

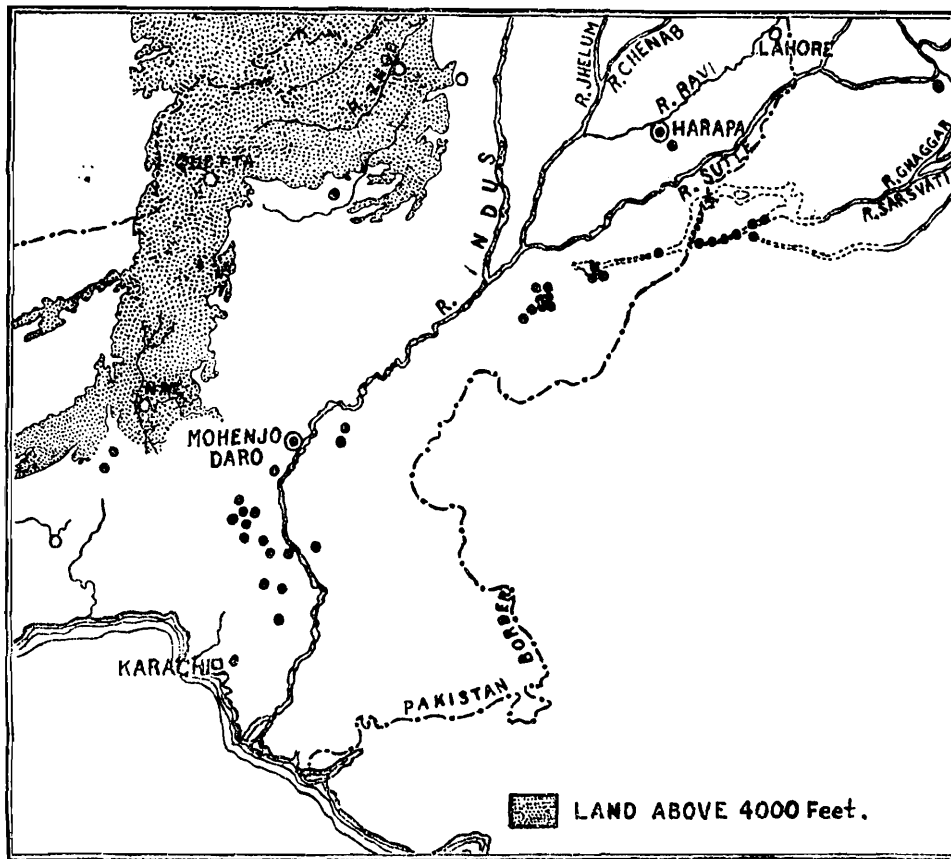
# FISH PAINTINGS OF THE THIRD MILLENNIUM B. C. FROM NAL (BALUCHISTAN) AND THEIR ZOOGEOGRAPHICAL SIGNIFICANCE

By SUNDER LAL HORA, *Director, Zoological Survey of India, Indian Museum, Calcutta.*

(Plates IV—VI.)

## INTRODUCTION.

*Antiquity of Nal.*—In the note appended Shri A. Ghosh, Director-General of Archaeology in India, has very kindly given a description of the archaeological site at Nal, with a brief history of its discovery and subsequent excavations. He has also described the various types of pottery known to be of a funerary character through their association with burials. The distribution of the Nal type of pottery is limited, being confined to two other places, Nundara in Baluchistan and Damb Buthi in Sind. After discussing the culture represented by these three sites, Shri Ghosh is of the opinion that “The priority of Nal, by virtue of its association with Amri, to Harappā may be a reasonable guess at the same time, if it survived Amri the possibility of its having witnessed the rise of Harappā and having been, to a certain



TEXT-FIG. 1.—Settlement sites of the Indus Valley Civilization. (Modified after fig. 2 in Piggott's *Prehistoric India*, 1952.)

extent, coeval with it, cannot be entirely ruled out.” The date of the Harappā culture, according to Shri Ghosh, may be fixed with some degree of accuracy to the second half of the third millennium and early centuries of the second millennium B.C. Thus the fish paintings on the Nal pottery described in the following pages are at least 4,500 years old, if not older than this.

*Location of Nal.*—The Nal Valley in Baluchistan is about 30 miles long and seven miles broad. The little village of Nal lies in Lat. 27° 40' N; Long. 66° 48' E and 3,834 feet above sea level. It is of some importance as it commands several of the principal routes in the country.

*Acknowledgments.*—The writer is greatly indebted to Shri A. Ghosh, Director-General of Archaeology in India, for his note on Nal and for many other courtesies. Shri C. Sivaramurti, Superintendent, Archaeological Section, Indian Museum, Shri J. K. Roy, Superintendent, Central Asian Antiquities Museum, New Delhi, and Mr. L. K. Elmhirst, London, kindly supplied photographs of the fish paintings from the vases under their respective charges. I offer them my sincere thanks for this help. I am also indebted to the artists of the Zoological Survey of India, particularly Babu R. C. Bagchi, for making the tracings and drawings with their usual skill and care.

#### FISH PAINTINGS ON NAL POTTERY.

Sometime ago I noticed a vase from Nal in the Prehistoric Gallery of the Indian Museum which had fish paintings on it. The paintings were accurate enough for determining the species as *Tor putitora* Hamilton, the Golden Himalayan Mahseer celebrated amongst anglers. The impressive advancement of art during the Nal Culture made me look for other Nal vases with fish decorations; and three others were found in the collection of the Indian Museum with paintings of different fishes which could be immediately identified generically. These four vases have not yet been figured anywhere, though Hargreaves (1929, pl. xvii, fig. D62) has figured a Mahseer shown on one of them. I give below a list of fish-decorated pottery excavated by Hargreaves at Nal (*loc. cit.*, pp. 45-55):

#### *Nal Pottery with Fish Decorations.*

115. *G. 3, 5*, buff ware. D. 49 over three fishes (D 62) and between lines. Colours lost. H 78.
140. *G. 3, 6* red ware. Much damaged. Top pattern lost. Face has traces only of D 49 and fishes. H 87.
142. *R. 5, 6*, buff ware. On top D 21 without O-megas, on face four panels, *viz.*, pair of fishes one above the other, then D 39 in next panel. Both panels repeated. H 93.
184. *C. 2, 1*, buff ware. Four panels. Two panels with D 36, third panel part of left of D 36, fourth panel a fish. Colours red, yellow, blue. H 83.
193. *Gp. 1, 1*, red ware. Pale buff slip. D 62. Fishes have red tails and fins. Much damaged, repaired. Colours red and yellow. H 102.
195. *G. 3, 1*, red ware. D 49 over five fishes. Fishes vary in size. Colours red, blue, yellow. Rim damaged. H 110. Pl. XX (b).
196. *G. 3, 2*, grey ware. Grey slip. Has not been coloured. D 49 over D 62 (five fishes). H 117.
256. *Gp. A. 2*. Elliptical pot with open mouth. No ring base. Ht. 74 mm. Rough grey ware with free lime in the fabric. Three holes irregularly spaced below brim. Decorated between greatest diameter and brim with four pairs of fishes in sepia. Fishes vigorously treated and less conventional than D 62. Pl. XIX, 4.

## IDENTIFICATIONS OF FISH ON NAL POTTERY.

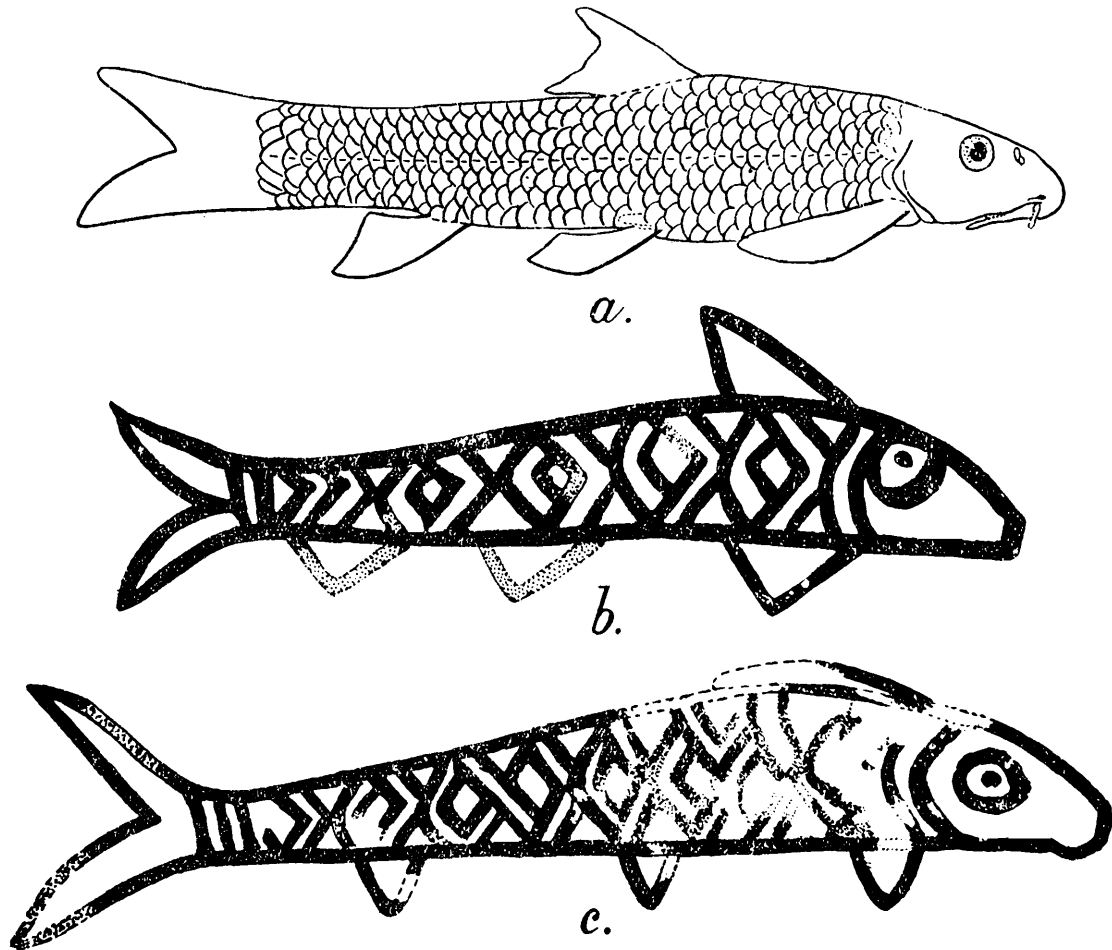
## Vase Nos. 115 and 140 of Hargreaves' list.

(Pl. IV, figs. 5 and 6 ; Text-figs. 2 b, c.)

*(Indian Museum Collection at Calcutta : Register No. 9601/7.)*

The scales on the body, and both the vertical and paired fins, are conventionally represented in the painting. With the exception of the dorsal fin, which is shown forward in position, the positions of the pectoral, pelvic, caudal and anal fins are accurately indicated. The caudal fin is deeply forked. The body is sub-cylindrical, with the upper surface gently arched and the lower flat, and horizontal. The snout is rounded and fleshy.

The general facies of the fish painted on this vase shows that it is adapted to live in rocky streams, where it can cling to stones and boulders with its flattened ventral surface. It



TEXT-FIG. 2.—*Garra*-like fish paintings. a. Lateral view of a specimen of *Garra naganensis* Hora X Nat. size ; b. Tracing of the painting on vase No. 115 of Hargreaves' list (I. M. Reg. No. 9659/3) ; c. Tracing of the painting on vase No. 140 of Hargreaves' list (I. M. Reg. No. 9601/7).

strongly resembles fishes of the genus *Garra* Hamilton (Text-fig. 2 a), which are characterised by the possession of a suction disc behind the mouth for adhering to rocks in swift currents.

The genus *Garra* is known from the Baluchistan hills, and both Zugmayer (1914) and Jenkins (1909, p. 290) have identified the species as *Garra lamta* Hamilton. In my revision of the genus (Hora, 1921), I have recorded *Garra rossicus* (Nikolsky) and *Garra* sp. from these hills.

*Garra* does not grow to a large size, but occurs in abundance and forms large shoals during the spawning period which climb up vertical rocks below waterfalls (Mukerji, 1923 ; Jones, 1941, p. 445). They contain much oil and are greatly relished by hill people. It is

not improbable, therefore, that the people of the Nal culture also considered *Garra* a food fish of great value and painted it on funerary vases. It may be of interest to add here that when Rama was at the Pampa Lake in South India, he was advised to eat *Cakratunda* (= *Garra*) as a great delicacy (Hora, 1952).

#### Vase No. 142 of Hargreaves' list.

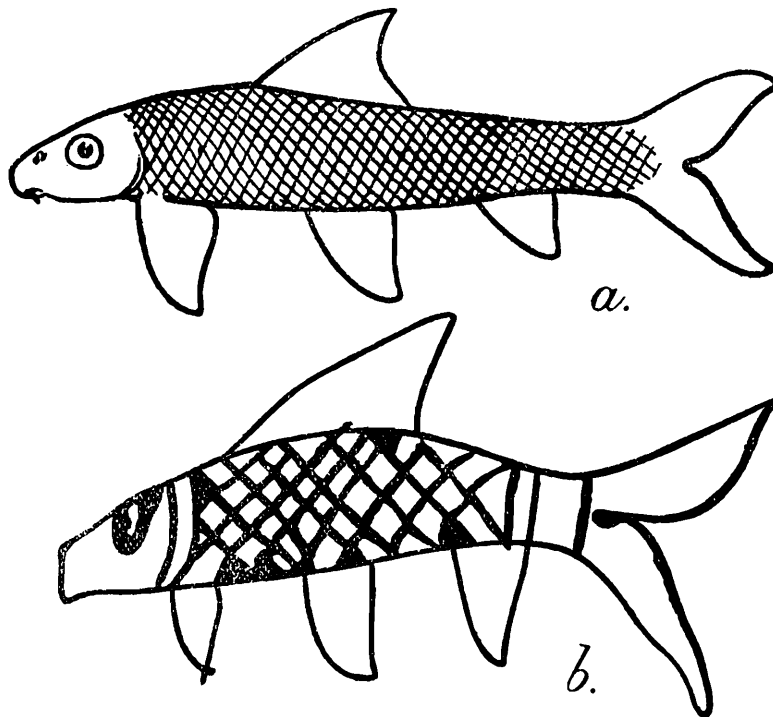
(Pl. IV, fig. 1.)

The drawing of this vase reproduced here is taken from page 88 of Stuart Piggott's *Prehistoric India*, as the whereabouts of this vase are not known. Enquiries have not brought any fresh information about this vase.

The fish paintings, as represented in Prof. Piggott's drawing, are not easy to identify, but they may represent some species of the genus *Cyprinion* Heckel, many of which have been recorded from Baluchistan (Berg, 1933).

#### Vase No. 184 of Hargreaves' list.

Please see addendum (p. 84) regarding this vase.



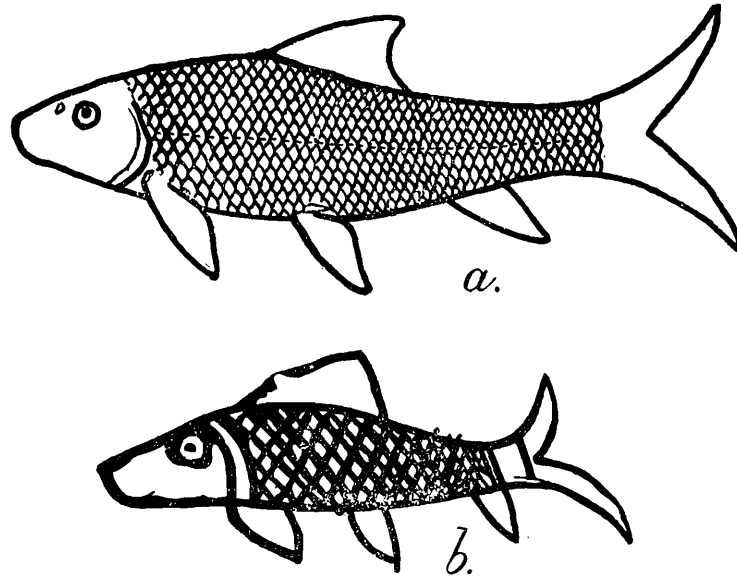
TEXT-FIG. 3.—*Crossochilus*-like fish painting. *a.* Lateral view of a specimen of *Crossochilus latius* (Hamilton); *b.* Tracing of the painting on vase No. 195 of Hargreaves' list the smaller fish (from fig. 5 on page 88 of Piggott's *Prehistoric India*, 1952).

#### Vase No. 195 of Hargreaves' list.

(Pl. IV, fig. 2 ; Text-figs. 3 and 4.)

Hargreaves (pl. xx, fig. *b*) published a photograph of this vase, and there is also a copy of the same reproduction on page 88 of Professor Piggott's *Prehistoric India*, but unfortunately the vase is not traceable now, either in the U.K. or in India. According to Hargreaves,

five paintings of fish of different sizes are given on it, only two of which are shown in the photograph. These paintings are comparatively the most accurate representations of fishes, with scales and fins properly drawn. The two fishes seem to represent *Crossochilus latius* (Hamilton)—in front and of smaller size; and *Labeo dyocheilus* (McClelland)—behind and of larger size. Both the species live in hill streams all along the Himalayas and are important food fishes. They are included in Zugmayer's list of freshwater fishes from Baluchistan as *Cirrhina latia* (Hamilton) and *Labeo dyocheilus* (McClelland). *Labeo dyocheilus*



TEXT-FIG. 4.—*Labeo*-like fish painting. a. Lateral view of a specimen of *Labeo dyocheilus* (McClelland); b. Tracing of the painting on vase No. 195 of Hargreaves' list the larger fish.

may be regarded as the *Rohita* of the Himalayan torrential streams. The place of *Rohita* in Sanskrit literature is well known (Ho a, 1953).

It is unfortunate that the paintings of the remaining three fishes are not available, as they might have given us an idea of three other important food fishes of the Nal period.

#### Vase Nos. 193 & 196 of Hargreaves' list.

(Pl. IV, figs. 3 and 4; Text-figs. 5 a, b, c, d.)

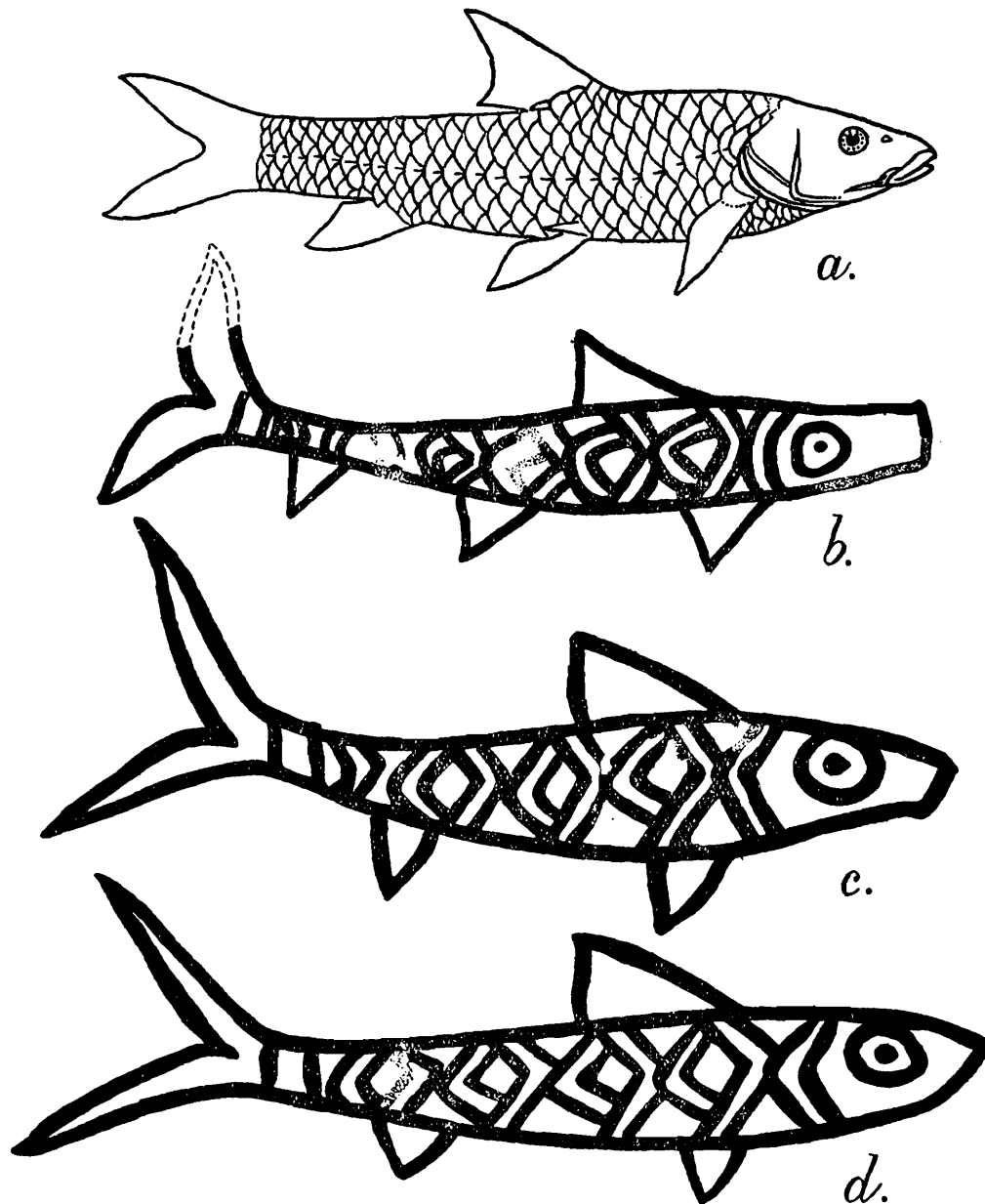
(*Indian Museum Collection at Calcutta*: Register Nos. 9644 & 9646.)

Vase No. 196 is the one from which a fish drawing is reproduced by Hargreaves on plate XVII as D. 62. Five fishes are painted round this vase. The general facies of all is the same, but there are variations in the form of the snout as shown in text-fig. 5 b, c & d. The scales on the body are depicted in the same conventional way as in the case of *Garra*. The position of the dorsal fin is somewhat more accurate, but the painter has omitted to show the pelvic fins. These paintings can be readily identified as those of the Golden Himalayan Mahseer, *Tor putitora* Hamilton. Zugmayer (1914) recorded this species from the Baluchistan hills as *Barbus (Tor) tor* (Hamilton).

Before giving a further account of this fish, reference may be made to another Nal vase having (pl. iv, fig. 3; Text-fig. 5 b), two paintings of the Golden Himalayan Mahseer, with the variations in the form of the snout more marked but the pelvic fins correctly shown.

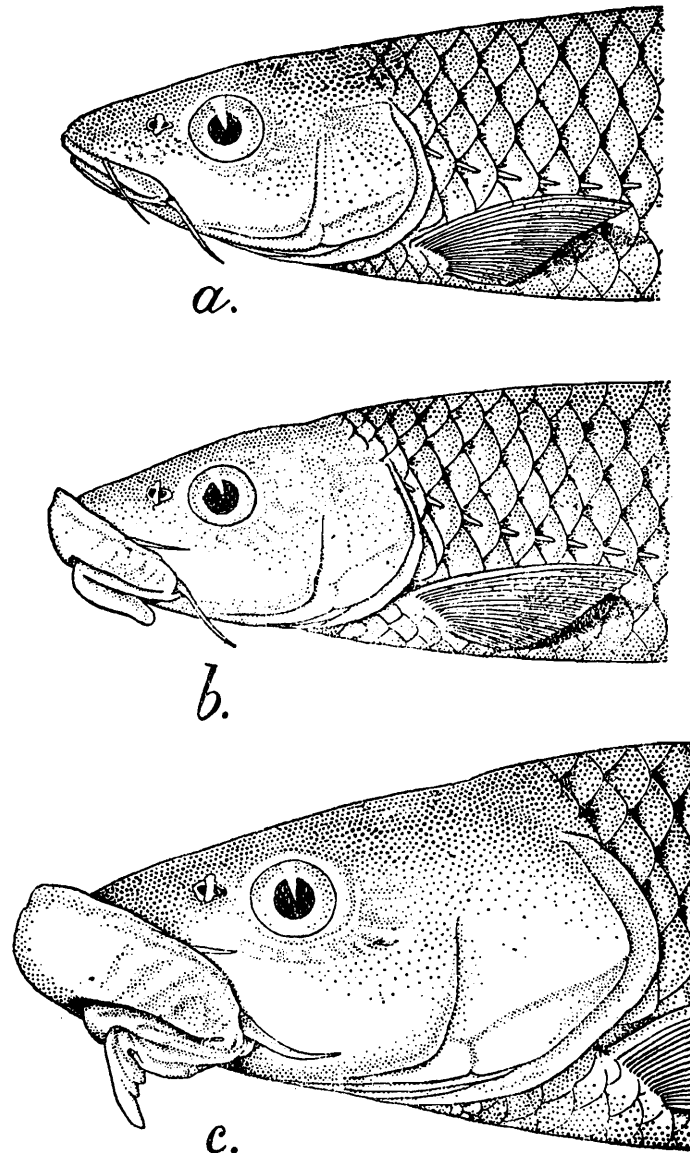
For a detailed account of this fish see Hora (1939). Here I shall refer only to certain special features of this Mahseer as shown on the Nal paintings. Variations in the form of the snout are not due to any fancy of the painter, but are correct representations of what happens

in nature. The lips are simple in some specimens, but in others they may be slightly or greatly hypertrophied, as shown in text-fig. 6. It is remarkable that such differences were observed by the painters of the Nal pottery.



TEXT-FIG. 5.—Mahseer fish paintings. *a.* Lateral view of a specimen of the Golden Himalayan Mahseer, *For punitora* Hamilton; *b.* Tracing of the painting on vase No. 193 of Hargreaves' list (I. M. Reg. No. 9646); *c.* & *d.* Tracings of the paintings on vase No. 196 I. M. Reg. 9644.

Mahseer, besides being highly prized as a sporting fish (see Macdonald: *Circumventing the Mahseer*), is estimated as food. In the Hindu *Dharma-sūtras*, it is considered superior even to *Rohita* and *Pathina*, as the manes remain satisfied for ever (Hora, 1953, p. 72) if Brahmins are fed on Mahseer. Even hermits are advised to build their huts at those places in the jungle where Mahseer is available. The value of Mahseer as a food fish seems to have been fully realised by the people of the Nal Culture.



TEXT-FIG. 6.—Head and anterior part of body of Golden Himalayan Mahseer—*Barbus (Tor) putitora* Hamilton to show variation in the shape of the head due to hypertrophy of lips (After Hora, S. L., *J. Bombay nat. Hist., Soc.* XLI, no. 2, pl. ii, 1939.)

**Vase No. 256 of Hargreaves' list.**

(Pl. V, figs. 1-4 ; Text-figs. 7-10.)

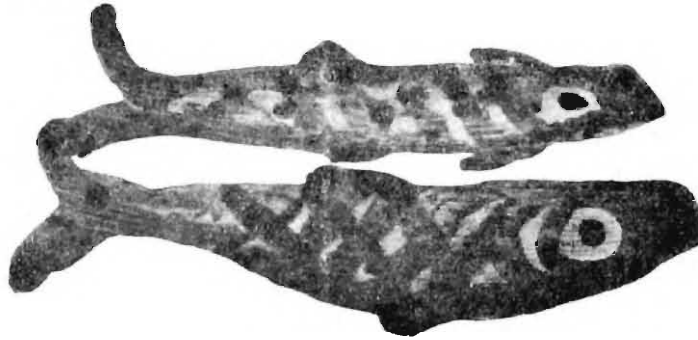
(*Central Asian Antiquities Museum Collection at Delhi* : Register No. 43·20.)

For the study of the fish fauna of Nal, this vase is important, as four pairs of different species of fish are painted on it, with sufficient detail for generic recognition. It seems desirable to describe each pair of paintings separately.

*Tor putitora* Hamilton.

(Pl. V, fig. 2, Text-fig. 7.)

The large-scaled Barbel, the Golden Himalayan Mahseer, can be easily recognised by its head being longer than the depth of the body. Large scales are diagrammatically re-



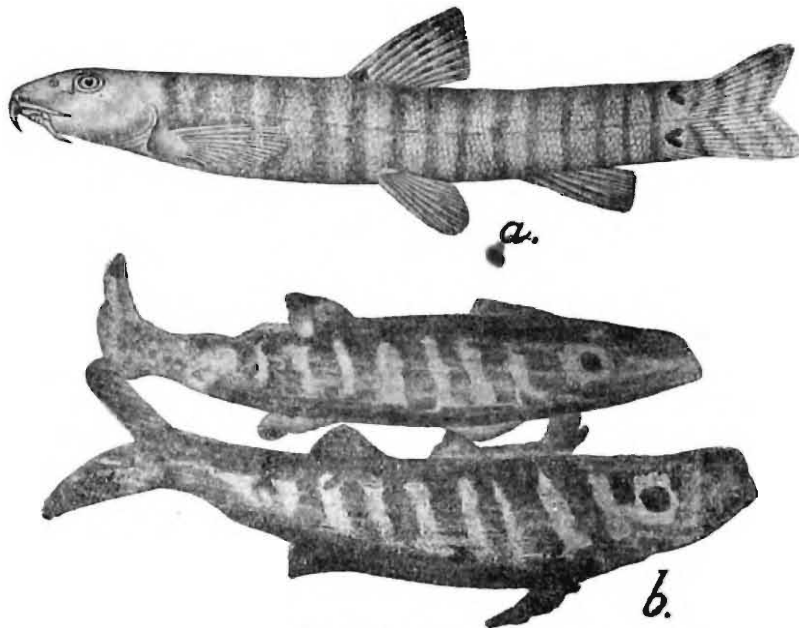
TEXT-FIG. 7.—Fish Paintings of Mahseer-like Fishes. Tracings of the painting of a pair of fishes on vase No. 256 of Hargreaves' list (Central Asian Antiquities Museum Reg. No. 43.20).

presented by cross lines, which is more realistic than the conventional representations of scales shown in the other paintings of Mahseer (*supra* p. 78) and *Garra* (*supra* p. 75.).

*Nemachilus* sp. prox. *baluchiorum* Zugmayer.

(Pl. V, fig. 1 ; Text-fig. 8.)

The painting seems to be that of a banded loach of the genus *Nemachilus*. Zugmayer found three species of this genus in the Baluchistan hills (Panjgur, Kelat, Nuski and Quetta) and in regard to colouration the painting seems to represent *N. baluchiorum* Zugmayer rather



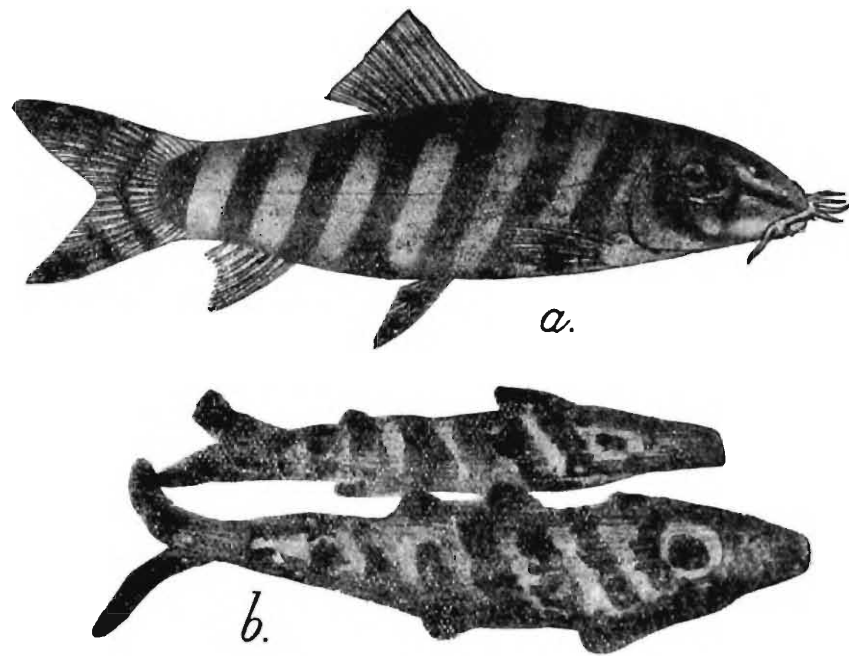
TEXT-FIG. 8.—Fish Paintings of Loach-like Fishes. a. Lateral view of a specimen of *Nemachilus baluchiorum* Zugmayer ; b. Tracings of the paintings of a pair of *Nemachilus*-like fishes on vase No. 256 of Hargreaves' list (Central Asian Antiquities Museum Reg. No. 43.20)

than the other two species. Such loaches are abundantly found among pebbles and shingle at the bottom of fast-running rocky streams. They do not grow to a large size, but they are much prized and regarded as a delicacy.

*Botia* sp. prox. *dario* (Hamilton).

(Pl. V, fig. 3 ; Text-fig. 9.)

*Botia* is also a loach-like genus, but is usually deeper of body and of a larger size. It prefers to live inside the pools of hill streams, where the current is slow and debris accumulates at the bottom. Zugmayer recorded *Botia geto* (Hamilton) from Baluchistan, but *B. geto* is now considered (Hora, 1932, p. 573) to be a young form of *Botia dario* (Hamilton). The commonest species in the north-west of India and in the Kashmir Valley is *Botia birdi* Chavdhuri, in which the colouration varies considerably.



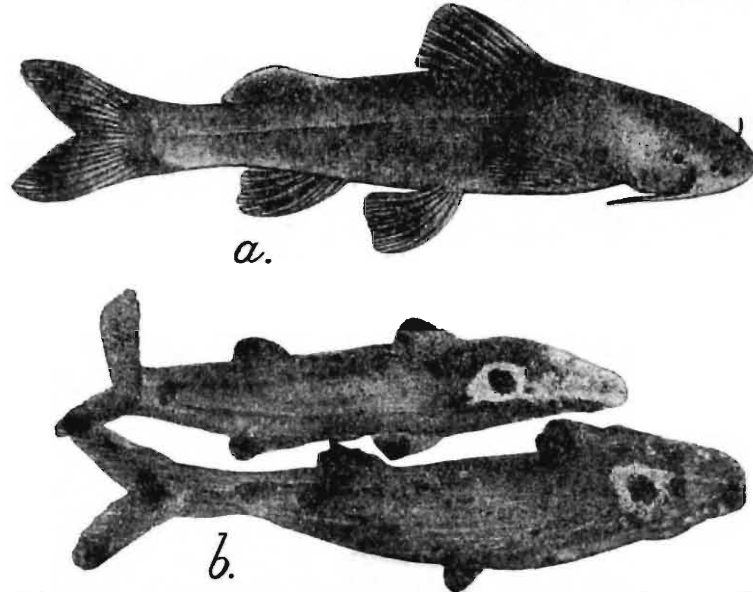
TEXT-FIG. 9.—Fish Paintings of Loach-like Fishes. *a.* Lateral view of a specimen of *Botia dario* (Hamilton); *b.* Tracings of the paintings of a pair of *Botia*-like fishes on vase No. 256 of Hargreaves' list (Central Asian Antiquities Museum Reg. No. 43.20).

The colour bands on the body run antero-posteriorly from the dorsal surface, but the Nal painter has shown them running in the reverse direction. With this exception, the likeness between *Botia dario* and the painting is very striking.

*Glyptothorax* sp.

(Pl. V, fig. 4 ; Text-fig. 10.)

This painting represents a pair of catfishes in which the body is not covered with scales. Zugmayer recorded three catfishes from Baluchistan : *Wallago attu* (Bloch and Schneider), *Mystus gulio* (Hamilton) and *Rita rita* (Hamilton). These three species are inhabitants of



TEXT-FIG. 10.—Paintings of Catfishes. a. Lateral view of a specimen of *Glyptothorax pectinopterus* (McClelland) X  $1\frac{1}{2}$ ; b. Tracings of the paintings of a pair of *Glyptothorax*-like fishes on vase No. 256 of Hargreaves' list (Central Asian Antiquities Museum Reg. No. 43.20).

ponds and rivers and are not found in hill streams in association with the type of fishes referred to above. In the depressed head and body, and the flattened ventral surface, the painting is similar to fishes of the genus *Glyptothorax* Blyth, which is widely distributed from the upper Euphrates and Tigris river basins in the west to India, Burma, Thailand, Central and Southern China, Indo-China, Malay Peninsula, Sumatra, Java and Borneo. Though the range of the genus is discontinuous at present, it is certain that it once had a continuous distribution. Therefore, it may have occurred in the Baluchistan hills during the period of the Nal Culture.

## FISH OF PREHISTORIC NAL AND THEIR ZOOGEOGRAPHICAL SIGNIFICANCE.

From the fish decorations on Nal pottery, it is not possible in all cases to be certain of their specific identity but there can be little doubt about their generic identifications, with the possible exception of a pair of fishes painted on vase No. 142 of Hargreaves' list (*supra*, p. 76). The genera represented in the paintings are :

- |                                    |                                  |                              |
|------------------------------------|----------------------------------|------------------------------|
| 1. <i>Garra</i> Hamilton           | 4. ? <i>Cyprinion</i> Heckel     | 7. <i>Botia</i> Bleeker      |
| 2. <i>Labeo</i> Cuvier             | 5. <i>Tor</i> Hamilton           | 8. <i>Glyptothorax</i> Blyth |
| 3. <i>Crossochilus</i> van Hasselt | 6. <i>Nemachilus</i> van Hasselt |                              |

The association of these genera at Nal shows the presence of fast-running clear streams in its vicinity. With the exception of *Cyprinion*, fishes of the other seven genera can be collected from any Himalayan perennial stream, as all of them have migrated westwards from their probable origin in the hills of southern China. *Garra*, *Labeo*, *Tor* and *Nemachilus* have extended their range as far as Africa though they are not found at present in the barren areas of the Middle East.

*Glyptothorax* has extended its range as far as the upper reaches of the Euphrates and the Tigris, though it is absent from the intervening areas. Its occurrence at Nal about 4,500 years ago would indicate heavier rainfall and more voluminous perennial streams. The Nal paintings of *Glyptothorax* serve to fill up a part of the eastern portion of the gap in the range of its distribution. Another important inference that can be drawn is that the

present discontinuity of distribution of some of the Indian hill-stream genera may have come about in the early centuries of the second millenium B.C. It can also be presumed that the westward migration of genera, such as *Botia* and *Crossochilus*, was interrupted about the same time.

The doubtful record of *Cyprinion* is very significant, for this genus represents a western element in the fauna of pre-partition India. Species of *Cyprinion* are known from Syria, Mesopotomia, Southern Persia, Baluchistan, Sind and the Punjab Salt Range. Six species are now known from Sind and Baluchistan (recorded as *Scaphiodon* by Zugmayer and systematised as *Cyprinion* by Berg). The remarkable fact that not one of these is properly painted on the Nal pottery points to the probability that this western genus had not established itself in Baluchistan during the time of the Nal culture. The distribution of the six species reveals some interesting zoogeographical data.

1. *Cyprinion watsoni watsoni* (Day). Sind.
2. *C. watsoni belensis* (Zugmayer). East Persia and Baluchistan.
3. *C. irregularis* (Day). Persian Baluchistan, Baluchistan, Sind, Salt Range and S. Waziristan.
4. *C. microphthalmum microphthalmum* (Day). S. Persia, Seistan and Baluchistan.
5. *C. microphthalmum nikolskii* (Berg). S. Persia and Baluchistan.
6. *C. milesi* (Day). Southern Persia and Baluchistan.

It will be seen that all the species that are found in Baluchistan are also found in Persia, which means that their eastward migration is so recent that there has not been sufficient time for racial differences to appear. Thus, in the prehistoric fish fauna of Nal, we are somewhere near the datum line when westward movement of the Indian fauna stopped and eastward movement of the Middle East species commenced. It will be interesting to correlate these conclusions with physiographic changes that may have taken place in the Persian-Baluchistan Region, but the subject is beyond the scope of this paper.

#### PROBABLE METHOD OF FISHING AT NAL.

So far as I am aware, no fishing implements have been excavated from Nal. Moreover, the usual methods of fishing by nets are not applicable to torrential streams. Angling was probably unknown at Nal as also at Harappā, for only one unbarbed hook has been found in the excavations at the latter locality. The methods of fishing by hill tribes are (i) by damming small channels and allowing them to run dry, when the stranded fish are caught by hand; and (ii) by poisoning the pools with certain plant juices which stupefy the fish and cause them to float to the surface. Both are now regarded as illegal methods, though still practiced everywhere in the hills.

The fish-decorations on Nal pottery show that fish were relished as an article of diet and that the fishes used as food came from torrential streams. But how these fishes were procured in sufficient quantities can only be guessed, though the long survival of traditional fishing methods suggests that the techniques now practised in the hills are probably derived from these known during the Nal culture.

#### SUMMARY.

All available data regarding fish paintings on Nal pottery have been brought together and the various types of fish painted have been identified and illustrated. The ecological association of these fishes is discussed, and it is pointed out that wetter conditions are likely to have prevailed in the Baluchistan hills during the period of Nal Culture. The identification of a Nal painting as *Glyptothorax* Blyth fills up a part of the gap in the range of its distribution. The doubtful identification of a fish painting as *Cyprinion* Heckel shows that the Middle East fauna either had not spread to Baluchistan at the time of the Nal Culture, or had only just begun to spread. The fish fauna of the Nal period, therefore, provides a datum line, when the spread of the eastern fauna towards the west may have stopped and the spread of the Middle East element may have commenced. In the absence of any fishing implements discovered at Nal, it is presumed that fish were caught by hand, either by damming portions of streams or by poisoning pools with plant juices.

## ADDENDUM.

## Vase No. 184 of Hargreaves' List.

(Plate VI, figs. 1 and 2.)

Hargreaves' has described this vase as having "Four panels. Two panels with D 36, third panel part of left of D 36, fourth panel a fish". Fig. *a* of plate xx in Hargreaves' memoir reproduction herein as fig. 1, plate VI is likely to be this vase, though the fish is not shown.

When this article was in proof stage, Mr. L. K. Elmhirst, Totnes, Devon., U.K., sent me a photograph of a vase reproduced here as fig. 2, plate VI. The above illustration shows three panels, the two side ones with indications of D 36 and the central one with a fish of the hill-stream type, probably *Labeo*. The representation of scales is quite different from that shown in any Nal fish drawing.

Though the designs are thus similar in both Hargreaves' and my illustration, the two vases seem to be different; the former more agreeing with the description of 184 rather than the latter. As such, it is apparent that the vase represented as fig. 2 in the plate has not been listed by Hargreaves.

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## APPENDIX

## A NOTE ON NĀL

By A. GHOSH, *Director General of Archaeology in India, New Delhi*

The mound known as Sohr Damb, about 1,000 feet in length and 600 feet across in its widest part, lies about 4 to 5 miles to the east of Nāl in the Jhalawan Division of Kalat State, Baluchistan. It had been sporadically excavated in 1903, 1908 and 1923-24 by treasure-hunters, and its beautiful pottery had drawn the attention of archaeologists as early as 1904 (Marshall, 1908, pp. 105 ff.). But it was in 1925 that it was systematically excavated by H. Hargreaves of the Archaeological Survey of India (Hargreaves, 1929).

Excavation in Area A revealed stone walls pertaining to thirteen rooms and courtyards, but it was not clear whether they represented ruined habitations or formed an integral part of a cemetery which was found to occupy the whole area. However, from the occurrence of similar walls in association with an allied cemetery at Damb Buṭhi (see below), the latter alternative seems to be correct. The methods of inhumation in the cemetery were as follows :

1. *Fractional burials*.—These were found in individual groups, each represented by bones, often including skulls, and collections of pots, many of which contained fragments of bones, but it was not evident whether these bones were originally placed in the vessels or later found their way into them. The limits of individual burials were in no way marked.

2. *Complete burials in defined graves*.—Only three examples of complete inhumations, two of infants and one of an adult, were found, each contained in a grave lined with mud-bricks. None of them contained any grave-furniture, but one, that of an infant, had a few beads and a pendant.

3. *Complete burials without defined graves*.—One such burial was that of an infant without any funerary vessels, and the second one consisted of a very small damaged skull and a vessel. A large number of beads near the position of the neck were no doubt the remnants of a necklace worn by the infant at the time of interment. Though there were no other bones, it was surmised that the grave represented 'the complete burial of the newly born child whose other bones had quite disappeared'.

In addition to the pottery, which was definitely funerary in character, the other objects recovered from the area were : beads found here and there, besides those found in the graves themselves ; a limestone weight ; a grinding stone ; a marble ringstone ; a stone chisel ; a fragment of a pottery vessel worked to simulate a copper tool ; and copper implements. The significance of some of these finds are discussed below.

In Area D were found the ruins of a heavily burnt structure, evidently without any funerary association. While a copper knife indicated a Copper Age occupation in this area, like Area A, the shape and fabric of the pottery were entirely different. Similarly, Area F had pottery unlike the cemetery ware but yielded a copper chisel, a copper seal and a few beads.

Area G, near Area A, also contained stone walls. The clearance of three rooms yielded a large number of beads, a quartzite grinding stone and grinder (below the floor), a copper chisel, a steatite seal bearing the design of a vulture (?) with one foot on a snake. There was only one group of a few bones and a large number of vessels similar to those from Area A.

The other objects recovered from the site included a silver finger-ring, galena, cerussite and leaden slag (though no lead objects were found), a shell bangle and a large number of terracotta figurines, mostly representing humped bulls (none, however, associated with burials)<sup>1</sup>. A large number of copper implements, some of them seemingly belonging to the graves, formed an important group of finds.

The typical cemetery-pottery comprises the following types : (1) bowls with vertical, inverted, inturned or everted featureless rim, vertical or oblique body with a sharp carination between the body and the base ; (2) small jars with out-turned featureless rim and with sharply carinated or concave neck, the profile being squat (with or without carination) or bulbous ; (3) tall vases with similar rim-characteristics. A notable feature is the predilection for stable bases in the form of ring-base, footed base, flat base and even omphalos-base. The specialized types include : (1) bowls with ring-base, the rim and body deeply pinched at four places to form an Indian lamp ; (2) cylindrical bowls with short vertical featureless rim, broad and high shoulder, vertical body and carinated omphalos-base ; and (3) double cylindrical bowls.

The pottery is invariably wheel-made and is of fine texture. The colour ranges from greenish grey to buff and pinkish but is also rarely dark brownish or almost black. A large proportion of the pottery has distinctive paintings, the patterns consisting mostly of geometrical designs—vertical or oblique hatching, criss-cross, zigzag, diamond, single or multiple loop, roundel, omega and multiple 'steps'. The animals represented are humped bulls, scorpions, birds, fish and ibex. Leaf-designs are rare but include the *pipal*. A distinctive feature of the painting is that it is polychrome, the colours used being red, blue, green and yellow. The large variety of colours, applied on a white, red, blackish, greenish grey, buff or pale brown slip, marks out the Nāl pottery as unique among the cultures of the Ancient East. Both the pottery-forms and painted designs indicate sophistication and maturity.

1. The terracotta figurines may belong to an earlier (Kulli) culture, into the remnants of which the Nāl burials seem to have been cut. (Gordon, 1954 and 1955, p.161).

The distribution of this pottery is, however, very limited, being confined to two other places—Nūndara in south Baluchistan (Stein, 1931, pp. 138 ff.) and Damb Buṭhi near Lake Manchhar, District Larkana, Sind (Majumdar, 1934, pp. 114 ff.). Like Nāl the latter place was a cemetery with fractional burials contained in masonry-built rooms. The painted designs on the pottery here, done in black or chocolate on creamish or buff slip, sometimes with reddish brown bands, are usually geometrical and are in many cases identical with the Nāl ones. There is also a close analogy in the pottery-shapes.

Nūndara is a habitation-site with no burials. The pottery is strongly reminiscent of Nāl in shape, polychromy and painted motifs.

It is difficult, in the absence of definite stratigraphic evidence, to place the culture represented at these three places in its proper chronological setting. While it is certain that the culture belongs to the complex of Copper or Bronze Age cultures of north-western India, it cannot be affiliated with precision to any other group of such cultures. It has, however, been felt that the polychrome pottery of the culture had its background in the bichrome pottery of the Amri group, with which it shares the characteristic of belonging to the 'buff-ware', as distinct from the 'red-ware', class of cultures, and that some of the designs on the latter became more stylized at Nāl (Majumdar, 1934, p. 151). The priority of Amri to Nāl may thus be a probability, but, as pointed out by Krishna Deva and McCown (1949), pottery with the Nāl technique of painting occurs with Amri pottery at Roheljo-kunḍ and in the pre-Harappā levels at Pāṇḍi Wāhī (both in the Gāj valley of Sind), thus indicating a partial contemporaneity as well. Surface-collection from Tando Rahīm Khān and Chhutjo-kunḍ in the same valley (Krishna Deva and McCown, 1949) may possibly point to the same conclusion. While, however, the ceramic industries of Nāl and Amri are comparable in fabric and, to a degree, in painted designs, there are remarkable differences in pottery-shapes. A way of interpreting all these facts is to regard the two pottery-types as parallel, slightly divergent, products of a single culture (Piggott, 1950, p. 82).

The Amri culture is definitely known from the clear stratification at Amri itself in District Larkana, Sind (Majumdar, 1934, pp. 24 ff.), to have preceded the Harappā culture, the greatest of the early north-western cultures, the date of which may be fixed with some degree of accuracy to the second half of the third millennium and early centuries of the second millennium B.C. But this chronological sequence between Amri and Harappā does not necessarily help in correlating Harappā and Nāl. The priority of Nāl, by virtue of its association with Amri, to Harappā may be a reasonable guess; at the same time, if it survived Amri, the possibility of its having witnessed the rise of Harappā and having been, to a certain extent, coeval with it, cannot be entirely ruled out. Indeed, there is some meagre evidence to show that this might have been the case (Piggott, 1950, pp. 34 ff.). A few painted designs, e.g. *pīpal* leaf and intersecting circles, on the pottery of Harappā and Nāl are analogous. The stone weight from Nāl mentioned above is paralleled by similar objects from Mohenjo-daro (Hargreaves 1929, pl. XVb; Marshall, 1931, III, pl. CXXX, 25-26), where, however, the standard weights are cubical. The tiny disc beads of white paste<sup>1</sup> are typical of Harappā, and long cylindrical circular beads of the same material, though not a very characteristic shape, are common to both. The similarity extends to other elementary bead-shapes of different material. No comparison, however, is possible, apart from the identity of material, between the Nāl seal and the Harappā seals, for the shapes and designs have nothing in common. There is also not much to compare between the metal weapons of Nāl and Harappā beyond a common primitiveness of form.

Some overlap between Nāl and Harappā is therefore possible. But the belief that the former survived the latter (Piggott, 1946, p. 13) does not seem justified. A single sherd from the (post-Harappā) Jhūkar level at Lohumjo-daro, said to have 'a Nāl feeling about it' (Majumdar, 1934, p. 57), need not lead us to conclude that Nāl outlived Harappā, for it is highly unlikely that the few sites of that culture would represent a life even longer than the over-long life of Harappā.

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<sup>1</sup>These beads, forming part of a string of twenty beads, are mentioned by Hargreaves to have come from A5, but are not stated anywhere to have formed part of the grave-goods.