealings found at Mohenjo-daro, and worn by Indian girls today.

Two rather longer inscriptions than those on the characteristic seals contribute to the data on the language of the Harappa people—a line of eight characters in each case on either side of an adze-ax of copper. But the important find of an undoubted pottery ink-pot, precisely similar in shape to many that were used in modern times before the introduction of the fountain-pen goes to prove that the people of those days wrote with some kind of fluid on a flat and perishable material, skins or bark or beaten reeds—as had already been surmised.

The comparatively few figurines were mostly of different types from those found at Mohenjo-daro and Harappa. The Mother-Goddess lacks the panniers of the headdress, and she has a round hollow base instead of lower limbs, wherein she more nearly resembles certain figurines found by Sir Aurel Stein in Baluchistan—an indication, if those figurines should prove to be earlier in date, that the Harappa culture was originally brought from the northwest. Male figurines are noticeably rare, and mostly seated; possibly the latter were the drivers of certain toy carts, from each of which something appears to be missing where the driver would have been seated.

Of model animals, which were mostly very crudely made, the majority were little pottery oxen, the draught animals of the toy carts. The rams on wheels have already been mentioned, and a strange creature with a very long neck, tiny pellet eyes and holes where ears were once inserted, reminds you of a giraffe, save for the shortness of its legs. An elephant faithfully modeled in pottery is adorned with a meshwork of light red lines which probably represent trappings such as we still see in the Indian States today.

When first it was discovered at Mohenjo-daro, the Indus civilization (Harappa culture) was assumed to belong to the so-called Chalcolithic Age; for the flint knives of the stone age housewife had proved too useful a fashion to be lightly discarded. Flint knives with the cores from which they were struck were still used in the kitchens of Mohenjo-daro side by side with utensils of copper and bronze. At Chanhu-daro, however, the preponderance of metal over flint implements is very marked—sufficiently so for the term "Chalcolithic" to be entirely rejected for the Harappa culture. Indeed, the amount of copper and bronze objects of all kinds and descriptions that were unearthed in the partial excavation of one small mound is one of the outstanding features of Chanhu-daro. Although they were corroded in some cases almost beyond recognition when found, the expert and careful treatment bestowed upon them by the archeological chemist of the Government of India produced vases of several sizes and shapes, adze-axes, a large grain-shovel, fish-hooks, razors, knives, bracelets, finger-rings, toy carts and other small objects. Spearheads and arrowheads were also found, but their numbers were small enough—as at Mohenjo-daro also—to suggest that warfare was not predominant in man's mind, if indeed these weapons were not used almost exclusively against wild animals and to secure food.

It is significant in this connection that no trace whatever of a city wall has been found in the uppermost four strata of the little city, though it must be borne in mind that such a wall would be the first to be demolished by people in search of brick after the abandonment of the place. At Mohenjo-daro there is some reason to think that a great wall, partially excavated and some fourteen feet in thickness, may have been protective, but there is no proof that it was carried right round the city. From its position, it may simply have served as a quay and to protect near-by buildings from being flooded by the river on whose bank they stood. Of evidence of any large-scale attack such as the sacking and burning of buildings there is none; though occasional raids by tribesmen from the mountains of Baluchistan seem to have occurred from time to time when the city had entered upon the period of decline.

Among the most fascinating of the finds at Chanhu-daro were a number of thin black rods, not more than an inch in length, which at first were taken

to be unfinished beads. Soon, however, it was noticed that, though each of the unbroken specimens had a tiny depression in one end, not one was bored right through. Moreover, the opposite end is always slightly faceted. Their purpose leaped to the understanding: they were the drills with which the bead-makers of Chanhu-daro bored their beads. Expert examination has shown them to be made of blackish chert hard enough to enable them, with the aid of an abrasive, to drill carnelian, quartz and agate. In all cases—and especially was it necessary for beads of two or three inches in length—stone beads were bored from both ends, so accurately that in very few did the holes fail to meet with precision in the middle of the bead. Hitherto, it had been assumed that copper drills were used, though they have not been found in the Indus cities.

There were also large numbers of tiny cylindrical beads of steatite, of which some thirty-five go to the inch; the method of making and boring and threading them has yet to be ascertained by careful research.

Though the Harappa strata of Chanhu-daro have thrown considerable new light on that much debated, but still elusive, culture—and for that alone the excavations there have proved of great value—it is in the topmost strata that the most unexpected discoveries have been made. After the abandonment of the site by the Harappa people, when, as it seems, the Indus turned upon and literally cut the little city in twain, the two resulting mounds lay desolate and unoccupied for a period whose duration can only be ascertained by further excavations both at Chanhu-daro and other sites in the Indus Valley. A new people then settled there—whence come and whither to go when they in their turn vanished, it is at present impossible to say.

The cultural relics of these people differ from those of their predecessors to a degree that is astonishing. Especially in their pottery not only is this remarkable in itself: it has an archeological significance of great importance. For in the main features of its technique and decoration, the ware most closely resembling it in all the known ancient world has been found at the mounds of Tell Halaf and Tell Chagar Bazar in northern Syria. How came it about that similar decorative designs, chevrons in alternate black and red on a cream slip, and horizontal bands of light red paint edged with black between the strips of ornament, should appear associated together on the wares of places so far separated? It is difficult to think it sheer coincidence.

Nor is it the pottery only of this Jhukar culture—so named from the small site near Larkana in Middle Sind where evidence of it was first found—that has excited the interest of archeologists working in both regions. The seals from the Jhukar stratum at Chanhu-daro curiously recall the Syro-Cappadocian seals of an earlier age. Lentoid in shape and roughly fashioned of pottery, they lack all the refinement and skill displayed in the making of the square stone seals of the Harappa people. There are few animals upon them, and those mostly primitive representations of the ibex familiar to us on the earliest seals of Iran and Sumer. The designs are mostly geometric, and very crudely executed. Nor is there a single written character on a seal or any other object from the Jhukar stratum. This is not, however, to be taken as a proof that the Jhukar people did not write; for at this stage hardly sufficient remains of their culture have been unearthed for so radical a conclusion to be drawn.

The fascinating question of possible connection by trade or by migration between the Indus Valley and a region so far distant as North Syria is still further complicated by the difference in date of the similar products of Tell Halaf and Chagar Bazar on the one hand and the much later Jhukar stratum of Chanhu-daro on the other. Only further excavations in both regions, and on the intervening trade routes, can explain this apparent influence from Syria at so great a distance and after so long an interval. The many sites that Sir Aurel Stein has found in Baluchistan and tentatively explored with such suggestive results need to be fully excavated to yield their final significance.

One of the most striking finds of the Jhukar period is a small pottery head, represented as shaven, and, with its deep-set eyes and tiny mouth, curiously suggestive of the statuary of Sumer. The nose had been broken off anciently, but this very fact implies that it was the large and prominent feature that we associate with Sumerian physiognomy.

The Jhukar population of the later days of Chanhu-daro was neither a large nor a wealthy community. Though the chief men had houses of brick, probably mostly quarried from the soil beneath, these houses were not well built. The rest of the population seems to have lived in simple dwellings of some perishable material—possibly the reed-matting so widely used in the Middle East today; for their brick-built hearths and floors remained with no surrounding walls.

These people also abandoned the site after a somewhat brief occupation, and ultimately—after what period of time it is again impossible to state at present—they were succeeded by a small tribe of perhaps gypsy extraction, who left strange burnished gray pottery, heavy in make, rather ill-fired, and decorated with simple incised geometrical designs. Though they were obviously poor and ill-equipped, it is of interest to note that cosmetic jars figure among their possessions.

Chanhu-daro thus gives glimpses of three distinct cultures, two of which help in some slight degree to bridge the long gap between the disappearance of the Harappa people and the dawn of Indian "history" with the coming of the Aryans. But these glimpses, though of so much interest in themselves, are far from satisfying; they raise so many questions that cannot yet be answered. To the first American archeological expedition to India falls the honor of taking the initial step towards filling in that mysterious gap. And in the Museum of Fine Arts at Boston is housed the only collection of archeological finds from the Indus Valley that as yet exists outside India.