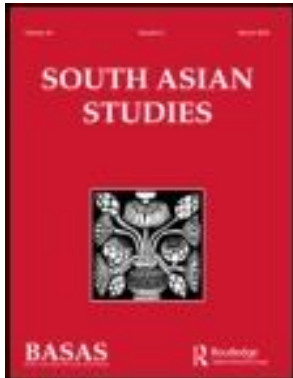


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Harappan Chimaeras as ‘Symbolic Hypertexts’. Some Thoughts on Plato, Chimaera and the Indus Civilization

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This paper presents an analysis and interpretation of the so-called Harappan *chimaera*, one of the most peculiar and elaborate iconographies of Indus Civilization (c. 2600–1900 BCE). It is represented on many stamp seals of fired steatite and corresponding clay sealings, terracotta tablets in bas-relief, copper tablets, and tokens. The Harappan chimaera was composed of body parts derived from different animals, as well as humans and other fantastic beings of the Indus imagination. A detailed documentation and description of all the objects bearing chimaeras makes it possible to recognize not only a basic set of regular combinations and some aspects of their possible change in time, but also visual associations among selected parts of the chimaera’s body that could be perceived and semantically interpreted at different levels. We believe that the sophisticated structure of these images fully deserves to be considered an early form of ‘hypertext’, following definitions currently used in computer sciences. We conclude by relating the evidence and its cognitive background to other spheres of the early urban societies in the Indus basin.

Keywords: Indus Civilization; Bronze Age; Seals; Chimaera

‘One of those natures such as the tales say used to come into being in olden times – the Chimaera, Scylla, Cerberus, and certain others, a throng of them, which are said to have been many forms grown naturally together in one’. Plato, *Republic IX*, 588c.

The Indus (or Harappan) Civilization of the Indus River basin in Pakistan and north-western India was acknowledged almost a century ago as an independent cultural complex contemporary to the other great Bronze Age urban civilizations in Mesopotamia and the Middle East.¹ Nonetheless, in spite of a continuous flow of research, many fundamental aspects of its social-political, economic and cultural organizations, and their development through time are still rather elusive. Interpretation often depended upon weak theories and hypotheses about the still undeciphered ‘Indus Script’ or ‘Indus Writing System’.²

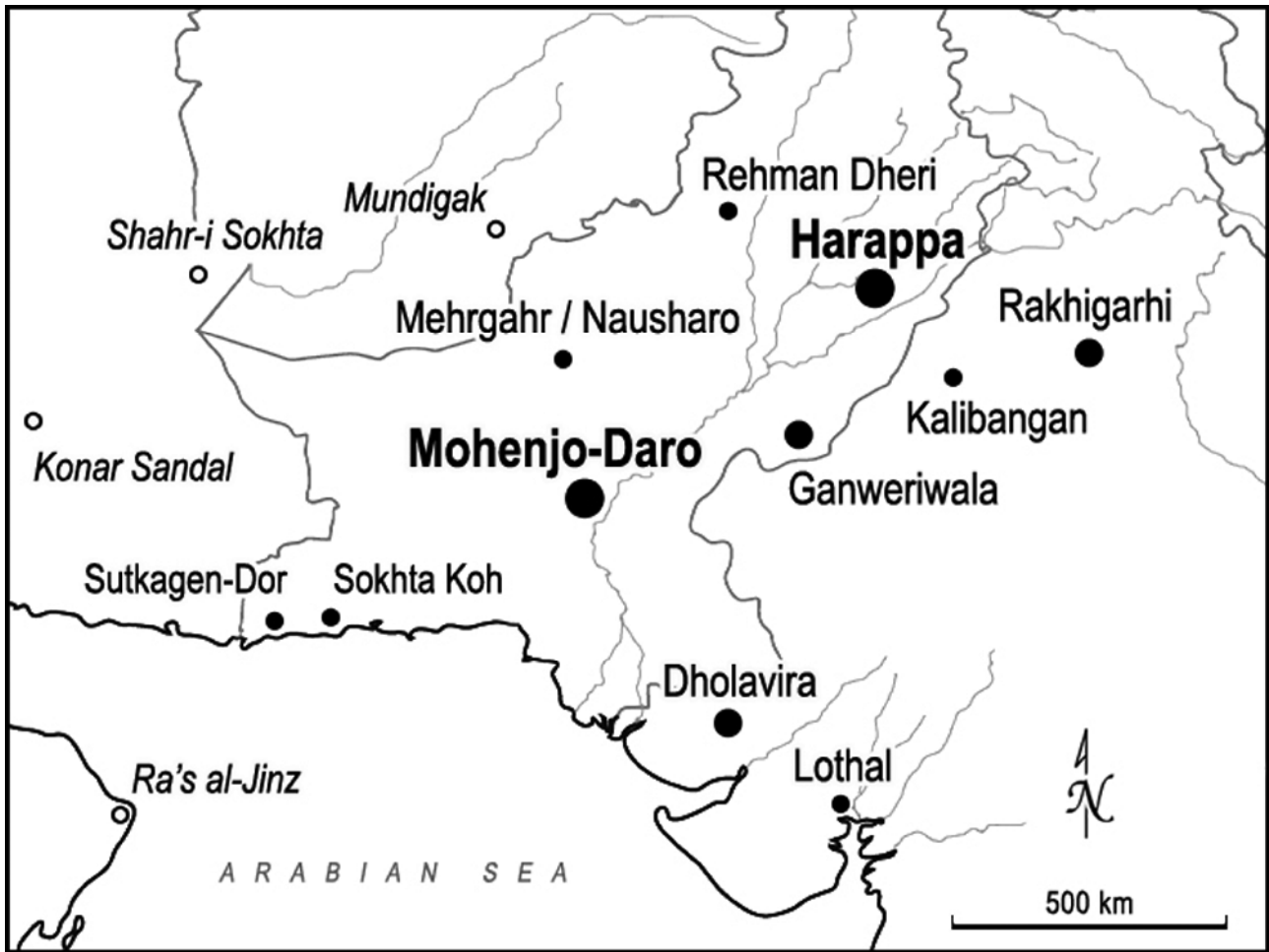
Square stamp seals made of fired steatite with engraved animals and short inscriptions are one of the most typical archaeological markers of the Indus Civilization. The standard Indus seals bear animal icons, mainly images in profile of a single standing animal (real or imaginary), but also composite creatures and narrative scenes possibly related to religious and/or mythological beliefs. In addition, a short sequence of Indus signs was nearly always carved specularly above the animal icons and the narrative images, so as to be read correctly once stamped for sealing on clay or other soft

materials.³ This type of seal was suddenly introduced around 2800 BCE, along with an early form of Indus Script and other methods of administrative control like standardized weights and length units.⁴

The two centuries between 2800 and 2600 BCE represent the peak of a long process of integration and cultural assimilation of different regional cultures that resulted in the Indus Civilization (c. 2600/2500–1900 BCE). During the successive six or seven centuries the most distinctive cultural traits of the Indus Civilization spread, with little regional variation, over a vast territory highly differentiated in geography, ecology, and probably also ethnic composition (Figure 1). In the first centuries of the second millennium BCE the Indus Civilization collapsed as an integrated system with the sudden disruption of political alliances and trade networks, the abandonment of many urban centres, and the disappearance of several distinctive features of the Indus urban culture. Also, writing and inscribed seals were forsaken along with the use of cubical stone weights and many other administrative and symbolic objects.

The general acceptance of 2600/2500 BCE as the initial stage of the Indus Civilization and of 1900 BCE for its disaggregation as an integrated political and socio-economic entity is based on a large quantity of radiometric dating obtained at the site of Harappa (Punjab, Pakistan) and from sites in other regions of the Indus system (Table 1).⁵

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1. Map of the Indus basin and the surrounding regions with indication of the major sites of the Indus Civilization (black dots) and other contemporary sites (white dots).

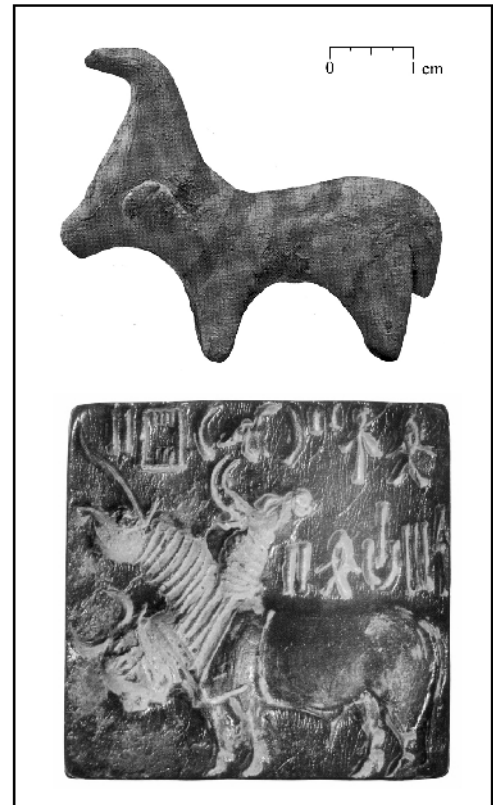
Table 1. Chronology of the Indus Tradition of Pakistan and northwestern India (Mhr = Mehrgahr; Nsh = Nausharo; Hrp = Harappa).

Indus Tradition Phases	Sites Phases	Chronology
Early Food Producing Era	Mhr 1	ca. 7000–5500 BCE
Regionalization Era	Mhr 2–3	5500–3500 BCE
	Mhr 4–6, Hrp 1	3500/3300–2800 BCE
(Early Harappan Phase)	Mhr 4–6, Nsh 1, Hrp 2	2800–2600 BCE
Integration Era	Hrp 3A, Nsh 2	2600–2450 BCE
(Mature Harappan Phase)	Hrp 3B, Nsh 3	2450–2200 BCE
	Hrp 3C	2200–1900 BCE
Localization Era	Hrp 4	1900–1800 BCE
(Late Harappan Phase)	Hrp 5	1800–1500 BCE

Was the Harappan unicorn a stylized bovine or a mythical creature?

Before beginning a detailed analysis of Harappan chimaeras it is first necessary to discuss the famous Harappan unicorn bull that is most commonly found

carved facing a mysterious standard-like object on the square steatite seals (Figure 2). The unicorn depicted on seals, often interpreted as an imaginary being in itself, was in fact one of the main components of the Harappan chimaera and the creature most represented on Indus seals and tablets. This enigmatic animal accounts for



2. Stamp seal with Harappan unicorn (left, M-18 in Joshi and Parpola; not to scale); terracotta figurine of a unicorn humpless bull found at Chanhu-daro by E.J.H. Mackay (top right, courtesy of Museum of Fine Arts, Boston); stamp seal with Harappan 'unicorn' depicted along with two-horned animals composing a three-headed creature (lower right, M-1169 in Shah and Parpola; not to scale).

about 70% of all the images engraved on these seals, but its interpretation is still matter of a complex debate.⁶

The first Indus seal ever collected, the so-called 'Major Clark' seal published by Sir Alexander Cunningham in 1875, is carved with the unicorn motif. Since it does not have the characteristic hump of the Indian zebu, Cunningham suggested that the seal was foreign to India.⁷ In fact, unicorns are always depicted as humpless bulls with a single sinuous horn unnaturally projecting from the nuchal crest. They are also depicted in profile with one small raised ear, a prominent eye, and an upraised rounded muzzle. Oddly, a collar-like neck band and/or multiple wrinkles mark the long neck and a distinctive heart-shaped decorative motif is nearly always placed on its shoulder. The long lowered tail ends with a pointed and sometimes twisted tuft.

Scholars are still divided between those who consider this icon merely to be the simplified rendering of an actual bovine in profile, with the two horns perfectly superimposed, and those who think that it was instead an imaginary unicorn creature of the Indus mythology.

The first hypothesis is based on the fact that rhinoceroses are represented with both ears, while unicorns

show only one ear. Accordingly, the horns might have been rendered following the same stylistic convention. E.J.H. Mackay wrote that 'owing to the difficulty of drawing in perspective, one horn is supposed to be behind the other. This method of portraying horns is well known on archaic Sumerian seals'.⁸ A. Parpola further remarks that 'in Mesopotamia the bull is also often depicted with a single horn [. . .] considering the fact that the Harappans borrowed other art motifs from Mesopotamia [. . .] they borrowed the motif of a single horn as well'.⁹

However, other bovines or goats are always correctly engraved with two perfectly stylized horns, as stressed by J.H. Marshall, who considered the creature imaginary.¹⁰ Evident differences between the rendering and shapes of the horns also exclude the possibility that a few seals with the unicorn as a component of multi-head creatures might represent the same two-horn animal in different poses (Figure 2).¹¹ On the contrary, they further prove that the Indus engravers had no technical problem in carving animals with two horns. The rare unicorns represented with two big lunate (rarely toothed) horns resemble the evidently imaginary 'horned' tigers more than actual buffalos or zebus.¹² Indus iconography allowed a high degree of

freedom in the use of different body parts. Horns probably had a precise meaning even when extrapolated from their anatomical and specific contexts.

The second hypothesis, suggesting that unicorns were mythical beings, is mainly supported by the discovery of small terracotta figurines of animals with a single prominent horn, very similar to the ones represented on seals (Figure 2). After discovering the first unicorn figurine at Chanhu-daro in 1929, N.G. Majumdar wrote that it 'suggests the possibility that the "unicorn" so common on the Indus seals may after all have been intended for a one-horned animal and not a two-horned creature seen in profile'.¹³ Many other figurines of unicorns have been found at Chanhu-daro, but also at Mohenjo-Daro, Harappa, and Ganweriwala.¹⁴ This indisputably demonstrates that this creature was conceived by the Indus people as an actual unicorn at least during the second half of the third millennium BCE, when it was also depicted on the stamp seals.

Furthermore, as stressed by J. M. Kenoyer, the Indus unicorn was not the only case of prominent fantastic animals used as powerful symbols during the Bronze Age; 'these figurines and the seals motifs demonstrate that the Indus people believe in this one-horned animal [. . .] perhaps this animal was like the mythical animals carved onto the Shang bronzes in early China that guided and protected the owner in the real world as well as in the spirit world'.¹⁵

Harappan chimaeras and their relationship with the Greek myth

One of the most intriguing aspects of the Indus seals iconography is the creation and frequent use of composite images made by assembling with remarkable arbitrariness anatomic portions of different animals and human body parts. The repertory of these organic associations is actually limited and seems to follow a set of rules of association, if not some kind of grammar. Various components of the designs and their links probably had precise symbolic implications or standard meanings, well understood or decipherable by the users of the seals. On the other hand, the liberty with which Indus seal cutters in the third millennium BCE combined heads and other animal and human body parts may remotely anticipate a similar trend in the later Indian sculptural tradition of the religious stone statuary of the late Kushana period.¹⁶ Among the fantastic products of the Indus artists is an impressive creature made of many different parts, which was certainly expressing one or more complex templates. This creature is known from a limited series of steatite stamp seals and from even rarer clay sealings or pictures on other media. We will call this imaginary being the 'Harappan *chimaera*'.¹⁷

There is little doubt that the use of an ancient Greek name and concept for this Indus image creates a bias. We do not include a detailed etymological, iconographic, and mythological study of this imaginary creature, which was the subject of depictions, fables, and ideas stratified along millennia of prehistory and history. However, it is worth noting that its name is rather obscure. Many think that the Greek *chimaira* could simply be a feminine form of *chimaros*, 'he-goat',¹⁸ somehow also related to the term *cheima*, 'winter'.¹⁹ In this light, *chimaera* could also mean 'winter goat', a young goat that passed one winter, or a goat in winter fur. In ancient Greece *chimaera* was a rather popular monster, but even classical writers, two thousand years ago, wondered about its features and name and tried to justify rationally its odd nature with erudite explanations, for example linking it to natural volcanic phenomena. Besides Plato, *chimaera* was mentioned by poets and historians like Homer, Hesiod, Pindar, Pseudo-Apollodorus, Strabo, Pausanias, Diodorus Siculus, and others as a fierce, fire-breathing beast who lived in the East, possibly in Anatolia, until it was killed by the hero Bellerophon.²⁰ The creature had a snake or dragon for a tail, the central part of the body of a goat, a goat-like head emerging from its back, and a lion head crowned by a thick mane, even if the ancient texts always refer to the creature as female.

The Indus creature (Figures 3, 4, and 5) was composed of three major animal parts (plus other secondary parts as detailed in the following paragraph), respectively, from the rear: snake (cobra), feline (tiger), and goat (markhor).²¹ Even though the order of the two latter parts is sometimes switched and there are – as we shall see – other animal elements and more complex combinations, this is enough to consider this early Indian composite creature in the imposing and very mysterious evolutionary tree of *chimaeras*, although at a good branching distance from its later Greek versions. The analogy would also disprove Roes's idea that the image of the monster in the archaic and classical ages was due to a gross misidentification by the Greek craftsmen of the model of a winged lion.²² It is also intriguing that the goat part of the Harappan *chimaera*, distinguished in the seal imagery by its abundant fur, belongs to the markhor, whose grey, silky fur and beard develop just in winter. Is this enough fully to justify the use of the ancient Greek word? Perhaps not, but by giving up the name, we would actually lose a consistent set of possible related meanings, and 'chimaera', at any rate, looks like the best name we might find.

The fact that the archaic myth of *Chimaera* is one of the most obscure of the whole of Greek mythology does not help. For some reason, the tale, at least in some versions, has an evident metallurgical theme. Bellerophon kills *Chimaera* from above, while riding his winged horse Pegasus. He shoots lead-tipped arrows in the monster's mouth, and these suffocate the invulnerable creature



M-299



M-300



M-301



M-302



M-303



M-1172



M-1178



M-1173



M-1174



M-1175



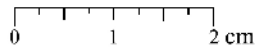
M-1176 *



M-1177



H-96



3. Harappan chimaeras on square stamp seals in fired steatite (from Parpola's CISI volumes – see notes 2 and 3).



H-593



H-594



H-595



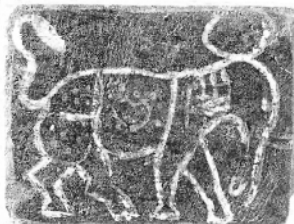
M-324



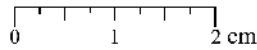
M-1927



M-571



M-436



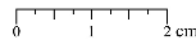
H-168



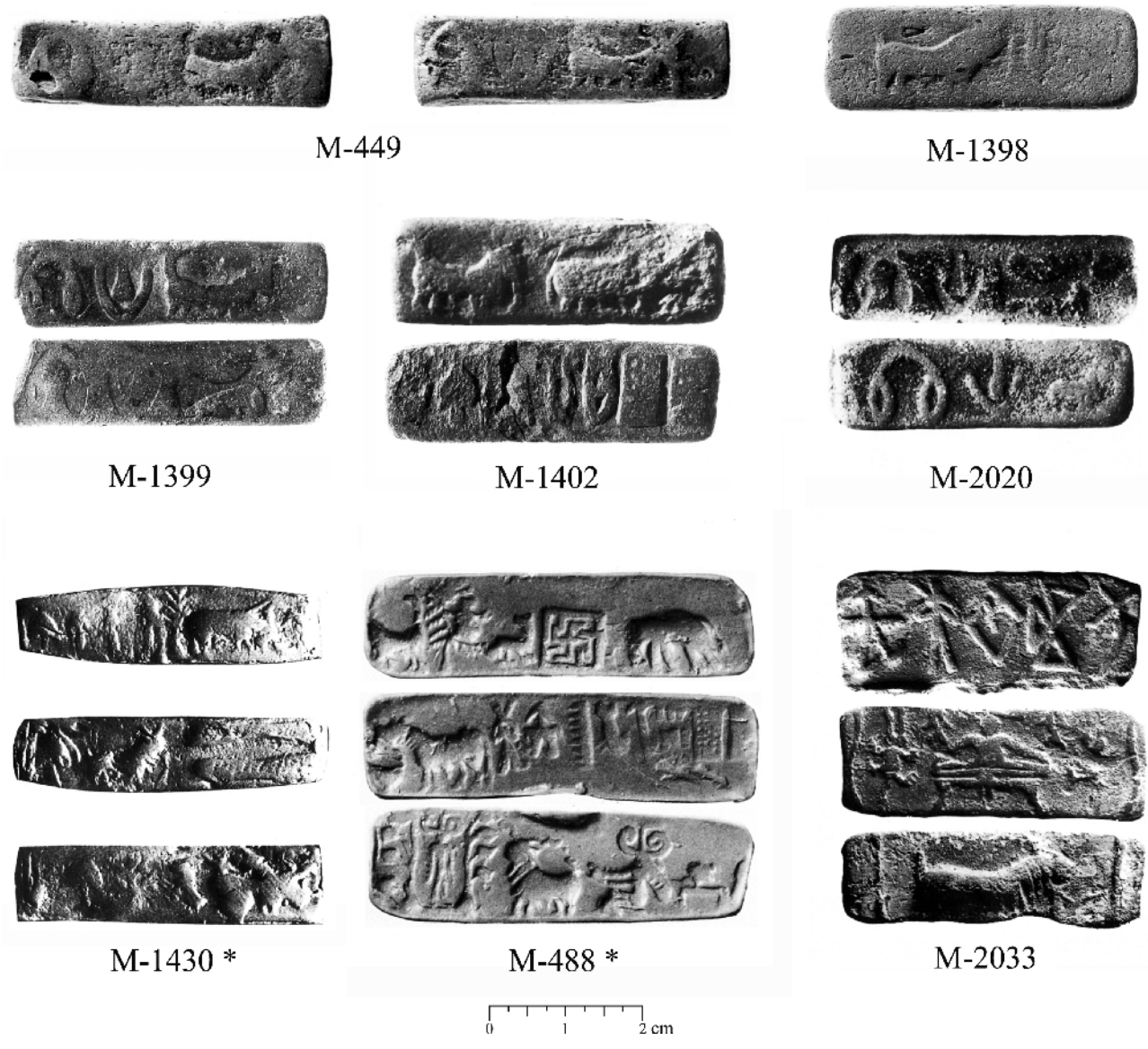
K-85



L-220



4. *Harappan chimaeras on square stamp seals in fired steatite, copper tablets, and clay seal impressions (from Parpola's CISI volumes – see notes 2 and 3).*



5. Harappan chimaeras on terracotta tablets (from Parpola's CISI volumes – see notes 2 and 3).

by melting in its throat. The action and postures of the actors evidently recall a smith staking a furnace in the process of being chocked by a sudden flow of molten lead. Chimaera, in other words, might have been imagined as a flaming lead- or copper-smelting furnace destroyed by a sudden collapse. Whether and how far similarities and intuitions of this kind might reveal something of the nature of the prehistoric monster, as well as of other creatures that figure on the Indus seals, it is impossible to say. The nature and background of Chimaera are fluid and elusive. It was a beast of unfathomable roots, multiple facets and many meanings.²³ The same statement might be true of many images of Indus iconography.

Harappan chimaeras as symbolic hypertexts: structure, parts, and associations

To a large extent, the world of Indus iconography is miniaturistic, and it is difficult to tackle its subtleties without multiple processes of magnification, close-up analysis, and a highly critical attitude. This study is based on the seals published in the three volumes of the *Corpus of Indus Seals and Inscription (CISI)* edited by Asko Parpola and his collaborators.²⁴ We identified thirty-one cases, scrutinizing every available image in detail (Figures 3, 4, and 5). The best preserved and complete chimaeras were then re-drafted in a wider scale with standard graphics, isolating

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their images from the background of the seals or seal impressions and the associated inscriptions.

The chimaeras of the Indus seals have been frequently described and interpreted in a rather superficial fashion. For example, B. Allchin and FR. Allchin ascribe the mane of the creature to a lion, which is never represented in Indus seals, and the body, fore-legs, and hooves to a bovine, and, quite oddly, they recognize the erected curved tail as belonging to a baboon, which is equally absent in Indus seal iconography.²⁵ E.J.H. Mackay also identified the fore-legs as bovine, and the bands on the neck as 'garlands'; because of these purported ornaments, he thought that the monster was worshipped as a divinity.²⁶ Both J.H. Marshall and E.J.H. Mackay mistook the open mouth of the snake, describing it as pincers.²⁷ Marshall was otherwise correct, identifying the other components of the chimaera as being parts of a ram, bull (the horns), and elephant. J.M. Kenoyer has correctly recognized and described the creature and its main components, but he has not deepened his interpretation beyond the first level of symbolic understanding.²⁸

The Harappan chimaera (Figure 6) actually has the hind quarters and rear legs of a tiger, with striped haunches and emphasized claws. The tail is an erect cobra with the hood inflated in the typical attack position, as demonstrated also by the gradual thinning of the reptile's body from the head to the tail, a formal detail already noticed by Mackay.²⁹ The snake is represented from a lateral viewpoint, but the ventral side was frequently enhanced by series of horizontal traits. In most cases, the central body of chimaeras belongs to the typical Indus unicorn, another fantastic creature extremely popular in the stamp seals of the Indus civilization. By embedding the centre of the unicorn's body, the Indus Chimaera gets a penis, and this gendered it as male, in contrast with later Greek chimaeras.

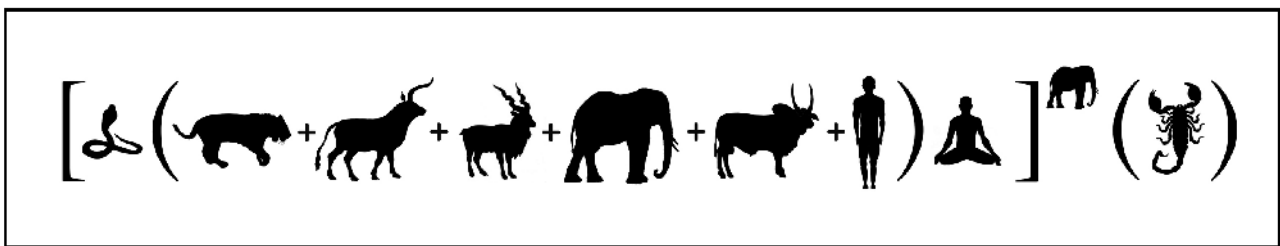
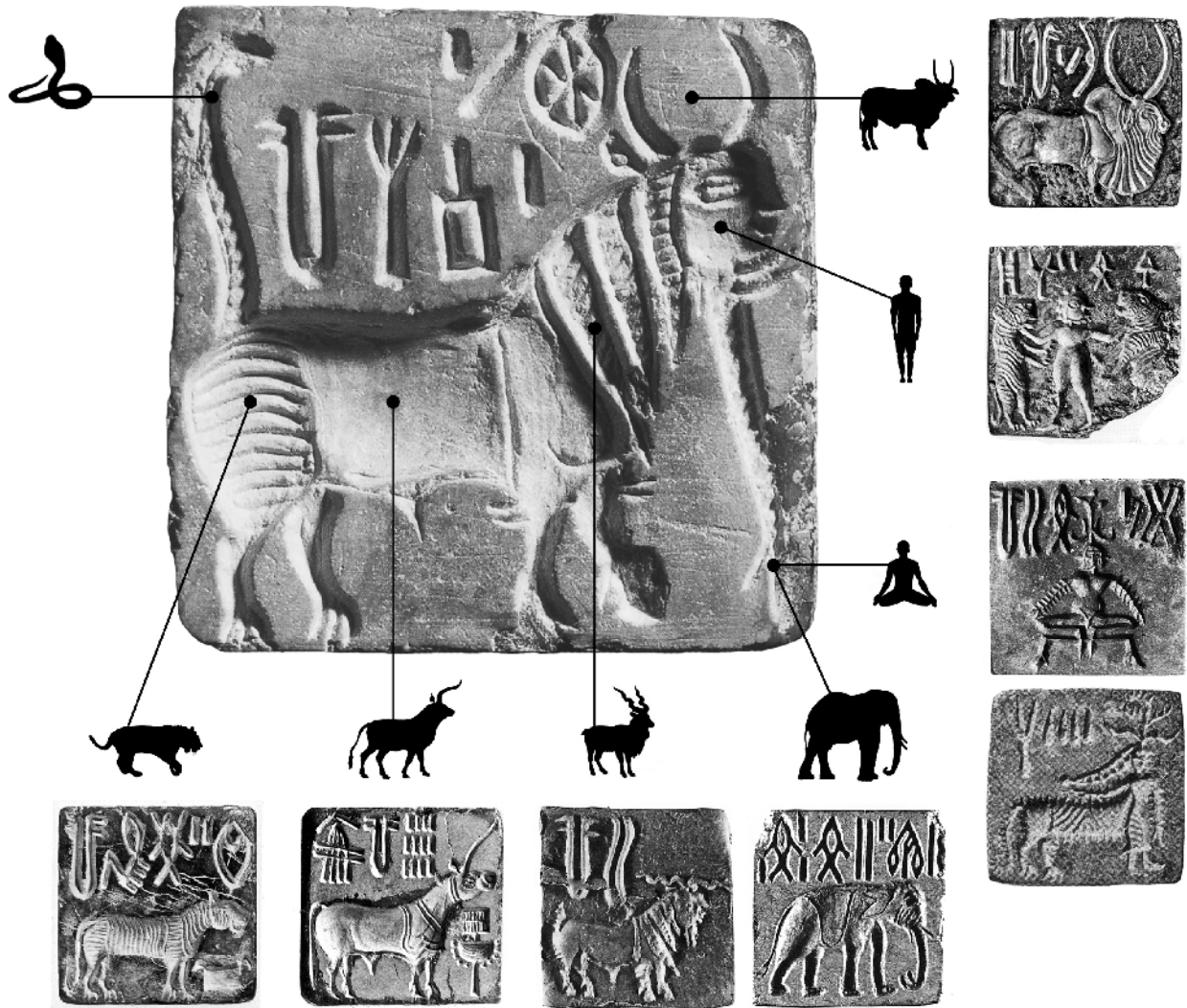
The neck is covered by a series of broad wavy bands. These stripes, generally segmented, were often used by the Indus seal carvers conventionally to identify and represent the thick mane of markhors (*Capra falconeri*), the large wild mountain goats of the Hindu Kush valleys.³⁰ Moreover, the ear of the monster is identical to the upraised ears of markhors as they appear in Indus seals. In the same representations, markhors, almost as a rule and for unknown reasons, have a human face rendered, in some cases with a sign from the undeciphered Indus script.³¹ The heads of the chimaeras, represented in profile, are also clearly human, with a protruding nose-like feature. In some seals the face of the monster is circular, as if strangely inflated. The front legs of the chimaeras also belong to markhors, as revealed by the two oblique traits suggesting flecks of fur at the joint with the chest and the goat-like hoof. On the whole, there is little doubt that the entire front part of the monster was taken from a standardized, imaginary depiction of this impressive wild mountain goat, combining a goat body with a human head. A. Degener

collected a series of lore tales and legends in Nuristan and in Iran in which markhors are the property of fairies and are capable of surprising transformations. He suggests that these tales belong to a pre-Islamic Dardic and Kafir cultural substratum where these animals are closely related to a divine character identified as a 'Lord of the Beasts'.³²

Moreover, two (or one) short crescent-like tusks and a proboscis-like appendix give the chimaera a general elephantine appearance. In some cases, the proboscis hangs from the human face in the place of a long beard. The tusks are strangely suspended below the chin and they cross the trunk without any attempt at naturalism. Finally, the creature has two large lunate horns on the forehead. When we compare these horns with those of the humped bulls in the standard stamp seals the similarity is striking, but in chimaeras the horns are often serrated.³³ As an isolated component, the proboscis is a familiar feature of Indus seal iconography: the conventional depiction of a human arm entirely covered with piles of bangles. Such bangle-covered arms can be found on a few known horned human-like figures seated in yogic poses over a throne or standing within a pipal tree (possibly as a pipal-deity or a man in meditation beneath the tree),³⁴ as well as on centaur-like creatures, part human and part tiger (Figure 7).³⁵

In seals with images of actual elephants the trunk is rendered with quite different features, hence the hidden analogy and the link to a human arm entirely covered with bangles might be considered as another distinctive trait of chimaeras.³⁶ The arm's extremity has precisely the conventional form of human hands in other human figures on seals, possibly underlining the prehensile nature of the elephant's trunk. The same idea is still well expressed in the Sanskrit word for this animal: *hastin* (Hindi, *hāhī*), meaning 'the one with a hand'.³⁷ But we are dealing with multiple interlaced syntactic structures here. Focusing on the two horns and on the hanging arm-like proboscis, it is also possible to perceive the basic image of a scorpion: the chimaera's horns are open pincers, the proboscis hints at the tail and the stinger, and the round inflated human face represents the scorpion's body. At the same time, it also forms the forehead of the elephant-like overall contour of the chimaera (symbolized by the elephant icon as exponent in the 'expression' of Figure 6).

Besides the irrational combination of all the creatures so far mentioned (real, fantastic and composite), the total disregard for any realistic proportion is part of a pure hyperbolic paradox. Parts of the creature, with their unknown symbolic meanings, could be variously linked to other components of the design, evoking different beings in new levels of recognition and meaning through intuitive association. The way in which the single parts or clusters of parts of chimaeras are combined at the same time both in paratactic and syntactic fashion closely recalls hypermedia and hypertexts in the rapidly evolving contemporary information technology lexicon.



6. Harappan chimaera and its hypertextual components (re-elaborated from Parpola's CISI volumes – see notes 2 and 3). The 'expression' summarizes the syntax of Harappan chimaeras: within round brackets, creatures with body parts used in their correct anatomic position (tiger; unicorn, markhor goat, elephant, zebu, and human); within square brackets, creatures with body parts used to symbolize other anatomic elements (cobra snake for tail and human arm for elephant proboscis); the elephant icon as exponent out of the square brackets symbolizes the overall elephantine contour of the chimaeras (emphasized in Type 2); out of brackets, scorpion indicates the animal automatically perceived joining the lunate horns, the human face, and the arm-like trunk of Harappan chimaeras.

The word 'hypertext' was invented by the philosopher and computer scientist Theodor Holm Nelson in 1963.³⁸ Nelson defined the hypertext as 'a body of written or pictorial material interconnected in such a complex way

that it could not conveniently be presented or represented on paper'. Later this minimal definition was expanded by other scholars to embrace various 'forms of writing which branch or perform on request, presented on computer



M-1181



K-50



H-1951 B

7. Different personages and creatures depicted on Indus seals and tablets with both arms entirely covered by bangles: male deity or man in yogic position over a throne with bovine hoofs, centaur-like creature with tiger body and human fore-body and deity or man/woman standing within a pipal tree (from Parpola's CISI volumes – see notes 2 and 3; not to scale).

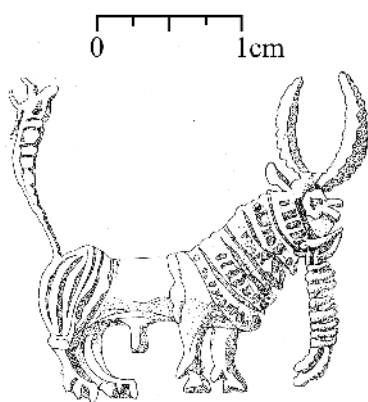
display screens', and it has been remarked that 'discrete hypertexts consist of separate pieces of text connected by links'. In the course of time, more dynamic approaches stressed semantic interaction, rather than the presence of links, eventually suggesting that 'interaction with information build associations, and association builds knowledge'. The surprising notion that the same complex form of communication was invented 4500 years ago in the Bronze Age cities of the Indus valley requires a detailed analysis of each example of this animal icon, with the final goal of understanding the diachronic change of its basic model, together with its rules of composition.³⁹

Stylistic variations and possible relative chronology

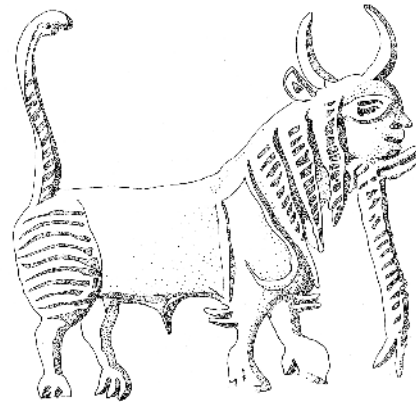
Although chimaeras are always recognizable, not only the rendering of the various body parts, but also the composition patterns are variable. In the series we have reviewed, it is possible to distinguish two basic stylistic types. Bearing in mind that this distinction might only be the result of regional variations and/or of poor

knowledge of the basic features of the chimaera by a few Indus engravers, we tried to verify the presence of a possible diachronic development for this complex iconography.

Chimaeras of Type 1 (Figure 8) form by far the most substantial and coherent group. They share well-marked and detailed body parts, which emphasize the distinctive features of the elements taken from different creatures: claws and fur stripes for tigers, thick segmented fur bands or stripes on the neck and a distinctive ear for markhors, and a penis and heart-shaped element for unicorns. The creatures' anthropomorphic faces are round, with huge bulging eyes; the upper segmented band of the goats' manes are sometimes transformed into one or two elephant tusks that unnaturally hang below the throat. The trunk (or human arm with bangles) in some cases bears larger rings at the elbow. The upraised cobra forming the tail often shows the details of the muzzle. In a single case the snake bears horns. Most specimens retain the inverted heart-shaped feature on the shoulder typical of unicorns. The elephant is secondarily suggested by the general



M-234



M-300



M-1177

8. Harappan chimaeras of early Type 1 (original drawings by M. Vidale, after Parpola's CISI volumes – see notes 2 and 3).

contour and the applied tusks and trunk, while the onlooker's eye is captured by the face, the horns, and their bizarre graphic interplay with the front of the creature.

Type 1 includes H-96, M-234, M-300, M-301, M-302, and M-1177. If we can judge on the basis of the preserved details, even fragments H-593, H-594, H-595, M-1172, M-1173, M-1175, and possibly fragment M-1176 belong to the same series. M-299, although belonging to the Type 1 series, seems to be a transition to a more compact and simpler image in which the elephant form is more emphasized. The organic parts of different creatures have lost their individual graphic identity and they are already merging into a single volume. The human face has also lost its peculiar rounded contour and it has a flat profile, absorbed in the neck. The tusks are thinner and well distinguished from the segmented stripes running on the neck. The bangle-covered arm is no longer recognizable as such, and it is a more realistic depiction of an elephant's trunk.

Type 2 (Figure 9) collects three images that, although quite different, are even more clearly elephantine. Type 2 included M-303, where the fur bands are transformed into a kind of rough winding net and a unique zebu-like hump is added, and K-85, in which the only body parts that do not belong to an elephant are the horns and the short ears. The image incised on the copper-bronze tablet M-571 from Mohenjo-Daro refers to a similar model, as demonstrated by the horns and the snake-like tail. Here the markhor mane is transformed into the irregular grid pattern visible on the neck. In this case, furthermore, the rear part of the creature is borrowed from canonical representations of rhinoceroses. The image on sealing H-168 (Cat. No. 19) might also share some of these stylistic traits, but it is poorly defined and cannot be further commented upon.

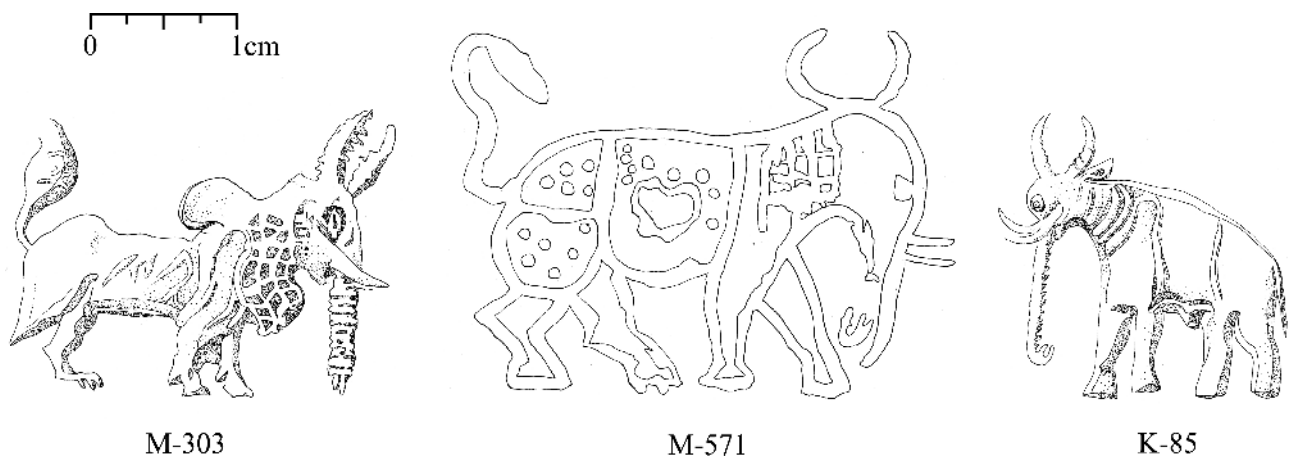
On the whole, judging by these formal variations, we might envisage a process of iconographic evolution moving from a very complex, abstract, and standardized assemblage towards a more massive figure of an elephant with a decreasing number of unnatural features, starting with the horns and the unlikely small ears. Does

stratigraphy and relative chronology support this simple model of diachronic change? The find contexts of the seals and seal impressions of the Catalogue above, as they appear in the original field reports, are summarized in Table 2.

Although information is doubtless scanty and the stratigraphic sequences of the trenches dug at Mohenjo-Daro are open to serious questioning,⁴⁰ the general pattern supports this hypothesis. E.J.H. Mackay, having found some of these seals in his own dig in DK-G North, remarked that 'Seals Nos. 2411, 2450, 2521 [. . .] and 2636 [came] from the lower levels [. . .] For the present we may provisionally assume that those composite animals appear only on the seals from earlier occupations, as none have been found above the level of 12.6 feet and the lowest at 19.9 feet below datum'.⁴¹

Although this statement is partially biased (for example Cat. No. 3, M-301, was actually found at a depth of 9.2 feet, i.e. 2.8 metres from the surface), the evidence consistently places the appearance of the composite monster in the early construction levels excavated by Mackay at DK-G. Terracotta tablets Cat. Nos. 22 and 26, probably the earliest specimens, were found respectively at more than seven and eight metres of depth from the surface, dumped in street deposits. Mackay dated these contexts to the earliest horizons (III) of his Intermediate period. A double-faced chimaera seal was found in an Intermediate III level (more than 6 metres below the surface), three others in Intermediate II levels (between approximately 6 and 4 metres of depth), and three in Intermediate I contexts (about 4.0–3.8 metres from surface level). To sum up, out of twenty-four seals and seal-impressed objects with chimaeras found at Mohenjo-Daro, fourteen come from Mackay's dig in DK-G (including a seal found in Trench E). Nine of these can be dated to Intermediate levels, one (M-303) to the interface between Intermediate and Late deposits, and only four to Late horizons.

Type 2 chimaeras include Cat. No. 5, M-303, found 3.8 metres below the surface (the interface with what Mackay



9. Harappan chimaeras of later Type 2 (original drawings by M. Vidale, after Parpola's CISI volumes – see notes 2 and 3).

Table 2. *Catalogue of objects with Harappan chimaeras including univocal identification of the objects and their discovery contexts.*

No.	CISI	Object	Site	Context	Depth (ft.)	Depth (m)	Period
1	M-299	Stamp seal	Mohenjo-Daro	VS, Bl. 4, H. XXV, rm. 39	-4.60	-1.40	Intermediate II
2	M-300	Stamp seal	Mohenjo-Daro	DK-G, between Bls. 1 (V) and 10	-15.50	-4.72	Intermediate II
3	M-301	Stamp seal	Mohenjo-Daro	DK-G, Bl. 17, H. I, rm. 7	-9.20	-2.80	Late Ib
4	M-302	Stamp seal	Mohenjo-Daro	HR B, Bl. 2, H. XI, rm. 117	-6.00	-1.83	Late Period
5	M-303	Stamp seal	Mohenjo-Daro	DK-G, Bl. 1, H. VI, rm. 52	-12.60	-3.84	Intermediate I
6	M-1172	Stamp seal	Mohenjo-Daro	DK-G?	-13.00	-3.90	Intermediate???
7	M-1173	Stamp seal	Mohenjo-Daro	VS, Bl. 4, lower layers of H. XXIV	ND	ND	Late III
8	M-1174	Stamp seal	Mohenjo-Daro	ND	ND	ND	?
9	M-1175	Stamp seal	Mohenjo-Daro	Trial Trench E (DK-G)	-5.00	-1.52	Late Period?
10	M-1176	Stamp seal	Mohenjo-Daro	DK-G, Bl. 7, H. III, rm. 48	-14.80	-4.51	Intermediate II
11	M-1177	Stamp seal	Mohenjo-Daro	DK-G, Bl. 1, H. I, rm. 21	-13.40	-4.08	Intermediate I
12	M-1178	Stamp seal	Mohenjo-Daro	DK-G, Bl. 2, H. IV, rm. 20	-16.50	-5.02	Intermediate II
13	H-96	Stamp seal	Harappa	Mound F	-10.00	-3.05	
14	H-593	Stamp seal	Harappa	Mound F	-15.20	-4.63	
15	H-594	Stamp seal	Harappa	Mound F	-10.60	-3.23	
16	H-595	Stamp seal	Harappa	Mound AB	-8.00	-2.44	
17	M-1927	Stamp seal (double-face)	Mohenjo-Daro	DK-G, First St. (21)	-19.90	-6.06	Intermediate III
18	M-324	Stamp seal (double-face)	Mohenjo-Daro	HR A, Bl. 3, H. VII, Courtyard I	-3.00	-0.91	Intermediate (?)
19	H-168	Clay sealing	Harappa	ND	ND	ND	ND
20	K-85	Clay sealing	Kalibangan	ND	ND	ND	ND
21	L-220	Clay token	Lothal	SRG 2, BX 4, layer 2	-1.90	-0.53	Phase III
22	M-1398 A	TC tablet	Mohenjo-Daro	DK-G, First St.	-20.80	-7.38	Intermediate III
23	M-449 A-B	TC tablet (2 sides)	Mohenjo-Daro	DK-G, Bl. 9, H. XII, rm. 90	-10.60	-3.75	Intermediate I / early Late Period
24	M-1399 A	TC tablet (2 sides)	Mohenjo-Daro	SD	-6.00	-2.14	ND
25	M-1402 B	TC tablet (2 sides)	Mohenjo-Daro	HR, H. X, rm. 127	-12.80	-4.52	Intermediate?
26	M-2020 A	TC tablet (2 sides)	Mohenjo-Daro	DK-G, Long Lane between Bls. 10A and 11	-23.00	-8.21	Intermediate III
27	M-488 A	TC tablet (3 sides)	Mohenjo-Daro	SD, Bl. 8, rm. 10	+1.90	+0.62	ND
28	M-1430 B	TC tablet (3 sides)	Mohenjo-Daro	DK-G, Bl. 9, H. VII, rm. 31	-6.60	-2.32	Late Period
29	M-2033	TC tablet (3 sides)	Mohenjo-Daro	Surface find 1936	Surface	Surface	Late Period?
30	M-571	Copper tablet (carved)	Mohenjo-Daro	DK-G, Bl. 1, H. 1, rm. 18	-5.50	-1.68	Late II-Ib
31	M-436	Copper token (stamped)	Mohenjo-Daro	SD, Bl. 6, rm. 13	-0.80	-0.25	Late Period

considered Late Period level), and the image on copper Cat. No. 30, M-571, which was certainly found in the latest occupation levels of the city (at a depth of 1.68 metres from the surface). It is well known that these tablets are consistently found in the later building horizons of Mohenjo-Daro.⁴² Thus, the hypothesis that Type 2 is the devolution in time of Type 1 can be considered confirmed, in spite of the limited number of cases available. The fact that at Harappa three of the known depictions of the chimaera came from the 'Great Granary', built and rebuilt within the time-range of Harappa 3B (c. 2450–2200 BCE), also fits with such a reconstruction.⁴³

Another important piece of information in Table 2 is that chimaeras, as far as we presently know, are

consistently linked to Mohenjo-Daro (twenty-four cases out of thirty-one, which is about 77%). It might be a consequence of the larger mass of excavated deposits at the site, but this does not account for the evident clustering of chimaera images in DK-G North (fourteen cases out of a total of twenty-four, i.e. almost 60% of the total cases found at Mohenjo-Daro). Chimaeras might have been linked to the large elites buildings excavated in the deepest levels of DK-G North, but the association might also be due to chronology: if chimaeras were in common use during the central centuries of the second half of the third millennium BCE, they would mostly be found where deposits of this period were extensively excavated. Table 3 lists all the inscriptions so far recorded in the seals,

Table 3. Catalogue of inscriptions associated with Harappan chimaeras (after Koskenniemi, Parpola, and Parpola).

No.	CISI No.	Ref. (Koskenniemi et al. 1973)	Text (also appearing on more sides)
1	M-299	138111054	
2	M-300	252111254	
3	M-301	225811054	
4	M-302	138011054	
5	M-303	241111054	
6	M-1172	-----	---
7	M-1173	119111054	
8	M-1174	-----	---
9	M-1175	-----	---
10	M-1176	249311054	
11	M-1177	245011054	
12	M-1178	255911054	
13	H-96	324911054	
14	H-593	325011054	
15	H-594	-----	---
16	H-595	362311054	
17	M-1927	255911054	
18	M-324	-----	---
19	H-168	-----	---
20	K-85	700551054	
21	L-220	604451054	
22	M-1398	-----	---
23	M-449	275965654	
24	M-1399	-----	---
25	M-1402	158662035	
26	M-2020	-----	---
27	M-488	271764083	
28	M-1430	273464783	
29	M-2033	282664681	
30	M-571	281672054	
31	M-436	271886054	

tablets, and other media with chimaera images we have discussed, following the transcription of Koskenniemi and others.⁴⁴

Social implications of the use of composite animals as identification symbols

Ultimately, how should we interpret Indus chimaeras and their multiple levels of signification? This simple question is quite intriguing, as it involves, before any conjecture about the meanings and function of the standard series of symbols on Indus stamp seals, a critical set of basic methodological issues. Both J.H. Marshall and E.J.H. Mackay, struck by the unusual image of the chimaera, chose a shortcut, proposing that it represented the merging of different divinities. In particular, Marshall abandoned his usual cautiousness, stating in a footnote that ‘this linking together of the ram, elephant, tiger, bull, and human form may be an attempt at the fusion of several deities [...] perhaps a step on the road to monotheism’.⁴⁵ For A. Parpola ‘this composite animal represents the creator god of the Harappans, the primeval male, who, like the Vedic Puruṣa-Prajāpati, is the male of all animal species; the various male beasts surrounding the seated “Proto-Śiva” on the well-known Indus seal M-304 convey the same message’.⁴⁶ The same scholar also described the centaur as ‘a tiger-riding goddess of war’ related to a ‘militaristic cult of a lion-escorted goddess of war’ introduced into the Indus valleys from the Near East (Inanna) or indirectly from Bactria and Margiana.⁴⁷

However, at present there are no possibilities for testing objectively these and the other demanding interpretations of the seals imagery retrieved in the Indus sites. In fact, the ideas, identities, or social practices behind the serial reproduction of the ten most important animal icons of the seals (unicorn, gaur or bison, buffalo, humped bull, elephant, tiger, markhor, antelope, rhino, and hare) are still a mystery. Also unexplained is the reason why the unicorn alone, as frequently remarked by several scholars, stands for about 70% of the total cases or more.

W.A. Fairservis, Jr., who vigorously defended his idea that the Indus Civilization was a system of large chiefdoms of cattle herders, thought that the seals were used by inter-marrying clans and that the animals on the seals were totemic symbols.⁴⁸ J.M. Kenoyer also wrote that the some of the creatures of the seals could be clan symbols of the ruling elites.⁴⁹ J.R. McIntosh stated that ‘the motif on the seals provided an easily recognized indication of the status or authority of the holder and of his (or perhaps her) field of operation [...] the unicorn motif symbolized the Harappan state and its bureaucracy, and that the bearer was on government business’.⁵⁰

One of the present authors (M. Vidale), noticing the undeniable fact that the gaur or bison is almost the only

creature represented in the so-called Gulf seals, from Mesopotamia to the Gulf, as well as in the Indus-related seals across the Iranian Plateau and Central Asia, proposed that this bovine was the symbol of the Indus trade families living and acting in the west.⁵¹ This correlation, even if observed at a macro-geographical scale, is so far the only factual evidence that the animal icons could actually be linked to precise socio-economic roles or identities within Indus or Indus-related societies. As a consequence and by extension, Vidale also proposed that the unicorn, the most common seal icon in the major Indus cities, might have been the brand of the most numerous bureaucrats in a developed early urban context: small-scale accountants who mastered recording, taxation, and, at least to a certain extent, the writing system.⁵²

Our impression is that unicorn seals were less frequent within the largest Indus settlements, while in medium-sized centres the percentage of unicorn seals is rather higher. For example, the 'unicorn' constitutes 58.3% of all identifiable main motifs on the seals of all types excavated at Mohenjo-Daro, but 80% of those excavated at Chanhudaro.⁵³ This suggests that the administrative management of the largest Indus centres like Mohenjo-Daro and Harappa might have required a more complex, stratified, and diversified bureaucratic system, which was reflected in the use of a greater repertoire of icons and symbols on seals and tablets. Moreover, the Indus metropolises were certainly places of constant innovation and experimentation, where the introduction of innovative technologies might have resulted in new social and economic processes.

In this light, chimaeras might have been linked to an important, highly specialized role within the urban administrative system. The elephant, in the cultures of the Indo-Pakistani subcontinent, is the mightiest creature, and a symbol of royalty. To assemble different creatures, or their recognizable parts, into the outline and mass of an elephant might be a metaphor for the inclusion of different actors or authorities in a single social super-body. Is social inclusion a possible key of interpretation? On the other hand, there is no apparent reason why such 'political' construction should be framed, at the mouth and at the rear, by the deadly poisons of snakes and scorpions, two creatures that do not even belong to the standard series of symbols used on Indus stamp seals. Metaphorical social inclusion cannot be excluded, but we are certainly dealing with a more complex system of ideas.

Two of the seals of the chimaeras series (M-324, M-1927) exceptionally have two sides: a very unusual feature in Indus stamp seals.⁵⁴ On both seals the inscription is the same on the front and rear, but M-324 has a unicorn on the reverse side of the chimaera, while on M-1927 the chimaera is opposed to a humped bull. Moreover, the copper round tablet M-436 also has a chimaera opposed to a unicorn and both sides have the same inscription. If

these creatures actually conveyed social identities or functions, do these seals imply that the owner could qualify himself or herself in two different or complementary ways? In other words, was the 'chimaera status' compatible with other roles? The picture of M-1927, furthermore, suggests that a craftsman at a certain moment tried to erase the image of the monster. The chimaera-role was perhaps a temporary qualification, but a single case cannot support this demanding inference.

And how can we account for the other types of composite creatures represented on the Indus seals? We have a well-known series of odd three-headed creatures made of unicorns, goat-antelopes, and gaurs, and other more subtle combinations that would deserve specific studies.⁵⁵ In a wider perspective, can we seriously assume that all these composite or duplicated images were straight, univocal symbols of different roles and hierarchies, multiple clan associations, or other institutional forms of socio-economic partnership? It is not impossible, at least for some cases, but it should be stressed that so far we have only discussed the possible functions and not the possible meanings of such symbols. It is equally probable that the figures also expressed myths, traditional characters, and series of associated values, not primarily linked to a functional definition of the social persona.

Conclusions

This study suggests that the earliest chimaeras on record (Type 1) might date back to an early phase of the Integration Era (Harappa 3A, c. 2600/2500–2450 BCE). The composite creature maintained its basic features relatively unchanged through Harappa 3B (c. 2450–2200 BCE), but it might have entered a phase of radical transformation and possibly of semantic evolution (Type 2) towards the end of the third millennium BCE (Harappa 3C, c. 2200–1900 BCE). In their earliest version, chimaeras were carefully assembled with recognizable parts of other creatures: snakes, tigers, bovine unicorns, markhor goats, elephants, humped bulls, and humans. The different portions were abstractly composed and almost forced within the outer contour, without any care for the creation of a realistic anatomy. The later specimens (Type 2) gave instead the general impression of an elephant-like creature.

The massive body of the chimaera is framed between a raised cobra and a scorpion, two deadly poisonous creatures. The snake, which bites with the fangs, rises from the back in the place of the tail, while the scorpion, which bites with the tail, hangs downwards in front of the elephant's mouth. This multi-faced play of inversions is extraordinary, and its oppositions could not escape recognition by the users of the seals and their interlocutors. The unusual toothed bovine horns visible in profile

above the human face and the chimaera's arm-like trunk immediately activate the perception of a scorpion, whose tail is made by the trunk. The prehensile end of the proboscis, which in reality is a human arm completely covered with bangles, borrowed by the horned personage or divinity in yogic position or by the centaur-like creature, is at the same time a human hand and the poisonous sting of the arachnid: three powerful symbols within a single iconographic element.

In the earliest and most common version of the creature the different body parts form a hypertext of symbols in which one level of perception moves to a second, a third, and possibly even a fourth level of visual recognition. We identify the symbols, at least in part, and we may understand some of their sophisticated links, but the meanings, both individual and sequential, remain undisclosed. Nonetheless, a syntactic perspective may be revealing. The construction of Indus chimaeras is so entangled that the creature includes not only parts of living creatures, like the snake, the tiger etc., but also of other imaginary mythological beings, like the unicorn, the human-faced markhor, and the yogi or the centaur.

This condition closely recalls the Indus cognitive approach to the production of some classes of high-temperature ornaments, where artificial materials like fired steatite or coloured faience were fashioned with unique skills to imitate other stones.⁵⁶

When fired, white steatite may have imitated shells; blue-green varieties of faience might have been used for different semiprecious stones, and yellow and brown varieties for gold, copper, and bronze, while elaborate faience beads with multicolour red, orange, and white patterns perhaps imitated beads in *Waagenophyllum* coral limestone,⁵⁷ as well as eye-beads cut out from banded agate and even etched (or bleached) carnelian beads. As these latter ornaments originally imitated, in their turn, natural agate eye beads, we are dealing with a 'technological hypertext' of artificial materials imitating other artificial materials. Hence, mixed animal-human beings included other hybrid imaginary creatures exactly as an artificial material, like multicolour faience imitated another stone radically transformed by the means of firing. Both patterns seem to reflect a central concept in Indus ideology, often aimed at transforming nature beyond any possible recognizable analogy. In both cases – iconography and high-temperature pyrotechnology – natural forms and their physical dimensions are not just ignored, but openly and totally subjugated.

The analysis also underlines a basic structural analogy between Indus chimaeras and the so-called centaurs (the name is probably even less appropriate, in this case), another type of imaginary creature which played a quite limited role, but that had a precise identity in Indus iconography.⁵⁸ The two imaginary creatures

might have been semantically related, belonging to a single pervasive idea or model of man-animal hybrid. Like chimaeras, centaurs have the rear and the central body of a tiger, while the fore-body, including the legs covered with a long striped skirt, and the head are human (see Figure 6).

Centaur also have the distinctive wavy or corkscrew horns of markhors and the protruding vegetal elements characteristic of the yogi and the pipal-deity. The hanging arm of the centaurs, entirely covered with bangles, occupies in the overall figure exactly the position of the elephant's trunk in chimaeras. Both creatures have traits that appear wild and fierce in the rear, and human-like in front, but the impression is that while chimaeras might have been specifically composed to express some particular role of the seal owners, centaurs belonged to a well-established mythology and narrative including interaction with other characters. In this light, the Harappan centaur, independently from its contemporary use on seals and tablets, might have been a prototype for the later creation of chimaeras.

In the course of time, Type 1 chimaeras and their symbolic-semantic implications, merged into a massive and less detailed elephantine figure. Interestingly, the absorption and vanishing of parts brought on an evident breakage of the grammar. Moreover, Type 2 also included parts of new animals, like humped bulls and rhinoceroses, not envisaged in the earlier specimens. On the other hand, the merging of animal parts may have been the result of a more general transformation of seal imagery.

As the animal icons, in time, became less frequent, and many animal parts within chimaeras vanished, the related animal symbols also exhausted their original symbolic function in the overall administrative system. By Harappa 3C (c. 2200–1900 BCE) the information that was previously conveyed through zoomorphic and geometric symbols shifted to the more specialized technology of writing. Even if it is still difficult to chronologically order the inscribed objects from many Indus sites, it is quite evident that during the last centuries of the third millennium BCE the use of writing was largely extended. New categories of inscribed objects were introduced, like small rectangular tablets with moulded or incised signs, together with a new type of rectangular stamp seal that bore only deeply carved sequences of signs. In this period, moreover, the average length of the inscriptions increased. As the animal icons were easier to understand than writing, this change was probably part of the adoption of a more hierarchical strategy for information transmission and processing during the last centuries of the early urban experience in the Indus valley.

At present, we feel that both comparative mythology and functional correlation, in their search for straight, univocal explanations, cannot take us much further.

Harappan chimaera-hypertexts certainly had their religious, mythological, and/or magic meanings, and it is quite possible, if not likely, that such meanings were part of the general process of social interaction and confrontation within Indus cities. Two thousand years after Plato, Samuel Butler (1612–80) was the author of another animal metaphor drenched with social criticism: 'A strange Chimaera of beasts and men, made up of pieces Heterogene, such as in Nature never met'.⁵⁹ Composite fantastic creatures were still used for visualizing strong, intricate statements on mankind and human society.

In the study of Indus imagery we should side with Plato and observe how 'the many forms grew together in one'.⁶⁰ The Greek philosopher, in the passage of the *Republic* from which the initial quote was also taken, compared society to a multiform beast, the lower classes being imagined as wild voracious monsters, whose appetites and violence had to be placated and kept at stake by other forces. Plato put in the first place human spirit, which had to counteract dissolution with the strength of a mighty, noble lion.⁶¹ Leaving aside any concern with democracy, a highly recommended attitude while dealing with Plato and his intellectual circle, inspiring metaphors of the same order could have been active also in the symbolic apparatus used by Indus accountants.

Plato also mentions the people who knew the 'ancient fables', showing himself to be conscious of the ancient debt of Greek mythology to a remote past. The ancient myths of the Indus valley are gone forever. Structural analysis and the identification of the components of cultural systems, their combinatory rules, and their change over time are more rewarding than the repeated and sterile effort of guessing or re-inventing forgotten myths and superimposing the tiny but intricate icons of the seals onto much later and heavily stratified religious constructions.

Appendix: catalogue of objects with images of Harappan chimaeras

We enclose a catalogue and description of all the seals and seal fragments, sealings, terracotta tablets, and metal items bearing images of the Harappan chimaera and its presumed transformations (Table 2). Chimaeras are presented following the major material classes involved (seals, seal impressions, terracotta tokens and tablets, copper items) and the order of publication in the *CISI* volumes.⁶² Full references can be found in the notes. The inscriptions of the chimaera seals and seal impressions are separately listed (Table 3).⁶³

1. M-299 (1381, VS 1753). Joshi and Parpola, p. 73; Marshall, pp. 226, 389, Plates CXII, 381. VS, Bl. 4, H. XXV, Room 39, 4.6 feet below surface, dated by the excavator to the Intermediate II Period.

Seal (damaged on the upper right corner). The figure of the chimaera is almost complete (only the head of the erected cobra that forms the tail is missing). It has plain toothed horns; the ear, chest, front legs, and mane (three wavy segmented bands protruding from the neck and a fourth one encircling the face) are part of a markhor. The face shows a round simple eye, a short round nose, and thick lips in profile. From the chin departs a segmented winding trunk ending in what looks like a pinch. Two tusks are visible below the chin and above the trunk, beyond any naturalistic intention. The central body and the rear, covered by continuous vertical stripes, obviously belong to a tiger. There is no penis, nor other features belonging to the unicorn icon. The seal was found in a room of a multi-roomed house, facing to the north on Lane 3.

2. M-300 (2521, DK-5935). Joshi and Parpola, p. 74; Mackay, *Further Excavations*, pp. 333, 385, Plates XCVI, 521, and C, A. DK-G, between Pls. 1 (V) and 10, 15.5 feet from surface. Intermediate II Period.

Seal (undamaged). The rear, with well-designed claws and horizontal stripes, belongs to a tiger. This chimaera furthermore has plain horns, markhor ear, and a round human face with a horizontal eye, heavy eyelids, a pointed nose, and everted lips, deeply carved as seen in profile. The front legs, with two fur locks at the joint with the body, are also clearly related to markhors. Immediately below the face appear two crescent-shaped tusks, covered by a trunk marked by a series of oblique traits and ending in a pinch-like extremity. On the shoulder there is part of the inverted heart-shaped feature that commonly distinguishes the unicorn images. The central part of the body and the penis might also belong to a unicorn. The seal was found north of the boundary wall of an elite residence defined by E.J. H. Mackay as a 'palace'.⁶⁴

3. M-301 (DK 12194). Joshi and Parpola, p. 74; Mackay, *Further Excavations*, p. 377, Plates LXXXVII, 258. DK-G, Bl. 17, H. I, Room 7, 9.2 feet from surface. Late Ib Phase.

Seal (damaged in the lower left corner). Toothed horns, ear, round face, simple round eye, pointed nose and thick everted lips deeply carved as seen in profile. Three segmented bands project from the neck and a fourth one encircles the face. This latter band, shaped like a crescent and sharply pointed, takes the place of a tusk. The cheek is apparently marked by two parallel wavy lines. All these features represent a markhor, as the goat-like frontal hooves do. From the last segmented band hangs a vertical trunk covered by horizontal wedge-like traits and ending in the usual pinch-like feature. The extremity is poorly preserved. The central part of the body, with penis, and the shoulder (with part of a heart-like pattern) belongs to a unicorn. Found in a room of a poorly preserved house.

4. M-302 (1380, HR 4952). Joshi and Parpola, p. 74; Marshall, pp. 197, 389, Plates CXII, 380. HR B, Bl. 2, H. XI, Room 117, 6 feet below surface. Late Period.

Seal (damaged in the upper right corner). The rear, covered with horizontal parallel incised lines, belongs to a tiger, together with the curved claws of the rear legs. Below the fracture survives the lower part of a cobra with a segmented body, rising from the back. The creature has toothed horns, an ear, a round face, a pointed nose, and thick everted lips, deeply carved as seen in profile; three segmented bands project from the neck, a fourth one encircles the face, a fifth one forms the boundary of the cheek. All these features, as stated above, belong to the iconography of markhors. A single straight tusk projects obliquely from the fourth segmented band. From here hangs a vertical trunk covered by horizontal, dense wedge-like traits. The extremity has a small, double pincer-like appendix. The central body, with a penis, and the shoulder (with half of a heart-like design) is represented as if belonging to a unicorn. The front hooves are markhor-like, with the usual short oblique traits suggesting fur. The seal was found in a side entrance room of a palace-like residence in the core of HR.⁶⁵ The room is actually a side access with a door and a window, in the centre of the southern side of the complex. House XI was excavated only to the Late levels, but rested on the foundation of a possibly unitary construction of the Intermediate Period.

5. M-303 (2411, DK 5307). Joshi and Parpola, p. 74; Mackay, *Further Excavations*, p. 333, Plates XCIV, 411. From DK-G, Bl. 1, H. VI, Room 52, 12.6 feet below surface. Intermediate I Period.

Seal (undamaged but highly worn). This anomalous chimaera bears a poorly preserved pattern of oblique incised lines indicating stripes. This suggests that both the rear and the central body represent parts of a tiger, as confirmed, as usual, by the claws on the rear legs. The snake of the tail is badly worn, but what remains shows a body or a hood much thicker than usual. This chimaera has toothed horns, slightly projecting onwards; the ear is not visible (it might have been erased). The head is explicitly elephantine. It has a deeply carved vertical eye and a tusk realistically inserted in the mouth, represented in perspective above the trunk. The tusk is vertical and covered by simple horizontal traits; the extremity, at the lower margin, is not preserved. The creature has a well carved bovine hump (the only case of this kind), and the usual design of the segmented bands here takes the form of a continuous winding net or grid loosely hanging from the neck and projecting downward. The front legs might be those of markhors or bovine, and the body has no penis.

6. M-1172 (0268, DK 7340). Shah and Parpola, p. 136. DK-G. Unpublished and not recorded by Mackay. In Mackay's tabulation seals inventoried with nearby numbers came from depths of 13 feet or more from the surface.

Seal (fragment of the left margin). Only the lower part of the chimaera's face survived, specifically the lower part of the eye and the cheek, underlined by a segmented band ending in a point. From the band departs the vertical trunk, marked with wedge-shaped parallel traits, and two crescent-shaped tusks. At least three parallel segmented bands are visible on the neck.

7. M-1173 (1191, VS-235). Shah and Parpola, p. 136; Marshall, *Mohenjo-daro*, p. 226, Plates CVIII, 191. VS, Bl. 4, lower layers of H. XXIV, ascribed to 'Late III Period'.

Seal (fragment). The lower left corner and whole right margin are missing, together with the face, trunk, and rear body of the chimaera. The horns seem to be plain. The long neck was covered by at least five segmented bands. The shoulder shows the inverted heart-shaped motif usually seen on unicorns and this is why the excavator mistook the figure for this more common fantastic creature of the Indus iconography.⁶⁶

8. M-1174 (0544, Mohenjo-Daro Museum, provenance unknown). Shah and Parpola, p. 136.

Seal (fragment of the centre and the lower margin). The surviving parts of the figure are the rear, with horizontal tiger-like stripes, and the central body, with a penis (probable unicorn-like features).

9. M-1175 (1377, DK-E 1277). Shah and Parpola, p. 137; Marshall, *Mohenjo-daro*, p. 261. From an unknown point of Trial Trench E, 5 feet below surface. Late Period?

Seal (two fragments). On the rear are visible horizontal tiger-like stripes. The neck has three projecting segmented bands. The front legs end in goat-like hooves and are crowned by oblique traits indicating locks of fur, all elements typical of markhors. The horns are slightly toothed, and the head is missing. The trunk is covered by double wedge-like traits, suggesting two piles of bangles (arm and forearm). A slight angle in the middle of the trunk suggests the position of an elbow, also marked by a void in the possible bangles' piles. The trunk ends in a very stylized hand-like feature. The centre of the body is plain.

10. M-1176 (2493, DK 8253). Shah and Parpola, p. 137. DK-G, Bl. 7, H. III, Room 48, 14.8 feet from surface.

Seal (originally unbroken; at present only the lower part and the upper right corner survive). In this chimaera the rear, judging from the claws, is clearly feline, with an

erected cobra in the place of the tail. It has two toothed horns. It also has a raised ear, a round inflated face in profile with an oval eye in the centre, and three to four segmented bands projecting from the neck. Together with the front legs and hooves, these features match the standard features of human-faced markhors. The rendering of the trunk suggests an arm covered with two superimposed piles of bangles. The central body is plain.

11. M-1177 (2450, DK-6658). Shah and Parpola, p. 137; Mackay, *Further Excavations*, p. 333, Plates XCV, 450. DK-G, Bl. 1, H. I, Room 21, 13.4 feet below surface.

Seal (undamaged). The body has a penis but is otherwise plain; this is joined to the rear, where the only clearly feline trait is the claws. From the rear, in place of the tail rises a cobra, with its inflated hood and a ventral surface covered by horizontal segments. This chimaera has toothed horns and the markhor features (an ear, a round face in profile with an eye, nose, and lips in full evidence, and four segmented bands projecting from the neck, the first one departing from the base of the ear to follow the contour of the face). A single tusk departs from the 'chin' of the monster and follows and encircles the face, ending in a point; it is represented as if superimposed onto the first band. A vertical trunk falls from the lowermost point of this segmented band and ends in a large, evidently stylized hand-like feature. The trunk is covered by double wedge-like traits, suggesting two piles of bangles (arm and forearm); the position of the elbow is stressed by a slight angle, marked by a couple of larger horizontal traits. Found in an inner room of the elite residence defined by the excavator as a 'palace', possibly between the entrance and a large inner open space.

12. M-1178 (2559, DK-7448). Shah and Parpola, p. 137. DK-G, Bl. 2, H. IV, Room 20, 16.5 feet from surface.

Seal (fragment of the upper right corner). Retains the head or hood of the vertical cobra taking the place of the tail. Mackay ascribed the context of the find – a small entrance room of a poorly preserved, large multi-roomed context south of the 'palace', facing Crooked Lane – to Intermediate II Period.

13. H-96 (3249, 5211). Joshi and Parpola, p. 190; M.S. Vats, *Excavations at Harappā* (Delhi: Manager of Publications, 1940), pp. 324, 341, Plates XCI, 249. Mound F 10 feet below surface.

Seal (complete but slightly damaged in the upper right corner). Features toothed horns, a raised ear, and a round inflated face with a protruding round nose and thick everted lips. The nose and lips are deeply carved and appear as a sequence of similar projections on the profile. The eye is oblique, also deeply carved, and has a strong eyebrow. Four segmented bands project from the neck, a

fifth one encircles the face. A single tusk is suggested by the fifth segmented band. From here hangs a vertical trunk, made with a double incised line, and covered by horizontal incised traits to suggest superimposed bangles. A slight angle in the centre suggests an elbow, and it is put in evidence by a couple of longer horizontal traits. The extremity has a small double hand-like appendix. The central body, with a penis, and the shoulder (with part of an inverted heart-like design) are represented as if belonging to a unicorn. The front hooves are goat-like, with oblique traits suggesting fur; together with the fur bands, the ear, and the human face they match the description of markhors. The rear, covered with oblique parallel incised lines, recalls a tiger, together with the curved claws of the rear legs. As usual, a cobra with a segmented body rises as a tail from the back to surmount the inscription (although its central part is largely missing).

14. H-593 (3250, 12131). Shah and Parpola, p. 296; Vats, pp. 324, 341, Plates XCI, 250. Mound F, 15.2 feet from surface.

Seal (fragment of the upper right corner). The head or hood of the vertical cobra taking the place of the tail rises above the inscription.

15. H-594 (3247, 2453). Shah and Parpola, p. 296; Vats, pp. 324, 341, Plates XCI, 247. Mound F, 10.6 feet from surface.

Seal (fragment of the lower left corner). A trunk with horizontal wedge-like traits, larger at the centre (possibly depicting the elbow of the human arm covered by bangles), can be made out. The front part of the body shows at least two oblique projecting segmented bands and goat-like legs (hooves and oblique fur locks).

16. H-595 (3623, 5633). Shah and Parpola, p. 296; Vats, p. 354. Mound AB, 8 feet from surface.

Seal (fragment of the upper right corner). Only the head or hood of the vertical cobra taking the place of the tail, raised above the inscription, is retained.

17. M-1927 (2636, DK 8519). Parpola, Pande, and Koskikallio, p. 84; Mackay, *Further Excavations*, p. 333, Plates XCVIII, 636. DK-G, First St. (21), 19.9 feet from surface.

Double-faced seal (damaged). The seal retains only the left half of the side with the chimaera. Only the front part of the creature survives. The horns are plain, above the human face, and underlined by a single tusk. There are four segmented bands on the neck and the proboscis in the published photograph seems plain. The front legs are distinctively goat-like. On the opposite side, the seal shows a well carved humped bull which is damaged on the muzzle (comparable with M-324, Cat. No. 6). The available image, with abrasion (or, more probably,

cutting marks) where the body of the beast is incomplete, suggests that for some reason a seal cutter attempted to remove the figure of the chimaera on one side. As in other cases of modification of Indus standard seals, this suggests that the association of one or more individuals with this symbol might have been temporary.

18. M-324 (1252, HR 2596). Joshi and Parpola, p. 81; Marshall, *Mohenjo-daro*, p. 183, Plates CIX, 252. HR A, Bl. 2, H. VII, Courtyard I, 3 feet below surface. Intermediate Period.

Double-faced seal (undamaged). This seal bears a unicorn on one side and a chimaera on the opposite one, under the same two-character inscription. The rear body, with claws and sub-vertical incised stripes, belongs to a tiger. The cobra-like erected tail is also a *unicum*, because the segmented snake is horned in this case. The creature has toothed horns and the typical markhor-like features (an ear, a round face with a deeply carved round eye, and two traits or dots suggesting a nose and a lip below, or possibly just two lips). The creature also bears four segmented bands projecting below the neck; the fifth takes the place of a tusk, from which hangs a short vertical tusk made with a sequence of horizontal traits. It ends in the usual double pincer-like extremity. The front legs, heart-like design on the shoulder, and plain central body, with a penis, belong to a unicorn (particularly when confronted with the design of the same mythological creature on the opposite face of this exceptional seal). The seal was found in the courtyard of a house between Street 1 and House VIII, consistently described in the literature as an elite residence.⁶⁷

19. H-168 (4125, 13201). Joshi and Parpola, p. 206.

Seal impression on clay sealing (damaged in the upper corners). The surface details are poorly preserved. They include plain horns, possibly an ear, and an elephant-like head with two tusks and a trunk ending in a double appendix with a toothed inner margin. Three wide, winding bands protrude from the neck. Details of the legs and the body are hardly distinguishable, but the front legs look goat-like. A vertical appendix on the rear might be what remains of an erected snake.

20. K-85 (7005, KLB2 11204). Shah and Parpola, p. 316.

Seal impression on clay sealing (undamaged). An elephant-like creature with toothed horns, a small raised ear, and tusks and a trunk depicted in naturalistic fashion (but, in the trunk's case, with a serrated toothed edge) can be made out. The end of the tusk has a double upturned extremity. The segmented bands on the neck are replaced by a series of deeply carved incised lines. The rest of the body belongs entirely to an elephant.

21. L-220 (6044, 13051). Shah and Parpola, p. 290.

Seal impression on clay token (undamaged). The carving details are poorly retained in the clay impression. There are visible plain horns, a round human face, perhaps with a round eye and ear, three segmented bands on the neck, two thin tusks, and a trunk shaped like a human arm covered with bangles, with the elbow-angle at the centre. The front of the body is goat-like, suggesting a markhor, while the rear is feline; a vertical straight segment near the right edge of the seal impression suggests a snake-like tail.

22. M-1398 (DK 8520). Shah and Parpola, p. 187; Mackay, *Further Excavations*, p. 361, Plates CI, 10. DK-G, First Street, 20.8 feet of depth from surface.

Rectangular terracotta tablet (highly worn, without slip). The tablet is impressed on a single side with the image of a chimaera proceeding rightwards in bas-relief. The right side of the tablet retains traces of two to three Indus signs. Found in First Street, at a depth of more than 7 metres below the surface, this tablet most probably belongs to the earliest levels of DK-G north or Intermediate III period.

23. M-449 (DK 12732). Joshi and Parpola, p. 110; Mackay, *Further Excavations*, p. 356, Plates XCI, 21a, 21b. DK-G, Bl. 9, H. XII, Room 90, 10.6 feet from surface.

Rectangular terracotta tablet (light pink, with residues of a brown slip) with impressions in low relief. It shows the same worn impressions on both sides. To the right, a chimaera with a proboscis covered by horizontal serrated segments and with an erected tail, possibly with toothed horns, proceeds rightwards. On the left is a two-sign inscription, originally in low relief. Mackay listed this artefact under the seal impressions of the uppermost levels of DK-G, while its absolute depth from surface (almost 4 metres) suggests that it was found in a transitional horizon from the Intermediate to the Late Periods layers.

24. M-1399 (SD 1923). Shah and Parpola, p. 187; Marshall, *Mohenjo-daro*, p. 394, Plates CXVI, 3. 6 feet below surface.

Terracotta tablet, originally slipped red. It bears two signs on the left on both sides (like cat. 22, M-449). However, on one side (A in Shah and Parpola) the signs are in low relief and flank a chimaera proceeding rightwards; on the opposite side the signs are depressed (because they result from the impression of a similar tablet, with the two signs in relief), and instead of the composite monster we see a volute-like pattern which is quite difficult to interpret.

25. M-1402 (HR 2289). Shah and Parpola, p. 188; Marshall, *Mohenjo-daro*, p. 395, Plates CXVI, 26. HR, H. X, Room 127, 12.8 feet below surface.

Terracotta tablet, originally covered with a red slip. It bears eight characters on one side in low relief, and two animals on the opposite one: a chimaera proceeding rightwards following a bovid (bison or humped bull; the fore-part and head are erased).

26. M-2020 (DK 7832). Parpola, Pande, and Koskikallio, p. 104; Mackay, *Further Excavations*, p. 360, Plates CI, 9. From Long Lane, between Bls 10A and 11, 23 feet from surface.

Terracotta tablet, originally covered with a red slip. It bears a badly preserved chimaera (right) and two recognizable characters in low relief, as in M-449 and M-1399 (Cat. Nos. 22 and 24). The context recorded by the excavator matches an Intermediate III horizon.

27. M-488 (SD 3089). Joshi and Parpola, p. 119; Mackay, *Further Excavations*, p. 351, Plates LXXXII, 1, 2. SD area, Bl. 8, Room 10, 1.9 feet from surface.

Terracotta tablet, without slip, with triangular section or three-sided prism. On one side, from the left, an elephant moves rightwards toward a framed swastika. Beyond this is a well-known Indus scene, a man on the branches of a tree getting shelter from a tiger that turns back, while a chimaera, on the right edge, goes rightwards, as if exiting the scene. On another side are eight signs followed by a unicorn protruding its muzzle above its usual unidentified symbol. On the third side one sees an unidentified object on a stool, behind a sitting or kneeling personage with long hair, powerful curved horns, and arms covered by bangles. He or she appears behind a markhor. The focus of the scene is the manifestation of another personage standing with the same features or ornaments in the branches of a pipal tree. The scene is the linear translation of part of one of the famous 'ritual' representations so far encountered on Indus seals.⁶⁸

28. M-1430 (DK 4547). Shah and Parpola, p. 194; Mackay, *Further Excavations*, p. 359, Plates XCI, 4XCII, 12. DK-G, Bl. 9, H. VII, Room 31, 6.6 feet from surface.

Twisted terracotta tablet with triangular section or three-sided prism. The impressions in low relief on the three sides may be described as follows. On one side, from the right, a man puts his foot and hand upon the horns of a charging buffalo. With the other he spears the animal's shoulders. Behind there is a tree with a standing personage and then two other smaller-sized humans, and two pictographic characters, including a pipal leaf, that appear on each side. The second side bears, after the signs, a goat on its hind legs climbing a tree to eat the leaves. Further to the right is an animal with three heads (those of a unicorn, a gaur, and perhaps a rhinoceros) facing right. On the last side, again from the left, after the

two signs there is a chimaera facing right followed by two schematic human feet, one turned right and the other left. The plants are covered by grid designs.

29. M-2033 (2826, Surface find 1936). Parpola, Pande, and Koskikallio, pp. 109, 404.

Terracotta tablet with triangular section (undamaged). This unique rectangular terracotta tablet was covered by a red slip, now partially worn. Each side bears a different stamp (Sides A, B, and C, as labelled in Parpola, Pande, and Koskikallio), made using actual seals or more probably wooden moulds. Side A retains the impression of five Indus signs covering the entire surface (see Table 2 for the sequence). Side B retains the impression of a symmetric composition framed by two sinuous lines; in the centre appears the well-known human figure with arms entirely covered by bangles, seated in yogic position on a throne with feet in the shape of bovine hooves. Two Indus fish-like signs are symmetrically positioned in the upper register of the tablet, on both sides of the yogi's head, just above his/her hands; two vertical gavials with open mouths fill the space between the throne and the sinuous lines that frame the scene. Side C bears the impression of a chimaera between two vertical segments at the edges. The general features of the chimaera are clearly recognizable, even though many details were lost in the impression on wet clay. The creature has a long cobra-like erected tail, the frontal part of a markhor goat with its winter mantle rendered by four or five bands projecting from the neck, a round human face with a big eye, and at least one short tusk, two bovine horns in profile, and a trunk made with a human arm covered by bangles. The rear legs, as usual, are parts of a tiger, even if the stripes are not visible in the impression, and the central body belongs to a unicorn.⁶⁹

30. M-571 (2816, DK 4408). Joshi and Parpola, p. 143; Mackay, *Further Excavations*, p. 366, Plates XCIII, 13. DK-G, Bl. 1, H. 1, Room 18, 5.5 feet below surface. Dated by Mackay to Late II-Ib Phases.

Copper or bronze tablet (undamaged). This tablet is the only one with this particular icon ever found at Mohenjo-Daro. The figure has simple horns and no ear; the front part of the creature is elephantine, with tusks and a plain trunk depicted in a quite naturalistic fashion. The segmented bands on the neck take the form of a simple, irregular grid of incised traits. Also, the front legs belong to an elephant. The central part of the body bears a 'kidney' design surrounded by dots, perhaps remotely linked to the idea of the heart-shaped feature commonly seen on the shoulders of unicorns. However, the rear, equally dotted, suggests a rhinoceros.

The tail, although incised in a very simple winding trait, seems to repeat the position of an erected snake. Room 18 is an access space from Crooked Lane to a large multi-roomed residence.

31. M-436 (2718, SD 3225). Joshi and Parpola, p. 108; Mackay, *Further Excavations*, p. 369, Plates LXXXII, 6. SD, Bl. 6, Room 13, 0.8 feet from surface.

Copper or bronze double-faced round token (slightly corroded).⁷⁰ On one side it bears the cast of a unicorn in relief and on the opposite side a chimaera. Both appear under the same two-character inscription. Many details of the creatures are effaced by corrosion, but it is still possible to recognize several basic features of Type 1 chimaeras, such as the cobra-like erected tail, the frontal part of a markhor goat in winter mantle, with a human face and toothed horns, and the symbolic trunk rendered through a human arm covered by bangles. The central body seems to belong to a unicorn.

NOTES

1. J.H. Marshall, 'First Light on a Long-Forgotten Civilization', *Illustrated London News*, 20 September 1924, pp. 528–32; N. Lahiri, *Finding Forgotten Cities: How the Indus Civilization was Discovered* (Calcutta: Seagull Books, 2006).
2. For a general summary of the signs system of the Indus Civilization, see (in order of publication date) I. Mahadevan, *The Indus Script: Texts, Concordance and Tables* (New Delhi: Archaeological Survey of India, 1977); G.L. Possehl, *Indus Age: The Writing System* (New Delhi: Oxford IBH, 1996); W.A. Fairervis, Jr, *The Harappan Civilization and Its Writing: A Model for the Deciphering of the Indus Script* (Leiden: Brill, 1997); A. Parpola, *Deciphering the Indus Script* (Cambridge: Cambridge University Press, 1997); S. Farmer, R. Sproat, and M. Witzel, 'The Collapse of the Indus-Script Thesis: The Myth of a Literate Harappan Civilization', *Electronic Journal of Vedic Studies (EJVS)*, 11.2 (2004), 19–57; D. Frenez and M. Tosi, 'Lothal Sealings: Records from an Indus Civilization Town at the Eastern End of the Maritime Trade Circuits across the Arabian Sea', in *Studi in onore di Enrica Fiandra. Contributi di archeologia egea e vicinorientale*, ed. by M. Perna (Paris: De Boccard, 2005), pp. 13–65; M. Vidale, 'The Collapse Melts Down: A Reply to Farmer, Sproat, and Witzel', *East and West*, 57 (2007), 333–66; R.H. Meadow and J.M. Kenoyer, 'The Early Indus Script at Harappa: Origins and Development', in *Intercultural Relations between South and Southwest Asia. Studies in Commemoration of E.C.L. During-Caspers (1934–1996)*, ed. by

- E. Olijdam and R.H. Spoor (Oxford: Archaeopress BAR International Series 1826, 2008), pp. 124–31; J.M. Kenoyer and R.H. Meadow, 'Inscribed Objects from Harappa Excavations 1986–2007', in *Corpus of Indus Seals and Inscriptions (CISI) Volume 3: New Material, Untraced Objects, and Collections outside India and Pakistan. Part 1: Mohenjo-Daro and Harappa*, ed. by A. Parpola, B.M. Pande, and P. Koskikallio (Helsinki: Suomalainen Tiedeakatemia, 2010), pp. xliiv–lviii; B.K. Wells, *Epigraphic Approaches to Indus Writing* (Oxford: Oxbow Books, 2011); N. Yadav, M.N. Vahia, I. Mahadevan, and H. Joglekar, 'A Statistical Approach for Pattern Search in Indus Writing' ([n.d.] <<http://www.harappa.com/script/tata-writing/indus-script-paper.pdf>> [accessed 12 August 2011]).
3. Beside the stone stamp seals many other objects bearing different motifs and/or inscriptions were used by the Indus people for different purposes. For an updated catalogue of the inscribed objects of the Indus Civilization, see *Corpus of Indus Seals and Inscriptions (CISI) Volume 1: Collections in India*, ed. by J.P. Joshi and A. Parpola (Helsinki: Suomalainen Tiedeakatemia, 1987); *Corpus of Indus Seals and Inscriptions (CISI) Volume 2: Collections in Pakistan*, ed. by S.G.M. Shah and A. Parpola (Helsinki: Suomalainen Tiedeakatemia, 1991); Parpola, Pande, and Koskikallio; J.M. Kenoyer, *Ancient Cities of the Indus Valley Civilization* (Karachi: Oxford University Press, 1998), ch. 4; G.L. Possehl, *The Indus Civilization: A Contemporary Perspective* (Lanham: Altamira Press, 2003), chs 6–7.
 4. J.M. Kenoyer, 'Early Developments of Art, Symbol and Technology in the Indus Valley Tradition', *INDO-KOKO-KENKYU*, 22 (2001), 1–18.
 5. J.M. Kenoyer, 'Chronology and Interrelations between Harappa and Central Asia', *Journal of the Japanese Society for West Asian Archaeology*, 5 (2004), 38–45; R.H. Meadow and J.M. Kenoyer, 'Excavations at Harappa 2000–2001: New Insights on Chronology and City Organization', in *South Asian Archaeology 2001*, ed. by C. Jarrige and V. Lefèvre (Paris: Editions Recherche sur les Civilisations, 2005), pp. 207–24.
 6. For an overview of the different interpretations of and hypotheses about the nature of the Harappan 'unicorn', see J.M. Kenoyer, 'Iconography of the Indus Unicorn: Origins and Legacy', in *Connections and Complexity: New Approaches to the Archaeology of South Asia*, ed. by S. Abraham, P. Gullapalli, T. Raczek, and U. Rizvi (Walnut Creek: Left Coast Press, in press); A. Parpola, 'The Harappan Unicorn in Eurasian and South Asian Perspectives', *Linguistics, Archaeology and the*

- Human Past Occasional Paper 12*, ed. by T. Osada and H. Endo (Kyoto: Research Institute for Humanity and Nature, 2011), pp. 125–88.
7. H-1048, in Parpola, Pande, and Koskikallio; A. Cunningham, 'Harapâ', in *Archaeological Survey of India, Report for the Year 1872–73* (Calcutta: [n. pub.], 1875), pp. 105–08, Plates XXXII–XXXIII; A. Parpola, 'New Lights on "Major Clark", Owner of the First Published Indus Seal', in Parpola, Pande, and Koskikallio, pp. lix–lx.
 8. E.J.H. Mackay, *Further Excavations at Mohenjo-daro* (New Delhi: Govt. of India, 1938), p. 326.
 9. Parpola, 'Harappan Unicorn', pp. 142–43.
 10. J.H. Marshall, *Mohenjo-daro and the Indus Civilization* (London: Arthur Probsthain, 1931), pp. 68–69.
 11. For examples, see M-298, M-417, K-43 in Joshi and Parpola; M-1169, M-1171, Ai-6 in Shah and Parpola.
 12. For examples of 'unicorns' with two horns, see M-232 in Joshi and Parpola; M-1077, M-1078 in Shah and Parpola. For 'horned' tigers, see M-1168 in *ibid.*; M-1919 in Parpola, Pande, and Koskikallio.
 13. N.G. Majumdar, 'Explorations in Sind', in *Memoirs of the Archaeological Survey of India*, 48 (New Delhi: Govt. of India, 1934), 38, Plate XXI.
 14. For Chanhudaro see E.J.H. Mackay, *Chanhudaro Excavations 1935–36* (New Haven, CT: American Oriental Society, 1943), p. 157, Plates LV 10, 11, 13–15, LVI: 2; Kenoyer, *Ancient Cities*, p. 87, Figures 5.14–15; Kenoyer, 'Iconography of the Indus Unicorn'.
 15. Kenoyer, *Ancient Cities*, p. 87; K.C. Chang, *Art, Myth and Ritual: The Path to Political Authority in Ancient China* (Cambridge, MA: Harvard University Press, 1983), pp. 72–73.
 16. S. Huntington, *The Art of Ancient India* (New York: John Weatherhill, 1985), pp. 148–49.
 17. *Chimaera* is the Latin name of a partially similar monster well known, as discussed below, in ancient Greek mythology. Hereafter in this article the name will appear without the italics.
 18. 'Chimaira', in *A Greek-English Lexicon*, ed. by H.G. Liddell and R. Scott (Oxford: Clarendon Press, 1966), p. 1992.
 19. 'Cheima', in Liddell and Scott, pp. 1982–83.
 20. A. Jacquemin, 'Chimaira', in *Lexicon Iconographicum Mythologiae Classicae (LIMC)*, III.1 (Zürich-München: Artemis, 1986), 249–59; A. Jacquemin, 'Chimaira', in *LIMC*, III.2 (Zürich-München: Artemis, 1986), 197–208; R. Graves, *The Greek Myths* (Baltimore: Penguin Books, 1960), pp. 252–56; M.L. Schmitt, 'Bellerophon and the Chimaera in Archaic Greek Art', *American Journal of Archaeology*, 70.4 (1966), 341–47.
 21. The markhor (*Capra falconeri*) is the largest wild goat of Middle and South Asia. It may have originally lived in a wide crescent from the Dushambe valleys to Pamir, Karakorum, and its lower valleys, down to Chitral, Swat, and the Sulaiman range to the Quetta region. It is distinguished by an imposing size and by the corkscrew-like horns that distinctively twist in an anti-clockwise direction. For references see T.J. Roberts, *The Mammals of Pakistan* (Oxford/New York/Delhi: Oxford University Press, 1997); R. Hess, 'Markhor (*Capra falconeri*)', in *Grzimek's Encyclopedia of Mammals*, V, ed. by S.P. Parker (New York: McGraw-Hill), pp. 529–35.
 22. A. Roes, 'The Representation of the Chimaera', *Journal of Hellenic Studies*, 54.1 (1934), 21–25.
 23. U. Bardi 'Chimaera: The Origins of the Myth', *Chimaera. A Site Dedicated to the Chimaera (or Chimera) Myth* (2004) <<http://www.unifi.it/surfchem/solid/bardi/chimera/origins.html>> [accessed 26 August 2011]; L.A. Stella, *Mitologia Greca* (Turin: UTET, 1955), pp. 508–13.
 24. Joshi and Parpola; Shah and Parpola; Parpola, Pande, and Koskikallio (cited in full in notes 2 and 3 above).
 25. B. Allchin and F.R. Allchin, *Origins of a Civilization. The Prehistory and the Early Archaeology of South Asia* (New Delhi: Viking, 1997), p. 198.
 26. Mackay, *Further Excavations*, pp. 332–33.
 27. Marshall, *Mohenjo-daro*, p. 389; Mackay, *Further Excavations*, p. 333.
 28. Kenoyer, *Ancient Cities*, p. 117, Figure 6.31.
 29. Mackay, *Further Excavations*, p. 335.
 30. For example, see M-488C, K-35 in Joshi and Parpola; M-1179, M-1180, M-1186 in Shah and Parpola.
 31. K-35 in Joshi and Parpola.
 32. A. Degener, 'Hunters' Lore in Nuristan', *Asian Folklore Studies*, 60 (2001), 329–44.
 33. Exceptionally, large lunate toothed horns also characterized unicorns and tigers, as in M-232 in Joshi and Parpola; M-1077, M-1078, M-1168 in Shah and Parpola; M-1919 in Parpola, Pande, and Koskikallio.
 34. For example, see M-304, M-305, M-488 C, H-176 B in Joshi and Parpola; M-1181, M-1186 in Shah and Parpola; M-2033 B, H-1934 B, H-1975 B, H-19761 B, H-2026 D, H-2027 B, H-2028 B in Parpola, Pande, and Koskikallio.
 35. For example, see M-311, K-50, K-65 in Joshi and Parpola; Ns-9 in Shah and Parpola.

36. For examples of elephants depicted on Indus seals, with particular reference to the proboscis' rendering, see M-278 to M286, H-89 to H-93, L-161 to L-170, K-40 in Joshi and Parpola; M-1141 to M-1161, H-590 in Shah and Parpola; M-1912 to M-1915, H-1533 A in Parpola, Pande, and Koskikallio.
37. 'Hastin', in *A Sanskrit-English Dictionary: Etymological and Philologically Arranged With Special Reference to Cognate Indo-European Languages*, ed. by K.C.I. Monier Williams, E. Leumann, and C. Cappeller (Ottawa: Laurier Books Ltd., 1999); 'Hāthī', in *Oxford English-Hindi Dictionary*, ed. by S.K. Verma and R.N. Sahai (Oxford: Oxford University Press, 2004).
38. T.H. Nelson, 'The Hypertext', in *Proceedings of the World Documentation Federation* ([n.p.]: [n. pub.], 1965); T.H. Nelson, 'A File Structure for The Complex, The Changing and the Indeterminate', in *Proceedings of the 20th ACM National Conference* (New York: Association for Computing Machinery, 1965), pp. 84–100.
39. Concepts and quotes from N. Wardrip-Fruin, 'What Hypertext Is', in *Hypertext 2004. Proceedings of the 15th ACM Conference on Hypertext and Hypermedia* (New York: Association for Computing Machinery, 2004), pp. 126–27.
40. M. Vidale, 'Aspects of Palace Life at Mohenjo-Daro', *South Asian Studies*, 26.1 (2010), 59–76.
41. Mackay, *Further Excavations*, pp. 333–34.
42. *Ibid.*, p. 363.
43. J.M. Kenoyer, personal communication.
44. S. Koskeniemi, A. Parpola, and S. Parpola, *Materials for the Study of the Indus Script: A Concordance to the Indus Inscriptions* (Helsinki: Suomalainen Tiedeakatemia, 1973). There is no apparent regularity or association among images and signs, nor, as far as we can judge, among the signs on record. Cat. Nos. 23 (M-449), 24 (M-1399), and 26 (M-2020) share the same couple of signs repeated on both sides of the terracotta tablets. Cat. No. M-571 is the only example we have of a copper tablet bearing a chimaera on one side and an inscription on the opposite face. As in these tablets the images are constantly accompanied by the same sequences of signs, they may have expressed a statement or quality concerning the creatures or symbols incised on the rear. Interestingly, no other text repeats the four signs of this tablet. This would suggest that such a peculiar link between images and inscriptions, active on the copper tablets, did not work when communication shifted to other media.
45. Marshall, *Mohenjo-daro*, p. 390.
46. Parpola, 'Harappan Unicorn', p. 173 (note 91).
47. A. Parpola, 'Administrative Contacts and Acculturation between Harappans and Bactrians: Evidence of Sealings and Seals', in Jarrige and Lefèvre, pp. 271–72.
48. W.A. Fairservis, Jr, 'Harappan Civilization According to its Writing', in *South Asian Archaeology 1981*, ed. by B. Allchin (Cambridge: Cambridge University Press, 1984), pp. 154–60; W.A. Fairservis, Jr, 'Cattle and the Harappan Chiefdoms of the Indus Valley', *Expedition*, 28. 2 (1986), 43–50.
49. Kenoyer, *Ancient Cities*, p. 181.
50. J.R. McIntosh, *The Ancient Indus Valley. New Perspectives* (Santa Barbara: ABC-CLIO, 2008), pp. 258–59.
51. M. Vidale, 'The Short-Horned Bull on the Indus Seals: A Symbol of the Families in the Western Trade?', in *South Asian Archaeology 2003*, ed. by U. Franke-Vogt and H.-J. Weisshaar (Aachen: Linden Soft, 2005), pp. 147–58.
52. This hypothesis seems to contrast with the fact that many of the most beautiful and high-quality seals of the Indus Civilization bear 'unicorns'. This evidence may be the result of a decentralized production of seals, independently commissioned by their owners and users following strictly prescribed rules and, possibly, using assigned raw materials. The productive system of the Indus Civilization is still largely unknown and we prefer not to advance further in terms of conjectures.
53. U. Franke-Vogt, *Die Glyptik aus Mohenjo-Daro. Uniformität und Variabilität in der Induskultur: Untersuchungen zur Typologie, Ikonographie und räumlichen Verteilung I-II* (Mainz: Verlag Philipp von Zabern, 1991), p. 62.
54. For other examples of rare Indus stamp seals with animal icons and inscriptions carved on both sides, see M-325 in Joshi and Parpola; M-1224, M-1225 in Shah and Parpola.
55. For examples, see M-439, M-440, M-441 in Joshi and Parpola; M-1393, M-1394, M-1395 in Shah and Parpola.
56. M. Vidale, *The Archaeology of Indus Crafts. Indus Craftspeople and Why We Study Them* (Rome: IsIAO, 2000), p. 93.
57. The use of *Waagenophillum* coral limestone in pre-history was discussed in M. Vidale and others, 'Waagenophillum Coral Limestones and their Processing at Shahdad: Trade Links in the 4th–3rd Millennium BC', paper presented at the Conference *Shahdad and the Bronze Age in Southeast Iran. A Workshop Commemorating Prof. A. Hakemi's Work at Shahdad and 40 Years of Excavations in Southeast Iran* (Cambridge, 15–16 July 2011).

58. For example, see M-311, K-50, K-65 in Joshi and Parpola; Ns-9 in Shah and Parpola.
59. S. Butler, *Hudibras*, III, ed. by T.R. Nash (London: Oxford University Press, 1935), pp. 1315–19.
60. Plato, *Republic*, IX, 588c–d, in *Plato in Twelve Volumes*, trans. by P. Shorey (Cambridge: Harvard University Press; London: William Heinemann Ltd., 1969).
61. D. Frede, 'Plato's Ethics: An Overview', in *The Stanford Encyclopedia of Philosophy*, ed. by E.N. Zalta ([n.p.]: [n. pub.], 2009) <<http://plato.stanford.edu/archives/sum2009/entries/plato-ethics>> [accessed 26 August 2011].
62. Original reference for Mohenjo-Daro: Marshall, *Mohenjo-daro*; Mackay, *Further Excavations*; for Lothal, S.R. Rao, *Lothal: A Harappan Port Town (1955–62)*, Vol. 2, *Memoirs of the Archaeological Survey of India*, 78 (New Delhi: Govt. of India, 1985).
63. The inscriptions are directly taken from the texts transcribed in Koskenniemi, Parpola, and Parpola.
64. Mackay, *Further Excavations*, pp. 45–47.
65. Vidale, 'Aspects of Palace Life', p. 64.
66. Marshall, *Mohenjo-daro*, pp. 226–27.
67. The inscription that appears on both faces does not figure in Koskenniemi, Parpola, and Parpola, p. 447.
68. See M-1186 in Shah and Parpola, p. 425.
69. The sinuous lines that frame the narrative composition on Side B and the straight ones on Side C (as

labelled in Parpola, Pande, and Koskikallio, pp. 109, 404), with the chimaera, resulted from the impression of objects different than standard Indus stamp seals. In fact, these latter never have engraved lines or frames running around the central motifs and the inscriptions. Such frames rarely appear on moulded tablets in bas-relief, which may also have been used for sealing (for examples, see M-450, H-238, L-209, K-76 in Joshi and Parpola). Since no actual seals, not even terracotta, steatite, faience, or metal tablets with this feature engraved 'in negative', have been found to date, we may assume that the original moulds were made of perishable materials such as wood. This hypothesis might be further supported by the many terracotta tablets with icons and complex narrative scenes on different facets which have no equivalents in the iconographic repertory of stamp seals.

70. H-169 in Joshi and Parpola is a poorly preserved square copper tablet from Harappa with an animal and text in relief. The animal might be another chimaera and the text above might include a combination of a lozenge and vertical traits. However, the identification of the creature as a chimaera is doubtful as the text is different, hence it could not be the tablet mentioned above. Other copper casts or incised tablets appear in Joshi and Parpola, p. 214; H-957 in Shah and Parpola, p. 341; and Parpola, Pande, and Koskikallio, p. 296, but the icons and texts are not readable.