

Walking with the Unicorn

Social Organization and Material Culture
in Ancient South Asia

Jonathan Mark Kenoyer
Felicitation Volume

Edited by

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Front cover: SEM microphotograph of Indus unicorn seal H95-2491 from Harappa (photograph by J. Mark Kenoyer © Harappa Archaeological Research Project).

Back cover, background: Pot from the Cemetery H Culture levels of Harappa with a hoard of beads and decorative objects (photograph by Toshihiko Kakima © Prof. Hideo Kondo and NHK promotions).

Back cover, box: Jonathan Mark Kenoyer excavating a unicorn seal found at Harappa (© Harappa Archaeological Research Project).



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Private Person or Public Persona? Use and Significance of Standard Indus Seals as Markers of Formal Socio-Economic Identities

Dennys Frenez

Stamp seals made of fired steatite are one of the most distinctive standardized productions of the Indus Civilization. However, despite a century of continuous research and analysis, the system of semantic rules and socio-economic practices behind their sudden introduction and prolonged use with little variations for almost one millennium remains far from being fully decoded, with particular reference to the identity and roles of the individuals represented by these seals. Jonathan Mark Kenoyer addressed this topic in several sections of his seminal book *Ancient Cities of the Indus Valley Civilization* (1998), as well as in later specific papers (2013), leaving space for alternative hypotheses. This paper attempts to deconstruct the most distinctive features of the standard Indus seals comparing the resulting patterns and trends with those of better-known contemporaneous administrative systems in order to isolate some basic concepts that might have regulated their use. The application of general models of brands development in different types of marketing systems allows to tentatively circumstantiate and further test the resulting hypotheses within a robust methodological framework.

Keywords: Indus Civilization, stamp seals, cylinder seals, marketing strategies, oligopoly.

‘Those who assume hypotheses as first principles of their speculations may indeed form an ingenious romance, but a romance it will still be’ – Roger Cotes, Preface to the second ed. of Sir Isaac Newton’s *Philosophiæ naturalis principia mathematica* (1713).

The Indus (or Harappan) Civilization of the Indus River basin in Pakistan and north-western India (c. 2600/2500-1900 BC) was acknowledged almost one century ago as an independent cultural complex contemporaneous to the other great Bronze Age urban civilizations in Egypt, the Near East and the Iranian Plateau (Marshall 1924; Lahiri 2006). Nonetheless, in spite of a continuous flow of research, many fundamental aspects of its sociopolitical, economic and cultural organizations are still rather elusive mainly due to our inability to decode yet the so-called Indus script or Indus writing system and to conduct an extensive campaign of long-term excavations in the region (Figure 1).

The dawn of research on the Indus Civilization has been heavily influenced by data and hypotheses about interactions and exchanges with the other state-level urban civilizations of Middle Asia.¹ The prehistoric dating of this cultural complex was first proposed in the 1920s based on parallels between the inscribed seals that were coming to light at Harappa and Mohenjo-daro and similar ones found during earlier excavations

in Mesopotamia and southwestern Iran (Mackay 1925; Gadd 1932).²

However, the first attempts at defining the Indus phenomenon using models created to describe the socio-cultural trajectories followed in Egypt and the Near East did not fit with the emerging picture of a cultural complex developed from original adaptations to most of the ‘big questions’ in the evolution of state-level urban societies. J. H. Marshall (1931), who first excavated Mohenjo-daro between 1922 and 1927, was puzzled by the general uniformity of the material culture and the apparent peaceful and egalitarian character of the whole civilization. In his attempt to find evidence

¹ The term ‘Middle Asia’ is used here after the definition provided by G. L. Possehl in his seminal paper about the so-called Middle Asian Interaction Sphere to indicate the vast region stretching from the eastern shores of the Mediterranean Sea to the Indus River basin, including also Mesopotamia, the Persian Gulf and southeastern Arabia, the Iranian Plateau and Central Asia (Possehl 2007).

² For the sake of history, the first scholar who proposed the prehistoric nature of the Indus Civilization was the Italian Indologist Luigi Pio Tessitori (Udine, 1887 - Bikaner, 1919) (Freschi 1999; Lahiri 2006). At the beginning of 1919, while touring around Rajasthan to study bards and vernacular languages, on request of Sir John Marshall he excavated a small trench at the site of Kalibangan, later known as one of the most important Indus sites in India. Tessitori reported that ‘the mound on which the objects were discovered, is very interesting. I believe it is prehistorical or, at least, non-Aryan’. In a second letter, he further noted that ‘the mound is littered with a very large number of stone knives and other fragments of a prehistorical character [...] I am inclined to assign to the objects a prehistorical or at any rate pre-Aryan date. The object with the representation of the bull is a seal, therefore the characters on it are reversed’ (Freschi 1999: 209, note 79). Unfortunately, he was unable to present his report to the Archaeological Survey of India since he suddenly died for having contracted Spanish influenza on board the ship that was bringing him back from Italy after the funeral of his mother. His report was discovered only decades later.

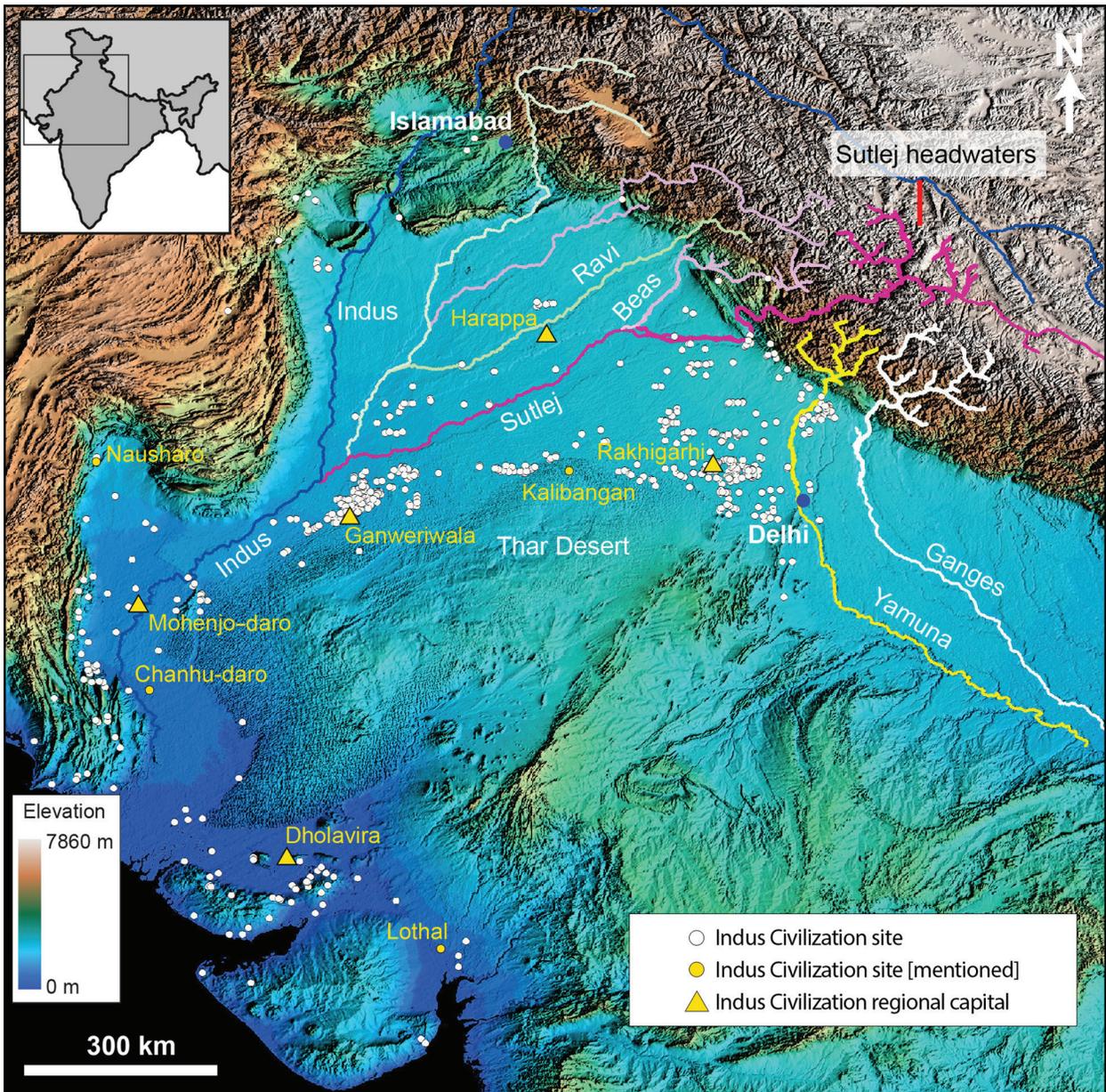


Figure 1. Topographic map of the Indus River basin with indication of the major Indus Civilization cities and settlements (map modified after Singh *et al.* 2017: fig. 1).

for an authoritarian and centralized militaristic system at the basis of the Indus phenomenon, R. E. M. Wheeler (1950: 28–29) stressed that in the Indus sites everything was ‘orderly and regulated’ and individual initiative was suppressed in favor of a monotonous sense of regimentation. Wheeler (1968: 25, 135) ultimately proposed that the very notion of urban civilization and its material foundation arrived in the greater Indus Valley along with ‘more civilized’ Western elites that ruled a weak indigenous culture from the walled citadels of the Indus cities. Along the same line, according to S. Piggott (1950: 200) ‘the general impression we obtain from the Harappā arts and crafts is indeed one of competent dullness [...] and display a dead level of

bourgeois mediocrity’; furthermore, ‘the dead hand of conservatism [...] lies heavy on all the Harappā products (which) suffered from standardization and an almost puritanical utilitarianism’.³

Almost one century later, it is now clear that the development of an urban culture in the greater Indus Valley during the Bronze Age represented the apex of an indigenous tradition rooted in the Neolithic

³ As demonstrated by J. M. Kenoyer and ironically pointed out by M. Vidale (Kenoyer 1991: 35–38 and fig. 4.5, cf. Wheeler 1947: pl. XXII; Vidale 2010: 114), Wheeler actually built this theory on the basis of a gross mistake in the stratigraphic interpretation of Harappa’s Mound AB mud-brick rampart.



Figure 2. Shape and morphology of a standard Indus seal branded with a Harappan unicorn icon below a sequence of Indus scriptorial signs (© Harappa.com).

period (Jarrige 1991; Meadow 1996; Possehl 1999). The Indus Civilization resulted in fact from a long process of coherent selection, assimilation and eventual crystallization of cultural traits from different regional cultures spread over a vast and highly differentiated territory. The inclusion of these communities as part of an integrated socio-political, economic and cultural superstructure took place in the centuries between ca. 2800 and 2600/2500 BC (Algaze 1993; Kenoyer 2001; Vidale 2005a).

On the contrary, in spite of several successful attempts to define regional variations across the vast geographic compound interested by the Indus phenomenon (for examples, see Ameri 2013; Konasukawa 2013; Konasukawa and Koiso 2018; Miller 2013; Petrie *et al.* 2018), and of increasing evidence for the diffused appreciation of Indus ‘arts and crafts’ by all contemporaneous cultures of Middle Asia and up to the eastern Mediterranean (for a conceptual summary, see Frenez 2018, in press; Kenoyer 2008), the alleged ‘monotonous uniformity’ of material culture is still considered a distinctive trait of the Indus Civilization.

According to M. Vidale (2010: 124, cf. Kenoyer 1989; Vidale 2000: 130–134, but see also Kenoyer 1995b, 2000), ‘the serial creation of ornaments and domestic tools of identical shapes, but on scales of different value and rank [...] express social comparison and competition yet in the reaffirmation of belonging to the same culture’. The definition of this phenomenon of cultural identification and integration, which is usually called ‘Harappan veneer’ after Meadow and Kenoyer (1997), is based on a number of archaeological markers retrieved

with minimum variations from all Indus sites over an extensive region with significant geographical and ecological diversities, but certainly differentiated also ethnically and linguistically (Kenoyer 1994). When after c. 1900 BC the Indus Civilization began disaggregating as an integrated cultural and socio-economic system, most of these markers of a Harappan veneer, including the writing system and the standard seals, fell into oblivion and were no longer adopted as distinctive traits by any local culture in the whole South Asia (Possehl 2002: 237–245; Kenoyer 1995a, 2005).

Even if, as stressed by M. Ameri (2013: 357), ‘we are faced with the question of whether this homogenous veneer is a reality of the past or a construct of modern archaeological interpretation’, the standard Indus seals certainly represent the most emblematic symbol of this search for distinction within normalization. In fact, even if there are indeed subtle but relevant variations in some secondary compositional features and in their regional distribution (Ameri 2013; Jamison 2013, 2017; Konasukawa 2013; Konasukawa and Koiso 2018), their basic morphological and stylistic foundation remained virtually untouched for almost one millennium (Kenoyer and Meadow 2010). This paper is therefore an attempt of contributing to disentangle one of the central issues in the archaeology of the Indus Civilization by providing some general but yet firm points that might eventually support further interpretations.

Standard Indus seals

Stamp seals made of fired steatite are one of the most distinctive standardized productions of the Indus



M-18



M-7



M-236



M-238

Figure 3. Standard Indus seals branded with a Harappan unicorn in front of a 'ritual filter' (M-18 and M-7) and an Indian bison with the head lowered on a manger-like object (M-236 and M-238) (photographs from Joshi and Parpola 1987).

Civilization.⁴ Standard Indus seals are squarish in shape and had a hemispherical perforated boss on the back

⁴ In this paper, I use many times the terms 'standard' to label a specific seal production of the Indus Civilization. When applied to these seals, 'standard' has to be considered according to the definition in the Oxford English Dictionary (2018), 'Denoting or relating to the form of an expression widely accepted as the usual correct form'. Moreover, by defining these seals as 'standardized', I do not want to deny the presence of important regional and diachronic variations in style, composition and carving techniques (as defined in Ameri 2013; Green 2010, 2016; Jamison 2013, 2017; Konasukawa 2013; Konasukawa and Koiso 2018), but rather stress an overall stylistic and technological consistency much higher than those present in the contemporaneous seal productions of most regions of Middle Asia (for examples, see Baghestani 1997; Collon 2005; Salvatori 2000; Sarianidi 1998; Winkelmann 2004).

with a deep rounded central groove used to string or hold the seal (Kenoyer and Meadow 2010; Possehl 1996a: 27 and fig. 6) (Figure 2). They were engraved – following a specific compositional syntax – with the profile image of a single standing male animal, sometimes represented in front of an enigmatic object, and nearly always below a short sequence of Indus scriptural signs carved specularly so as to be read correctly only once stamped on clay or other soft materials for sealing rooms and containers (Frenez 2006, 2017; Frenez *et al.* 2016; Frenez and Tosi 2005). These icons were selected among a specific set of about a dozen animals, real or imaginary, including – in order of frequency – the



M-1152



M-257



M-1134



M-273



M-269



H-94



M-1169



M-1177



M-1181

Figure 4. Standard Indus seals branded with an Asian elephant with the trunk lowered on a manger-like object (M-11527), a zebu (M-257), a rhinoceros (M-1134), a wild goat (M-273), a water buffalo (M-268), a tiger (H-94), a three-headed creature (M-1169), a chimaeric creature (M-1177), and a human figure in yoga posture (M-1181) (photographs from Shah and Parpola 1991; Parpola *et al.* 2010).

unicorn, bison, buffalo, zebu, elephant, tiger, wild goat, antelope, rhinoceros, hare, a chimaera and other composite creatures, but comprised also rare narrative scenes possibly related to religious and mythological beliefs (Ameri 2013: 359–360, tab. 19.1; Konasukawa and Koiso 2018: tabs. 1 and 2; Possehl 1996a: tab. 4, figs. 7 and 8) (Figures 3 and 4).

Standard Indus seals – whose earliest specimen found so far was engraved with the autochthonous icon of an elephant – were suddenly introduced between 2800 and 2600 BC along with the use of clay sealings and an early form of Indus Script derived from the post-firing graffiti on pottery in use at Harappa (Kenoyer 2001; Kenoyer and Meadow 2008; Parpola *et al.* 2010: cat. nos. H-1533



M-292



Nd-1

Figure 5. Standard Indus seals made of unfired or low-fired steatite (M-292) and of high-fired steatite (Nd-1) (photographs from Shah and Parpola 1991; Parpola *et al.* 2010).

and H-1538, plates. 1 and 4).⁵ This type of stamps seals remained in use without major variations until the end of the Indus Civilization in the first centuries of the 2nd millennium BC (for a definition of regional differences and diachronic evolution, see Jamison 2017; Kenoyer and Meadow 2010; Konasukawa 2013).

Despite a great variability in size, stylistic treatment and carving quality across the different regions of the greater Indus Valley but even within the same site (Franke-Vogt 1991; Green 2010, 2016; Jamison 2013, 2017;), which may reflect workshops and regional variations, their morphology and the formal composition of the animal icons consistently respected a dogmatic series of basic rules independent from the general quality and dimension of the seal.

Standard Indus seals were almost exclusively made – with percentages apparently ranging from about 75% up to 95% within a single site – using very compact and physically homogenous varieties of steatite, which was fired and sometimes glazed after the seal was shaped and the iconography and inscription were carved into

⁵ In the northwestern regions of the greater Indus Valley, the sharing and eventual transfer of proto-scriptorial signs from pottery to stamp seals was experimented at several sites (Frenez 2004). At Rehman Dheri – an Early Harappan site near Dera Ismail Khan in the Gomal Valley – all signs and symbols carved on a famous button seal in ivory (scorpion, frog, wild goats and a few geometric signs) were traced also on pottery containers before their firing (Frenez 2004: sl. 17–18). This same process is documented in detail also at Harappa where, a few centuries later, a different corpus of signs was first used for pre-firing pottery marks and then for post-firing graffiti (Kenoyer 2001; Kenoyer and Meadow 2008). The same signs were carved on the earliest prototypes of standard Indus seals to be soon developed in the Indus Script (Kenoyer and Meadow 2008: figs. 3 and 4.9), which was eventually adopted across the entire cultural domain of the Indus Civilization.

the still soft stone (for the raw material, see Law 2011: 192, 652–668; Vidale 2000: 61–62; for the manufacturing process, see Green 2010, 2016; Jamison 2017, 2018; Rissman 1989; Vidale *et al.* 2018).⁶ In fact, certain varieties of steatite undergo an impressive chromatic evolution if heat treated in oxidizing conditions, becoming darker from c. 200° to 700° C and then white approximately between 800–1200° C when it changes into enstatite and eventually cristobalite (Law 2011: 669–677; Vidale 2000: 59, cf. Barthélémy de Saizieu *et al.* 1993). This process increases also the hardness of steatite, which rises from between 1 and 2 to almost 7 on Mohs' scale (Vidale 2000: 59, cf. Ritchie 1973, Vidale 1987: 113) (Figure 5).

In the Indus Tradition, the exploitation of steatite and its whitening through pyrotechnological treatments is rooted in the Neolithic period during the first half of the 5th millennium BC, when disc beads in steatite started being progressively heat treated and eventually glazed (Barthélémy de Saizieu and Bouquillon 1994, 1995). According to M. Vidale (2000: 59), this visual and physical transformation 'might have been perceived as a magic process and might have suggested to the ancient craftspeople the idea of a progressive purification'.

Functions and use of the standard Indus seals

In the Indus Civilization – despite the frequent discovery of stamp seals – clay sealings bearing seal impressions for administrative purposes are not as common as

⁶ Since there are no systematic studies yet about the actual amount of standard Indus seals made of high-fired steatite, these percentages are derived from the grayscale photographs published in Joshi and Parpola 1987; Shah and Parpola 1991; Parpola *et al.* 2010.

in the Near East and in other regions of Middle Asia during the Bronze Age. When compared to the sealings often found by the thousands in Mesopotamia and the Levant for managing the redistribution of food rations (for examples, see Fiandra 1968, 1975; Ferioli *et al.* 2007), a total of about two hundred clay sealings found in the entire Harappan cultural sphere is doubtless puzzling and it led also to many speculations about the actual use of stamp seals in the Indus Civilization (Mackay 1931: 380; Possehl 1996a: 26–27, 2002: 130–131).

In the Near East, the largest and better preserved clusters of clay sealings were discovered mainly inside burnt buildings, like at the Neolithic settlement of Tell Sabi Abyad in northern Syria, in the Minoan palaces of Phaistos and Knossos on Crete, and in the Late Uruk temple/palace of Arslantepe in eastern Anatolia (Akkermans and Duistermaat 1997, 2004; Fiandra 1968, 1975; Ferioli *et al.* 2007; Weingarten 1986). In this light, it is noteworthy that the cluster of about seventy clay sealings of the so-called ‘warehouse’ at Lothal (Frenez and Tosi 2005) and a sealing found at Harappa in levels dating to Period 2 (Kenoyer and Meadow 2008: fig. 4.9) – respectively the largest group and the earliest clay sealing so far found in the Indus Civilization – were both discovered in firing contexts, either burnt buildings or fireplaces. If we consider that E. J. H. Mackay (1943: 149–150), reported that the few clay sealings retrieved at Chanhu-daro ‘being imperfectly fired [...] dissolved in the water in which they were being cleaned’, taphonomic and post-depositional processes might have somehow affected the preservation of clay sealings at Indus Civilization sites. In fact, according to Mackay (1938: 276), ‘evidence for houses having been burnt out is extremely rare (at Mohenjo-daro) and accidental fires were carefully guarded against’.

In any case – even considering the possible influence of exceptional circumstances, such as the fortuitous conservation due to fire events – the discovery at Indus Civilization sites of no more than two hundred clay sealings in total, versus the several thousand found at broadly coeval sites in the Near East suggests the existence of basic differences between the administrative sealing systems adopted in the two regions.

Nonetheless, the clay sealings found at Indus Civilizations sites – some of which bear multiple impressions of different seals or were coarsely inscribed after being removed from the container they sealed – describe a complex administrative technology developed within a highly structured bureaucratic system to control rooms and containers following the same procedures adopted also in the Near East to manage the local storage and redistribution of goods (Frenez 2006, 2017; Frenez *et al.* 2016; Frenez and Tosi 2005). The analysis of the clays used to seal rooms and

containers at the Indus Civilizations sites of Bagasra, Nagwada and Shikarpur – excavated in northwestern Gujarat by the Department of Archaeology and Ancient History of the Maharaja Sayajirao University of Baroda – is presently ongoing in collaboration with J. M. Kenoyer on the basis of the results obtained from Instrumental Neutron Activation Analysis (INAA) of the sealings and comparison artifacts likely made using local clay, e.g. coarse bangles, terracotta cakes and bricks. However, preliminary evidence supporting the use of seals and sealings also in the Indus Civilization for the local management of goods and transactions was provided by A. Parpola (2007), who observed that two of the seals found at Lothal were used to stamp some clay sealings found at site: seal L-6 stamped clay tag L-208 and seal L-37 stamped L-210.

If the procedures are comparable, the containers sealed in the Indus Civilization show the presence of a rather different storage technology (Frenez and Tosi 2005: 72–81 and tab. 1), probably reflecting the management of different types of goods and/or the adoption of different socio-economic practices, possibly related to the control of specific manufacturing processes (for example, see Halim and Vidale 1984; for the possible origin of this practice, see Frenez 2004) and raw materials, e.g. the selected types of steatite used for making the standard seals, the banded chert used for making weights, etc. (for a description of the extreme specialization and control in the raw materials selection and use in the Indus Civilization, see Kenoyer 1995b, 2000; Law 2011; Vidale 2000).

For what concerns the seal impressions, remarkably, only a limited number of clay sealings found at Indus Civilizations sites bear the impression of an entire seal including both the icon and the inscription. Most sealings stamped using standard Indus seals had, in fact, the inscription well visible, while the animal was often not or barely recognizable because not impressed, impressed only in part or obliterated by fingerprints or subsequent seal impressions (Frenez 2006, 2017; Frenez *et al.* 2016; Frenez and Tosi 2005) (Figure 6).

This anomalous recurrence is not due to the fragmentation of some of the clay sealings because, if this was the case, there should be the same statistical probability to find either the animal or the inscription. Therefore, the inscription seems to have played a central role in performing administrative sealing practices, while in this case the icon was not equally important or anyhow subordinate to the inscription. Accordingly, it is possible to imagine that the animals and the other images represented on the standard Indus seals probably had a function completely or partially separate from the inscription, likely related to the direct visual identification of the role of the seal user within specific socio-economic contexts.



Figure 6. Clay sealings with multiple impressions of different standard and later rectangular Indus seals showing clearly the inscription in Indus scriptorial signs while the animal icons were not stamped or covered by fingerprints or subsequent seal impressions (photographs of H-2584 and M-426 from Joshi and Parpola 1987; photographs of L-211, L-190 and L-208 by D. Frenez © Lothal Revisitation Project, Courtesy DiSCi University of Bologna and Archaeological Survey of India).

The Indus unicorn

The first standard Indus seal ever published from an Indus Civilization site – the so-called ‘Major Clark’ seal found at Harappa – bears the image of what was soon labeled as an Indus ‘unicorn’ (Cunningham 1875: 108 and pl. XXXIII.1; Parpola 2010: lix–lx). According to Sir Alexander Cunningham (1875: 108), ‘The most curious object discovered at Harapâ is a seal (with) engraved

very deeply a bull, without hump, looking to the right, with two stars under the neck. Above the bull there is an inscription in six characters, which are quite unknown to me. They are certainly not Indian letters; and as the bull which accompanies them is without a hump, I conclude that the seal is foreign to India’.

In fact, Indus unicorns are depicted as humpless bull-like animals with a single sinuous horn, usually plain but

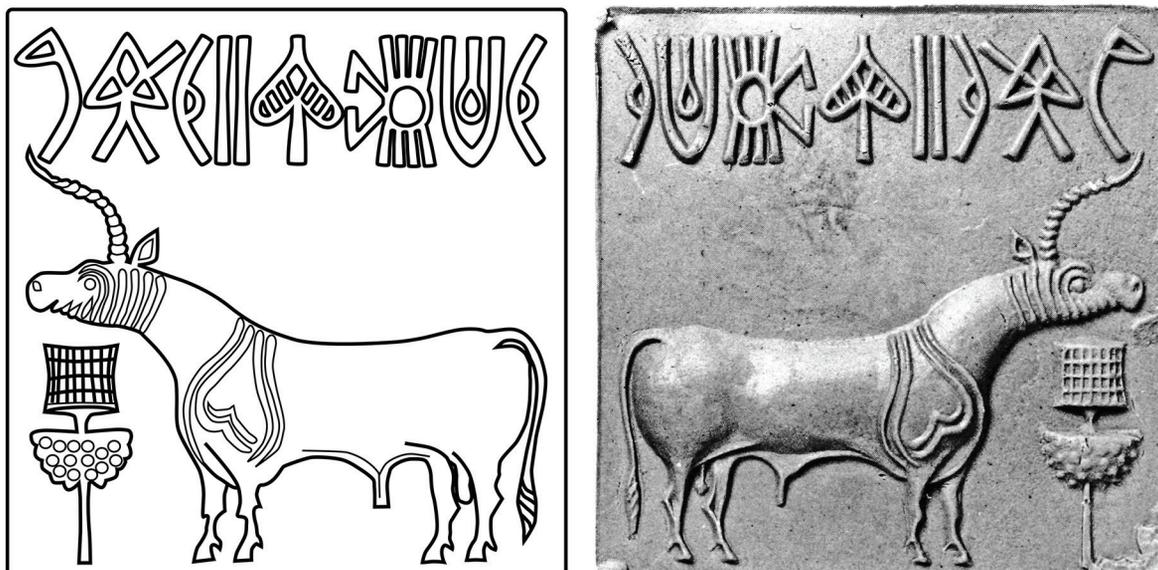


Figure 7. Standard Indus seal H-5 branded with a Harappan unicorn in front of a ‘ritual filter’ and below a sequence of Indus scriptorial signs (drawing by G. Jamison; modern impression from Joshi and Parpola 1987).



Figure 8. Tell Al-Ubaid, Iraq. Composite frieze with six bulls with the horns superimposed in profile (© Penn Museum).

also twisted or serrated, unnaturally projecting from the nape (for stylistic variations in the representation of the different features composing the ‘unicorn’ icon, see Franke-Vogt 1991, 1992; Jamison 2017; Kenoyer 2013; Rissman 1989) (Figure 7). They are always represented standing in profile with only one small raised ear, a prominent eye and an upraised rounded muzzle. Oddly, a collar-like band and/or multiple wrinkles mark the long neck and a distinctive heart-shaped decorative motif is often placed on its shoulder. The long, lowered tail ends with a pointed and sometimes twisted tuft. As all other animals on standard Indus seals, the unicorn is always clearly gendered as male.

While some scholars consider the Indus unicorn being just the distorted representation of an actual bovine

inspired by the depiction of bulls in Mesopotamian style (Figure 8), others think that it was instead a fantastic creature part of the Indus symbolism (for a summary, see Possehl 1996a: 27–35; 2002: 131).

E. C. L. During Caspers (1992: 314), proposed that the Indus unicorn was borrowed from the Sumerian imagery because ‘the Indus seal cutters generally endowed other animals they depicted with a masterly vitality whereas the ‘unicorn’ remains apart-stylized, unrealistic, almost emblematic’. This view derived from an overall biased idea that ‘Indus materials [...] show cultural dependence on Near Eastern concepts and ideas, and have most likely to be regarded as the result of trade contacts and shared economic interests’ (During Caspers 1992: 315). It further rests on the

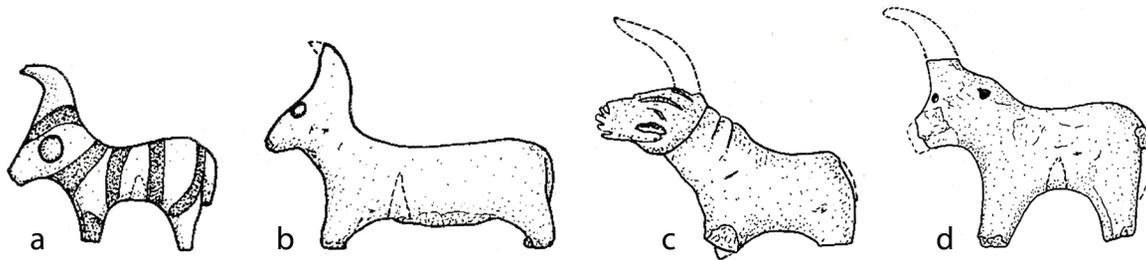


Figure 9. Terracotta figurines of the same bull-like unicorn animal from the Indus Civilization sites of Chanhu-daro (a, b), Mohenjo-daro (c), and Harappa (d) (modified after Kenoyer 2013: fig. 6.7).

results of zooarchaeological observations by C. Grigson (1984: 168), who suggested that the Indus unicorn was ‘based on *Bos primigenius* these seals have been copied again and again in the absence of the original animal [...] and many of its features have become distorted or perhaps replaced with those of other species’. However, the use of representing stylized and almost unrealistic combinations of different animal parts is indeed a distinctive feature of the Indus glyptics that did not affect only the unicorn (Frenez and Vidale 2012) (for example, see M-1169 and M-1177 in Figure 4). Moreover, we now know that the use of engraving the standard Indus seals with such icons goes back to a period around 2600 BC – between the end of Harappa Period 2 and the beginning of Period 3A – when regular contacts between the Indus Valley and Mesopotamia were still virtually absent (Kenoyer 1998: 70, fig. 4.5; Kenoyer and Meadow 2008, 2010; for the actual chronology of the Indus-Mesopotamia relationship, see Manning *et al.* 2016; Reade 2008; Sallaberger and Schrakamp 2015).

The hypothesis suggesting that the Indus unicorn was the representation of a bull with the two horns superimposed in profile, as in the near-eastern art tradition (Figure 8), is based also on the fact that the rhinoceros is always represented on the standard Indus seals with both ears, while unicorns show only one ear (Mackay 1931: 382; 1938: 326; Marshall 1931: 68; Parpola 2011: 142–143) (for example, see M-1134 in Figure 4). However, in the Indus imagery other bovines or goats are always engraved with two perfectly stylized horns (for example, see M-236 and M-238 in Figure 3, M-257, M-269 and M-273 in Figure 4). Evident differences between the rendering and shape of the horns exclude also that a few seals with the unicorn as a component of multi-headed creatures, might represent the same two-horned animal in different poses (for examples, see Joshi and Parpola 1987: cat. nos. M-298, K-42, K-43 and C-25; Shah and Parpola 1991: cat. nos. M-1169, M-1170, M-1171 and Ai-6) (for example, see M-1169 in Figure 4). On the contrary, they definitely prove that the Indus seal cutters had no technical problems in carving animals with one or two horns, even on the same seal.

However, the hypothesis suggesting that Indus unicorns were mythical creatures is mainly supported by the discovery at several Indus Civilization sites of small terracotta figurines of bull-like animals with a single prominent horn very similar to those represented on the seals (Majumdar 1934: 38 and pl. XXI; Mackay 1943: 157 and pl. LV and LVI; Kenoyer 1998: 87 and figs. 5.14–5.15; Kenoyer 2013) (Figure 9). This evidence indisputably demonstrates that during the second half of the 3rd millennium BC this imaginary creature was conceived by the Indus people as an actual unicorn.

The ritual ‘filter’ or ‘standard’

On the standard Indus seals, animals are often associated with specific, quite enigmatic artifacts. The two most common are the so-called ritual ‘filter’ or ‘standard’ customarily represented only in front of the unicorn, and a shallow feeding manger that appears with different animals, mainly bison and elephants, but usually unicorns. Actual ritual filters like those represented on the seals have never been retrieved from excavations, suggesting that they were presumably composed of parts made from perishable materials.⁷ A three-dimensional miniature replica in ivory was instead found at Harappa (Kenoyer 1998: 86 and fig. 5.12).

This object was apparently made of three main parts: a tapering shaft probably fixed in the ground; a hemispherical bowl-shaped container somehow attached to the shaft, variously rendered on the seals with cross hatching or horizontal lines, and with tiny dots or radiating lines dropping down from its bottom; a rectangular (cylindrical in the ivory miniature), or dome-shaped object projecting from the shaft just

⁷ I tentatively call it filter – instead of standard – since, considering the scanty and mostly conjectural information available to date, this might have been its primary function, while the standards were probably only secondary representations of the actual object used during processions and rituals (in support of this last hypothesis, see Parpola 2018). Of course, in absence of factual evidence, this enigmatic object cannot be connected to the preparation of any specific beverage or food as proposed in Mahadevan 1985, 1994.

above the bowl, rendered with different types of hatches, grids or zigzag lines or sometimes left plain.

Symbolic significance of the Indus unicorn

After the end of the Indus Civilization, the unicorn – as well as many other symbols of the Indus Tradition – disappeared from the art and religious iconography of South Asia to (re)appear in later periods in the mythological corpora and artistic repertoires of different cultures of Eurasia and Southeast Asia (for a detailed history of unicorn creatures in different cultures, see Parpola 2011; Shepard 1930).⁸ According to J. M. Kenoyer (1998: 87, cf. Chang 1983: 72–73), ‘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’. Commenting on the unique example of a unicorn represented on a stone pendant, which has various motifs carved over the body and the neck as sockets for inlays, Kenoyer (2013: 115, fig. 6.3) further remarks that, ‘the entire pendant is made in the form of a womb motif, but it is very unlikely that the unicorn represents a female fertility symbol [...] animal motifs on Indus seals instead represented the virility and presumably the power of male animals’. Together with the ritual filter it, ‘may have represented a unifying set of symbols that were depicted on seals and tablets throughout the Indus region and may have been associated with important seasonal rituals practiced by the ruling elites or religious leaders of the cities and towns’ (Kenoyer 1998: 86).

Significance and use of the animal icons system

At present, the ideas, identities and social practices behind the serial reproduction of the most important animal icons of the standard Indus seals are still a mystery. Also unexplained are the reasons why they are almost all made from steatite and the unicorn alone stands for about 70% or more of the total cases (Ameri 2013: 359–360, tab. 19.1 and figs. 19.1–19.3, 19.6; Franke-Vogt 1991: 62; Konasukawa 2013; Konasukawa and Koiso 2018; Possehl 1996a: 20, tab. 4).

Most of the scholars involved in the study of the Indus Civilization imagery describe in detail and attempt to intimately interpret the single or coherent groups of iconographies represented on the stamp seals (on their possible religious meanings, see Marshall 1931: 66, 73; Wright 2010: 288–301; for their interpretation as ‘symbolic hypertexts’, see Frenez and Vidale 2012).

⁸ Even if Mark Kenoyer (2017, personal communication) suspects that it might have somehow survived in South Asia as exceptionally witnessed by the presence on a small wooden box of Tibetan origin – which bears a sequence of animals thoroughly carved – of a slender bull with a single, long S-shaped horn closely resembling that of the Indus unicorns.

However, they usually do not provide hypotheses on their use and significance as a consistent semeiotic system. W. A. Fairservis (1984, 1986, 1992: 189–197) proposed that the animals on the standard seals were totemic symbols and the seals were used by intermarrying clans. According to J. M. Kenoyer (1998: 83), ‘as a totemic symbol the animal represented a specific clan or official, and additional traits, such as power, cunning, agility, strength, etc. may have been associated with each animal. At least ten clans or communities are represented by these totemic animals [...] Of these, the unicorn may represent the most numerous and widespread clan’. Kenoyer (1998: 87–88) further proposed that ‘the unicorn clan probably represents the aristocracy or merchants directly involved in governing the different settlements and supporting the political and economic power of the major cities [...] they implemented the laws and reinforced the religious practices and economic standards that united the Indus cities. The less widely distributed seals [...] may have represented the most powerful and centralized communities which actually ruled the cities’.

A possible answer to some of these basic questions might come from the observation of some specimens of Indus and Indus-related seals found in different regions of Middle Asia. M. Vidale (2005) noticed that the Indian bison (*Bos gaurus* Smith, 1827) with the head lowered in grazing or charging position is almost the only creature represented in the so-called Gulf type seals, from Mesopotamia to the Gulf, as well as in other Indus-related seals discovered across the Iranian Plateau and in Central Asia (for a detailed discussion of the material evidence at the basis of this hypothesis, see Laursen 2010) (Figure 10). He therefore proposed that the bison was the symbol of Indus trading families acting in the West. On this basis, according to D. Frenez and M. Vidale (2012: 120), ‘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, the unicorn – by far the most common seal icon in the Indus cities – might have been the brand of the most numerous bureaucrats in a developed early urban context, e.g. small-scale accountants who mastered recording, taxation and the writing system.

This hypothesis seems to contrast somehow with the fact that many of the most beautiful and high quality standard Indus seals bear unicorns. However, this evidence may result from a decentralized form of production, which might have been independently commissioned by the seal users following – as this paper is attempting to demonstrate – a set of rules



Figure 10. Hybrid Indus seals from different regions of Middle Asia, all branded with an Indian bison with the head lowered in charging or grazing position and in some cases bearing inscription in Indus Script (b, c, e, g, h), cuneiform (a), or linear Elamite (f). Sources: (a-d) from Ur, Iraq (© Trustees of the British Museum), (e, g) from Susa, Iran (from Aruz 2003), (f) unknown location in southwestern Iran (from Winkelmann 2004), (h) from Salut ST1, Oman (© Italian Mission to Oman), (i) Gonur depe, Turkmenistan (from Sarianidi 2002), (j-l) unknown location between southeastern Turkmenistan and northwestern Afghanistan (from Winkelmann 2004).



Figure 11. Indian trucks with handmade registration plates of different artistic quality but equal legal validity (Eckstein 2014).

strictly prescribed by a central authority about the seal's shape, the iconography and inscription.⁹

⁹ In modern times, a similar procedure regulates the production of vehicle registration plates in some states and countries (Kustermann 2018). In the vast majority of jurisdictions, a central authority holds a monopoly on the plates manufacturing. Therefore, it is normally illegal for private citizens to make and affix their own plates, because such unauthorized private manufacture is equivalent to forging an official document. However, until very recent times and rarely also nowadays, some government – including India – used to merely assign plate numbers and the vehicle owner was then responsible for finding a private supplier to have that plate made following some prescribed rules on its size, colors, materials, etc. This system resulted

Near-eastern cylinder seals as comparison terms

As done for understanding the particularities of the clay sealing technology in use at the Indus Civilization sites, comparisons with better-known contemporaneous cultural contexts might provide a more precise definition of the use and significance of standard Indus seals. In particular, the detailed knowledge of the material, functional and ideological aspects at the basis

in a high degree of variability in the final quality of still comparable registration plates (Figure 11).

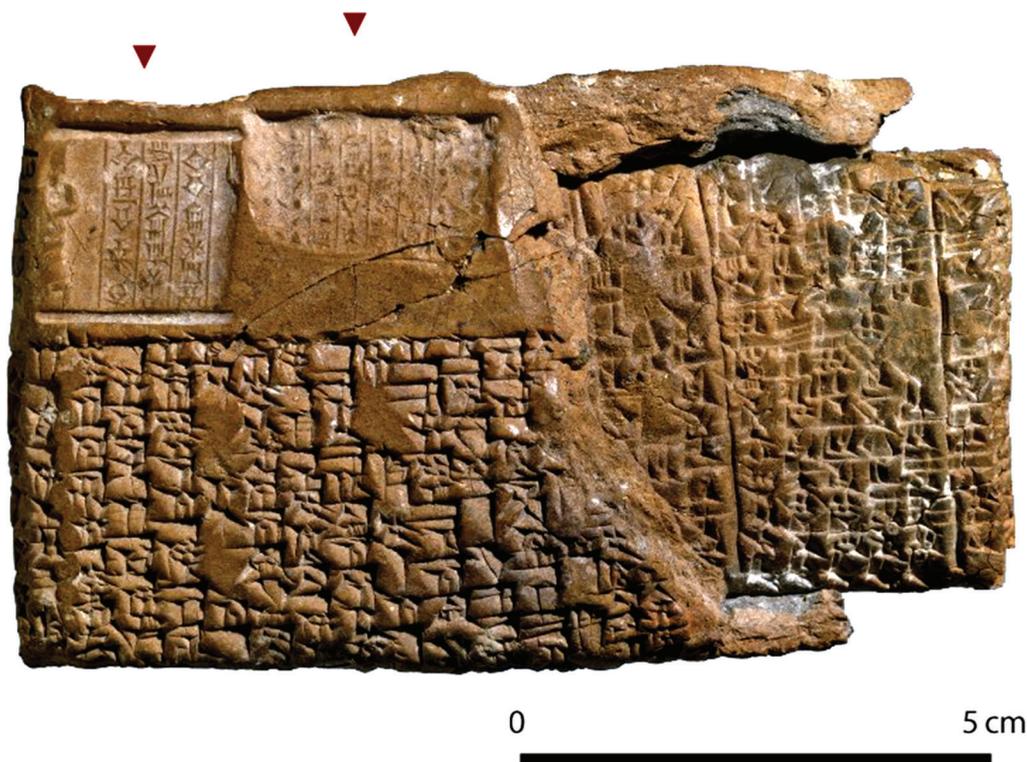


Figure 12. Tell Atchana, Turkey (c. 1720 BC). Obverse of a cuneiform tablet still in its clay envelope with two of the ten seal impressions left by the witnesses of a legal case concerning the legacy of two houses, including King Niqmepuh of Iamhad, modern Aleppo (© Trustees of the British Museum).

of the development and use of cylinder seals in the Near East might help to deconstruct also the administrative system of the Indus Civilization by isolating some basic concepts that regulated the production and use of the standard seals.

Introduction and uses

The seal type almost ubiquitously used in the Near East during the second half of the 3rd and at the beginning of the 2nd millennium BC were cylinder seals. According to E. Porada (1976), cylinder seals were ‘Sumerian art in miniature’ and they are ‘the most characteristic object created by the Sumerians and the most numerous [...] from about 3300 to 2300 BC’.

This type of seal was introduced in the Near East in replacement of stamp seals at the beginning of the second half of the 4th millennium BC to properly seal in a continuous movement onto a larger area of the so-called *bullae*, hollow clay balls containing tokens – small objects symbolizing the merchandise marketed and its quantity (Collon 2005: 13). As reconstructed in detail by D. Schmandt-Besserat (1996), such tokens started soon being also stamped on the external surface of the *bullae* in order to provide an immediate understanding of their content. With the consuetude of such administrative procedures, the two-dimensional

stamps of the different tokens soon replaced the use of including the actual objects inside the *bullae*. Throughout the second half of the 4th millennium BC, this apparently small step led to the abandonment of hollow clay balls in favor of clay tablets and to the invention of numeral signs to avoid stamping a token as many times as the number of the commodities it symbolized. Remarkably, it eventually led to the development of cuneiform writing by first just tracing the tokens instead of actually impressing them, for then assigning a phonetic value to such signs (on the invention and development of cuneiform writing, see Finkel and Taylor 2015; Glassner 2003; Schmandt-Besserat 1996, 2009).

This epoch-making invention soon crossed the strict limits of the administrative sphere and it was used first to write names and dedications in funerary and religious contexts and then for composing increasingly long and complex texts on clay tablets, which started soon being enclosed in those clay ‘envelopes’ or ‘cases’ that were actually sealed by rolling repeatedly one or more cylinder seals on both their faces and along their ends and sides (Collon 2005: 113–114) (Figure 12).

In the Near East, cylinder seals were primarily used to indicate personal identification and ownership, but they also had an amuletic value for their owners and



Figure 13. Standard Indus seals 'annulled' with saw marks (H-600) and modified to be possibly inherited or reused (M-1206 and M-635) (photographs from Shah and Parpola 1991).

wearers as well as, by extension, for the documents or containers and goods they sealed (Feroli *et al.* 2000). In some occasions, during the 3rd millennium BC they were also rolled over the shoulders of storage jars or around their rims for decorative purposes or in substitution of the traditional potters marks (Collon 2005: 113).

According to D. Collon (2005: 113), 'in the latter part of the Early Dynastic period, seals inscribed with personal names appear and can be said to belong to individuals [...] the choice of design and material probably reflects the personal preference of the owner though certain types of seal or material were probably restricted to certain categories of people'. Furthermore, B. Teissier (1984: xxiii), stressed that there were 'no restrictions regarding the ownership of a seal: anyone who could afford one could own one, or more if so desired'. Therefore, cylinder seals were owned and used by both men and women in a vast range of social status and occupations, such as rulers and priests, soldiers and scribes, royal servants and slaves, craftsmen and of course merchants, in order to testify their responsibilities in the management of goods and to legitimize contracts, treaties and letters (Collon 1990: 113–119; Collon 2005: 17–19). Even gods ideally possessed their own seals (Collon 2005: 131).

Thanks to the detailed information provided by the sealed texts, it is also possible to know who actually sealed the different types of documents (Collon 2005: 115): receipts were generally sealed by the recipient, letters and legal texts by the sender, loans by the borrower, gifts by the donor, etc. In special cases, such as for treaties and international agreements or for legal transactions certified by several witnesses, more than one seal was rolled on the tablet.

Considering the high legal value of such administrative tools, in the Near East the loss of a cylinder seal was treated with the greatest attention to prevent possible

misuses and required the registration by the public authority of a description of the seal with the date of its loss and subsequent street-by-street public announcements to invalidate it (Collon 2005: 116, 119). Of course, it is not – and it never will be – possible to reach this high detail of historical reconstruction for the Indus Civilization. However, according to the data from the most recent excavations at Harappa, Indus people intentionally broke their seals or buried them in their houses for safekeeping when they were no longer used (Kenoyer 1988: 73–74). Moreover, some Indus seals were apparently 'annulled' by sawing two diagonal lines across the icon and inscription (for example, see Shah and Parpola 1991: cat. no. H-600) (H-600 in Figure 13).

However, since they were usually made from imported semi-precious stones, cylinder seals had also an intrinsic economic value and they were often reused if legally inherited or acquired – with or without changes in their design and the inscription – or updated if the information they conveyed was no longer valid, e.g. change in the owner's status or occupation, change of the ruler mentioned, etc. (Steinkeller 1977: 48–48). This tradition might explain why both a seal and its impressions on tablets have been found only in exceptional cases (Collon 2005: 119).

In the Indus Civilization, seals with evidence of modifications and possible reuse are instead very rare, possibly because they were made from a stone widely available on the local market or due to specific rules that did not allow changes and reuses or did not required to modify the seals if inherited or passed to a different user. Though, the few known specimens possibly involved in such practices depict a contradictory image. In one case, the original animal icon was carved out before a bison was carefully engraved together with an additional inscription on the step created by obliterating the old iconography (Shah and Parpola 1991: cat. no. M-1206, also in Parpola *et al.* 2010: 370, fig. 13) (M-1206 in Figure 13). Even if this cannot be considered certain evidence



Figure 14. Standard Indus seals made of terracotta (L-41), ivory (L-6), copper/bronze (L-44), and silver (M-1199) (photograph of M-1199 from Shah and Parpola 1991; photographs of L-6, L-41 and L-44 by Ph. Koch © Lothal Revisitation Project, Courtesy DiSCI University of Bologna and Archaeological Survey of India).

of reuse – perhaps the user simply did not like how the animal was originally rendered – it is interesting to note that while in the Near East cylinder seals were mainly reused and updated by altering the inscription, in this case the main inscription, even though the addition of a smaller and longer sequence of Indus signs, remained untouched while the iconography was somehow modified. Overall, this might suggest that the seal was updated by the same user or inherited by a family member. In another case, the inscription was completely sawn off but without the subsequent carving of a new sequence of signs, while there is no evidence for alterations in the unicorn icon (Shah and Parpola 1991: cat. no. M-635) (M-636 in Figure 13).

In spite of the frequent episodes of reuse, in the Near East cylinder seals were usually eventually buried with their owners. In the Indus Civilization, not a single seal has been found inside any of the relatively few graves discovered to date.

Raw materials

As described and reiterated in the previous paragraphs, standard Indus seals were made using almost exclusively specific varieties of pure and compact steatite that heat treated after the carving of motifs and inscriptions, become whitish and hard. In addition to steatite, standard and standard-like Indus seals were occasionally made in terracotta or, even rarely, in ivory or metal (for examples of Indus standard seals in terracotta, see Joshi and Parpola 1987: cat nos. L-41, K-56; in ivory, see Joshi and Parpola 1987: cat no. L-6; in copper, see Joshi and Parpola 1987: cat no. L-44; in silver, see Shah and Parpola 1991: cat. no. M-1199 and fig. 30) (Figure 14).

In the Near East, although with shifting trends according to the different periods and regions (Moorey 1994: 74, cf. Legrain 1925: 23, 36, 38; Gorelick and Gwinnett 1979:

29, tab. 29), cylinder seals were made using a wide range of imported gemstones – including dark greenish-black serpentine, lapis lazuli, diorite, rock crystal, green and red jasper, hematite, agate, chlorite, etc. – as well as some metals, seashell, animal bones, ivory, hard woods and clay (Collon 2005: 100–104; Moorey 1994: 74–77) (Figure 15 and Table 1).

According to D. Collon (2005: 100), ‘availability must have affected fashion and we can learn much concerning the changing patterns of trade by studying the types of stones used for the seals at different periods’. Cylinder seals had also an important amuletic use and their power and specific influence were related mainly to the stones they were made from, e.g. lapis lazuli for power and divine favor, rock crystal for increasing profits, green marble for good luck, etc. (Collon 2005: 100, 119). Technical and technological limits apparently led to the selection of softer stones in the earliest phases of cylinder seals production, but they should have not affected the type of stone used from the Early Dynastic period onward (Gorelick and Gwinnett 1981; Sax 1991).

Inscription

Regarding the inscriptions, for the standard Indus seals it is only possible to suppose – albeit with some degree of confidence – that the still undeciphered sequences of Indus signs carved on the seal identified their users, probably individuals with precise socio-economic roles or identities within the Indus or Indus-related societies, such as entrepreneurs devoted to specific trade activities and small-scale accountants (Frenez and Vidale 2012; Vidale 2005).

In the Near East, cylinder seals might bear different types of inscription (Collon 2005: 105–107; Teissier 1984: xxiv), which provide important information about the seal owner and the related socio-economic and cultural spheres of action. Inscriptions were not

Table 1. Raw materials used for making cylinder seals in the Near East according to the different periods and relative frequency; parenthetical letters in superscript refer to raw materials shown in Figure 15 (data from Collon 1990, 2005; Moorey 1994; Teissier 1984; Lower Middle Chronology after Sallaberger and Schrakamp 2015: 302, tab. 10.1; see also Manning *et al.* 2016).

Early Dynastic III c. >2600-2300 BC	Akkadian period c. 2300-2150 BC	Post-Akkadian and Ur III c. 2100-2000 BC	Isin-Larsa and Old Babylonian c. 2000-1600 BC
Gypsum / Alabaster ^(a) Enstatite Aragonite/Shell ^(b) Limestone Calcite Lapis lazuli ^(c) Marble ^(d) Chlorite Serpentine (~10%) Bitumen and gold foil Terracotta Wood	Serpentine (~ 50%) ^(e) Green quartzite Diorite ^(f) Aragonite/Shell Red jasper ^(g) Green jasper ^(h) Banded jasper ⁽ⁱ⁾ Rock crystal Rock crystal (painted) Lapis lazuli Chlorite (~2%) Terracotta Wood	Chlorite (~ 50%) ^(j) Limestone Calcite ^(k) Green quartzite ^(l) Serpentine Lapis lazuli Banded agate ^(m) Dolomite ⁽ⁿ⁾ Carnelian Terracotta Wood	Hematite (~ 50%) ^(o) Geothite / Magnetite Black limestone Calcite Serpentine Chlorite Mottled jasper ^(p) Rock crystal ^(q) Carnelian ^(r) Banded agate Amazonite ^(s) Amethyst ^(t) Lapis lazuli Faience ^(u) Terracotta Wood

made by the same seal makers who produced the seal and cut the design, who were known as *burgul* in Sumerian and *purkullu* in Akkadian, but by scribes specialized in engraving cuneiform signs in stone on a minute scale and in reverse (Collon 2005: 103). For the finest royal and court seals, the cutter and the scribe must have worked together. However, the majority of inscribed seals had the design pre-cut following trends and workshop specializations, while the inscription was engraved in a later moment on specific indication of the owner.

The percentage of inscribed cylinder seals varied in the different periods, but in the late 3rd and early 2nd millennia BC the custom of indicating at least seal ownership was widespread, from kings and even gods down to slaves (Steinkeller 1977). Inscriptions inform also that some individuals owned and used more than one seal at the same time (Franke 1977). The earliest inscriptions on cylinder seals, indicating names of cities or divine names, date to the beginning of the 3rd millennium BC. The use of carving personal names on seals, usually the owner's name often followed by the father's name, begun in the Early Dynastic period and became widespread in the Akkadian period, when the owner's profession or title was often added. From the Ur III period and throughout the Old Babylonian period, the owner was often described as servant of a given deity or of another individual or ruler. In this period, inscriptions mentioning only the name of a deity are also quite common. Exceptional seals, such as the so-called dynastic or court seals, often give long genealogies and detailed indications on professions and hierarchies, while votive seals usually bear supplications and prayers.

Motifs and subjects

In the second half of the 3rd millennium BC, seals in the Near East and the Indus Valley used the same features to identify their owners and users, combining in most cases figurative motifs and an inscription in the local writing system. According to D. Collon (2005: 119), the subjects engraved on the cylinder seals 'were carefully chosen and often specifically commissioned [...] with the purpose of involving as many deities and beneficent powers as possible on behalf of the seal owner'. There was legal liberty to decide the raw material, style and design of a cylinder seal, with the sole limitation of dynastic seals, which – being invested with a special authority – were described in the texts as 'inimitable' and 'incontestable' (Teissier 1984: xxiii).

A great variety of different motifs were used and combined in different periods and regions to characterize and distinguish cylinder seals, including geometric designs, representation of gods and kings, warfare and hunting, rituals and festivals, mythological heroes and demons, fighting animals, daily life and economic productions (Collon 1990: 43–49; 2005: 13–57, 145–197). The 3rd millennium BC was a period of dynamic artistic experimentation, which led to the development of several regional styles in the decoration of cylinder seals, including both geometric patterns and figurative scenes (Collon 2005: 20–31). According to B. Teissier (1984: 8), 'The principal feature of glyptic art of this period is its diversity and individualism. A number of styles appear to have existed more or less contemporaneously in different areas and to some extent in individual sites, although thematic affinities between the glyptic art of different sites was a feature'.



Figure 15. Near-eastern cylinder seals made from a variety of stones: (a) Alabaster [ED], (b) Aragonite [ED], (c) Lapis lazuli [ED], (d) Marble [ED], (e) Serpentine [AK], (f) Diorite [AK], (g) Red jasper [AK], (h) Green jasper [AK], (i) Banded jasper [AK], (j) Chlorite [U3], (k) Calcite [U3], (l) Green quartzite [U3], (m) Banded agate [U3], (n) Dolomite [U3], (o) Hematite [OB], (p) Mottled jasper [OB], (q) Rock crystal [OB], (r) Carnelian [OB], (s) Amazonite [OB], (t) Amethyst [OB], (u) Faience [OB]. ED = Early Dynastic III period, c. >2600-2300 BC; AK = Akkadian period, c. 2300-2150 BC; U3 = Ur III period, c. 2100-2000 BC; OB = Isin-Larsa and Old Babylonian periods, c. 2000-1600 BC (Lower Middle Chronology after Sallaberger and Schrakamp 2015: 302, tab. 10.1; see also Manning *et al.* 2016). Sources: a, c © Penn Museum; b, d, e, g, h, k, l, m, o, q, s © The Metropolitan Museum of Art; f, j, i, n, p © Trustees of the British Museum; r, t © Detroit Institute of Arts; u © The Walters Art Museum.

At the beginning of the Early Dynastic period, in the northern regions – from Khuzestan to Syria – the so-called Piedmont style featured tall and thin seals with patterned geometric decorations including petalled rosettes, dot-in-circles, hatched arches or lozenges, chevrons, herring-bone patterns, and grids enclosing drill holes. In southern Mesopotamia, geometric patterns borrowed from the Piedmont style, often divided in multiple registers, became quite popular with the northward extension of the trade routes only towards the middle of the 3rd millennium BC (Collon 2005: 23).

Contest and combat scenes, presentation and worship scenes, and to a lesser extent also libation and banquet scenes have been – with changing fortunes according

to the different cultural and political setting of the area – the most popular subjects in southern Mesopotamian throughout the 3rd and in the first centuries of the 2nd millennium BC (Collon 1990: 43–46; 2005: 20–45, 145–187; Teissier 1984: 7–27) (Figure 16).

As for the contest scenes, while the earliest examples show a lion attacking a bull from behind, toward the middle of the millennium the attack became frontal and the scene started involving humans and human-animal hybrid heroes. In the Early Dynastic III period, the fighting animals started being represented rampant on their legs with an accentuated vertical emphasis on the entire scene and an overall sense of *horror vacui*. Libation and banquet scenes involved individuals – possibly deities, but more likely rulers or priests and

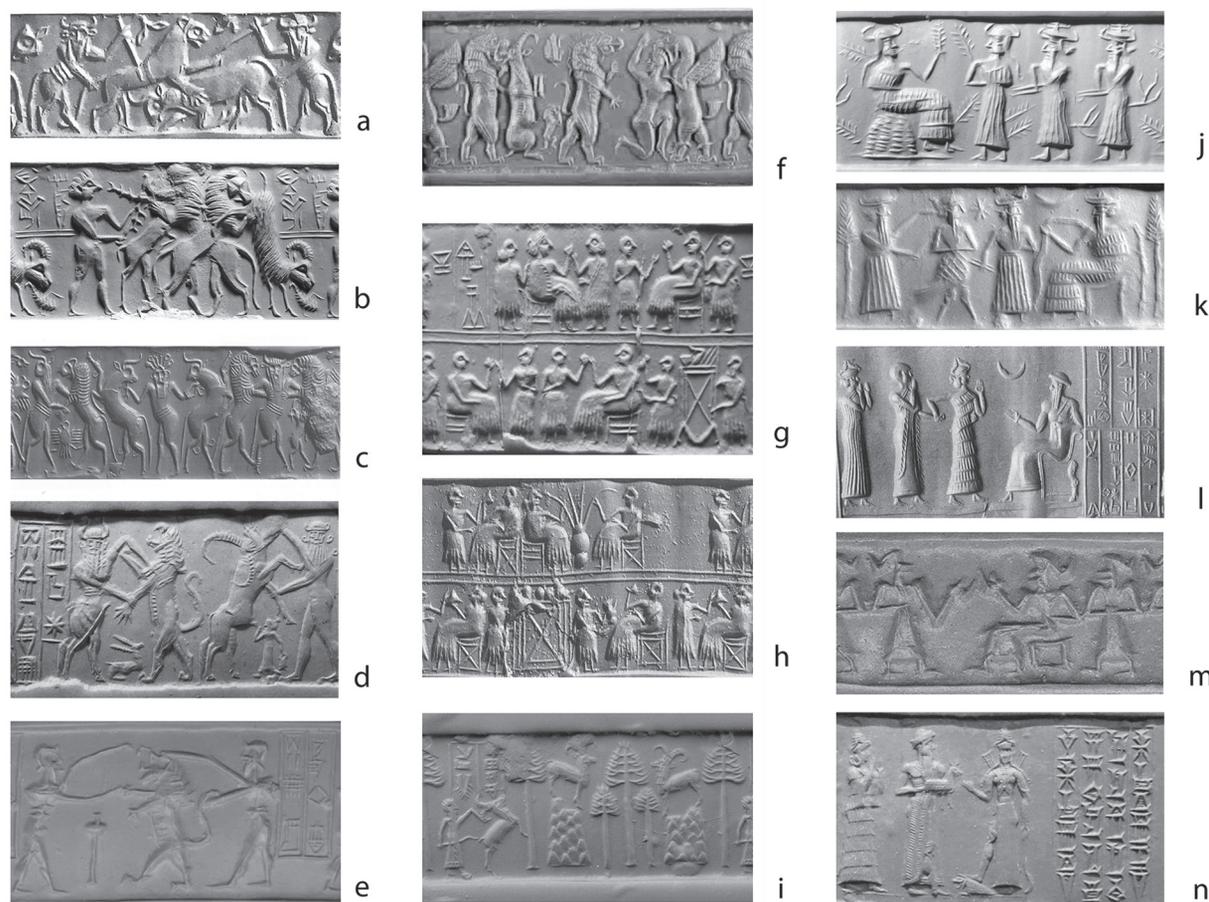


Figure 16. Modern impressions of different cylinder seals showing the stylistic development of the main subjects branding cylinder seals in the Near East from c. 2500 to 1600 BC, including contest/combat scenes (a-f), libation/banquet scenes (g-h), hunting scenes (i), and presentation/worshipping scenes (j-n) (photographs from Collon 1990, 2005).

their consorts – drinking from a large central jar using tubes or cups or eating from a table, often accompanied by musicians (Collon 1990: 44; 2005: 27). Rare scenes representing various daily life activities, hunting activities and rituals are also present.

During the Akkadian period, all artistic expressions acquired a vivid dynamism. The scenes engraved on the cylinder seals were usually cut in deeper relief, better balanced and show a greater emphasis on the musculature of both animals and humans (Collon 2005: 32). In the contest scenes, still the favorite subject, there was a gradual shifting from groups including animals, humans and hybrid creatures, to one or more frequently two pairs of contestants, usually a hero fighting a lion (Boehmer 1965). Banquet scenes, frequent during the previous period, became quite rare in favor of presentation scenes before a deity of the new Akkadian astral pantheon. Sumerian terrestrial deities and the related agrarian ceremonies lost relevance, while the crescent moon – linked to the new lunar calendar – became almost ubiquitous (Collon 2005:

35). Both deities and humans were represented also in daily life activities, hunting scenes or mythological narrations.

After the collapse of the Akkadian empire, the carving style became more cursory and new themes were introduced in the classical contest and presentation scenes, such as birds, geese, snakes, boats, wooden altars, trees, etc. (Collon 2005: 36–39). However, the reuse of Akkadian seals was also quite frequent. In the Ur III period, presentation scenes became very popular and rather standardized with the worshipper lead by a goddess to a seated deity or a deified king. Some regional styles revitalized subjects and designs from the Early Dynastic III period, including sequences of animals or alternating humans and animals, banquets and ritual scenes (Collon 2005: 39).

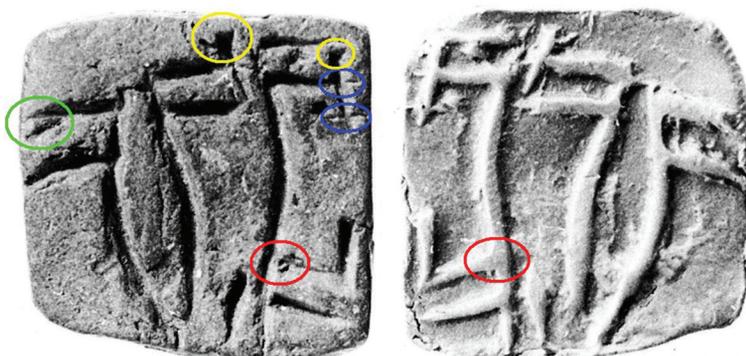
The subjects represented on cylinder seals during the first centuries of the 2nd millennium BC were clearly inspired to the previous production, but with some variations (Collon 2005: 44–47). Presentation scenes



K-65



L-56



● V-shaped profiles ● Double notches ● Intersections ● Falters

Figure 17. Cylinder seal K-65 from the Indus Civilization of Kalibangan (photographs from Joshi and Parpola 1987), and terracotta stamp seal L-56 with Indus signs composed in part of wedges made using a flexible stylus as shown by the specific marks left on the wet clay (color photograph by D. Frenez © Lothal Revisitation Project, Courtesy DiSCI University of Bologna and Archaeological Survey of India; grayscale photographs from Joshi and Parpola 1987; indication of the specific marks left by the stylus by G. P. Basello).

remained the favorite subject, but the goddess stands now with both hands raised behind the worshipper, who started wearing a hat and faces a seated deified king. After the 18th century BC, the typical presentation scene was replaced by the simple depiction of standing figures. In the contest scenes, a lion and a new lion-griffin creature were represented while devouring a couched goat or a kneeling human figure, while the hero was represented only occasionally.

Insights on mutual influences

The use of cylinder seals in the Indus Civilization is episodic and almost restricted to a single specimen from Kalibangan in Rajasthan, likely made of high-fired steatite obtained in the Indus basin, featuring two male individuals armed with long spears dueling for a central figure, likely female, in front of a centaur-like creature

part human and part tiger, or possibly protecting her from the evil creature (Joshi and Parpola 1987: cat. no. K-65). According to D. Collon (1996: 221–222), ‘The adoption of the cylinder seal shape at Harappan sites in the second half of the second millennium BC, argues for much more direct links with Mesopotamia and [...] betray a knowledge of Mesopotamian themes’. However, even if the composition of the contest scene depicted on K-65 might have been possibly inspired by the contemporaneous Akkadian production, it depicts characters typical of the Harappan narrative (Frenez and Vidale 2012: 114 and fig. 7; for a tentative mythological interpretation, see Parpola 1994: 253) (K-65 in Figure 17).

The presence of near-eastern traits in an Indus stamp seal is limited to the exceptional case of a small square stamp seal (2.3 x 2.0cm) in terracotta found at Lothal,



Figure 18. Cylinder seal of Ibni-Sharrum, scribe of the Akkadian King Sharkali-Sharri (c. 2197-2173 BC), with water buffaloes possibly inspired by the standard Indus seals (Lower Middle Chronology after Sallaberger and Schrakamp 2015: 302, tab. 10.1; see also Manning *et al.* 2016) (photographs by F. Raux © Musée du Louvre).

in Gujarat (Joshi and Parpola 1987: cat. no. L-56). It features the most recurrent sign of the Indus script and an enigmatic composition – possibly the sketchy representation of an Indus unicorn turned clockwise or a rare Indus sign – both made at least in part using wedges impressed into the wet clay before firing using an angular-tipped tool, as in the cuneiform writings (L-56 in Figure 17).¹⁰ This small stamp seal likely tells about an individual, either Harappan or from the West, who was trained in the cuneiform writing technique and used it for composing signs and images that were otherwise simply traced on clay with continuous lines, as in many other seals with Indus signs found at Lothal (for examples, see Frenez and Tosi 2005: 103, fig. 8; Joshi and Parpola 1987: cat. nos. L-15, L-95, L-96 and L-110).

On the contrary, standard Indus seals imported from the greater Indus Valley have been found in all regions of Middle Asia, mostly in Mesopotamia, and they likely led to the local development of ‘hybrid’ seals with traits inspired by the Indus seal production, including some cylinder seals (for a summary of the Indus and Indus related seals found in Mesopotamia, see Collon 1996; Gadd 1932; Possehl 1996b; for discussions about

the phenomenon of ‘hybridization’, see Frenez *et al.* 2014, in press; Laursen 2010; Vidale and Frenez 2015; for examples of cylinder seals with Indus iconographies and script, see Figure 10, d and g).

R. M. Boehmer (1974) suggested that that water buffalo might have been imported into Mesopotamia from the Indus Valley in Akkadian times. However, the water buffaloes depicted in Indus style on the famous cylinder seals of a servant of Enheduanna, daughter of Sargon of Akkad, and Ibni-Sharrum, the scribe of King Sharkali-Sharri, might have been inspired by images of water buffaloes on Indus-related seals rather than by the animal itself, as suggested by the representation of this animal on a standard Indus seal with an inscription in cuneiform signs and Sumerian language (Frenez *et al.* 2014) (Figure 18).

Seals as branded commodities?

As described in the opening paragraphs, the iconographic repertoire used to characterize the standard Indus stamp seals was limited to the rather standardized representation of a male animal, real and mythological, selected among a limited range of possibilities and always depicted standing alone in profile in a static pose and rendered with a set of conventional features. Stamp seals with geometric patterns or narrative scenes were very rare, while a new type of rectangular seals with longer sequences of Indus scriptural signs and no iconographies were introduced only in the last phase of the Indus Civilization, equal to Harappa Period 3C, c. 2200-1900 BC (Kenoyer and Meadow 2010) (Figures 3 and 4). On the contrary, during the same span time of about one millennium, in the Near East cylinder seals featured a much wider

¹⁰ According to P. Steinkeller (2011, personal communication), ‘it looks as if the signs were impressed in the manner of cuneiform wedges. The script indeed looks cuneiform-like’. Moreover, G. P. Basello (2014, personal communication translated from Italian by the author) commented that ‘based on the different tools and techniques used to write cuneiform scripts, the longer curvilinear segments are traced, while the shorter ones are impressed as wedges using a stylus. The V-shaped profiles and the double notches suggest the use of a stylus like the one used for cuneiform writing. This appears also evident from the analysis of a few segment intersections. Finally, some wedge’s heads show the classic faltres that were produced by a flexible stylus possibly made of reed’. G. Marchesi (2011, personal communication) confirmed that the second ‘sign’ is not a composition of actual cuneiform signs.

range of complex subjects, each with subtle but evident iconographic and stylistic variations according to the different regions and periods (Figure 16). The same antithetic pattern emerges also considering the raw materials used for making the seals, almost exclusively high-fired local steatite for the standard Indus seals and an increasing variety of softstones and gemstones for the cylinder seals (Figures 5 and 15).

In the Near East, cylinder seals were owned by individuals of all socio-economic status without any major legal restriction for the selection of the raw material, subject and inscription. According to what is presently known about the use of standard Indus seals, it seems more likely that they were assigned by a central authority to specific socio-economic figures each represented by a specific animal icon.

Seals development as marketing strategy?

In summary, although based on comparable forms of personal identification and generally used to perform conceptually similar administrative procedures, the production and use of seals in Mesopotamia and the Indus Valley during the second half of the 3rd and the early 2nd millennia BC were probably regulated by a different set of practices and prescriptions. In Mesopotamia, cylinder seals were ideally produced to maximize personalization using different raw materials, subjects and in some cases adding an inscription. Of course, as it may be expected in such cases, specific trends and fashions, as well as phenomena of emulation, naturally developed in different periods and regions, but the seal owners arbitrarily decided without any legal restriction the features of their own seal or seals.

This legitimate material and cognitive setting led to a spontaneous multiplication of the cylinder seals 'branding' in its own symbolic and economic values. In fact, according to D. Wengrow (2008: 8), who rigorously discussed the application of modern branding strategies to the 'urban revolution' in Mesopotamia during the 4th millennium BC, 'seals operated simultaneously across these spheres of activity, acting as components of bureaucratic systems and as charismatic signifiers of product identity [...] Comparative analysis of more recent branding practices suggests that these functions may necessarily be intertwined, since the enchanting properties of branded commodities are grounded in guarantees of quality, which in turn are based – paradoxically – upon the disenchantment of production'.¹¹

¹¹ The possibility of coherently and positively applying Wengrow's assumptions (2008) in this context has to be further tested and framed within a wider and stronger theoretical background. However, I considered this hypothesis worth of being preliminary introduced, looking forward to focusing on it in a more meaningful and consistent way.

Even if the concepts of market and marketing strategies are deeply grounded in modern notions and practices and they cannot be directly applied to a Bronze Age system without a rigorous discussion of all components and variables involved, a series of founding principles can be isolated to tentatively verify their occurrence and consistency in antiquity and eventually derive some preliminary insights. Considering that a market is by definition regulated by an intimate and interactive, somehow proactive, relation between the producers' offers and the consumers' choices, in modern economic theory the production and marketing of cylinder seals in the Near East during the 3rd and early 2nd millennia BC might be essentially described as an 'imperfect competition' system, a type of market structure where a relatively high number of firms/brands sell products that are conceptually and functionally comparable, but as much differentiated as possible in term of style and/or quality; therefore they are not perfect substitutes one for the other (Calhoun 2002, cf. Robinson 1933). Remarkably, a contemporary example of imperfect competition is the production and marketing of business cards (Edlund and Ronan 2011), which in fact share several of their basic features with the ancient near-eastern cylinder seals, e.g. the need for extreme personalization within trends and fashions through the combination of colors/materials, a logo/iconography and a textual indication of personal identification.

What if this same model is applied to the standard Indus seals? The marketing strategy that theoretically describes their development features a limited and apparently consistent number of firms/brands with a low degree of personalization, which was and apparently regulated proactively by strong legal and/or cultural prescriptions. Even if crude, these indications evidently contrast with the result of a spontaneous development and spreading of symbols, including both their material and figurative expressions, as expected if the animal icons represented clans or trading communities competing over a vast territory for several centuries (Fairservis 1984, 1986, 1992: 189–197; Kenoyer 1998: 83–84). Moreover, considering that among the icons engraved on the standard Indus seals, the so-called unicorn accounts in all Indus Civilization sites for an average of c. 65% (Ameri 2013: 359–360, tab. 19.1 and figs. 19.1–19.3, 19.5), from a statistical point of view these circumstances perfectly describes an unbalanced form of 'oligopoly' (Friedman 1983; Fudenberg and Tirole 2006), which occurs when in a system based on a limited number of components one of them has the absolute majority or more of the recurrences. Within a competitive system, an unbalanced oligopoly is intrinsically highly unstable and unless there are rules and procedures that protect or justify the presence of the minority components it tends to suddenly collapse into a cartel, with a sudden balance of the components,

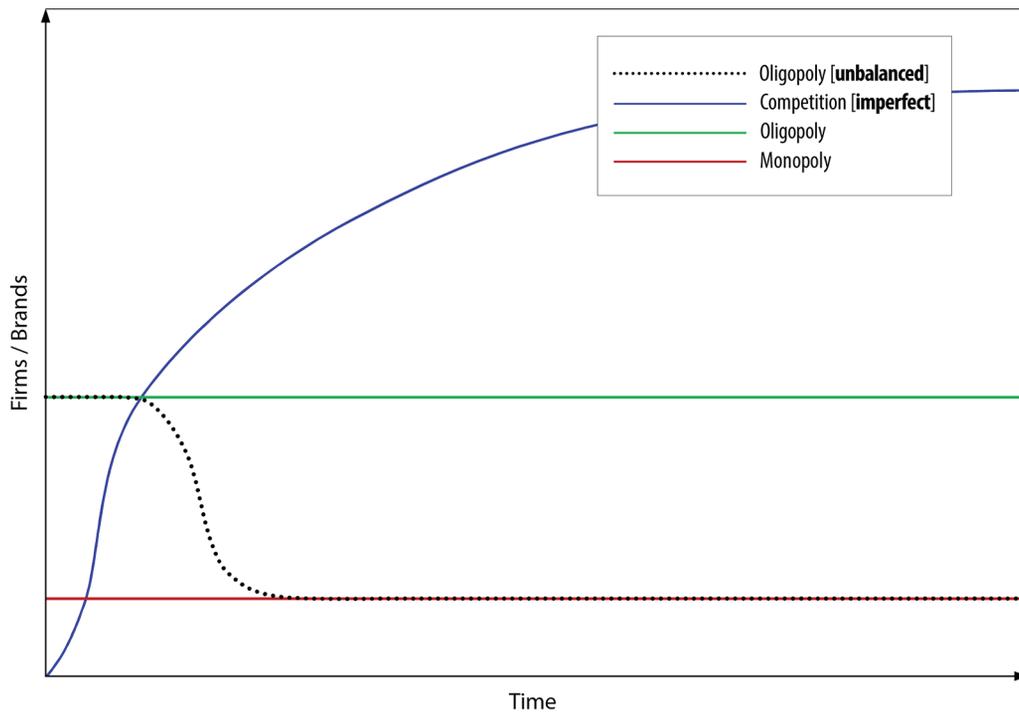


Figure 19. Conceptual representation of firms/brands development in different marketing systems.

or into a monopoly (Dixon 2001: 125–160; Gottheil 2013: 275–299) (Figure 19).

Private person or public persona?

The identity and roles of the individuals represented by the standard seals is one of the main questions in the archaeological research about the Indus Civilization. Jonathan Mark Kenoyer addressed this topic in several sections of his seminal book *Ancient Cities of the Indus Valley Civilization* (1998). As usual, he did not force his interpretation in the absence of substantial data, leaving open the possibility that the ‘name or a title along with a totemic animal motif that may have represented a clan or a political office’ (Kenoyer 1998: 81). Moreover, he cautiously argued that ‘The writing on the seals is associated with symbolic animals representing clans or possibly trading communities’, and that ‘At least ten clans or communities are represented by these totemic animals [...] Of these, the unicorn may represent the most numerous and widespread clan, and because of the sheer numbers of unicorn seals it is unlikely that they all represent rulers’ (Kenoyer 1998: 77, 83).

The preliminary interpretation proposed in this paper attempts to take a step forward in solving this dispute by adding small, solid pieces to such an intricate issue. In fact, overall, the contextual and statistical evidence describing the standard Indus seals seems to define a highly structured system regulated by a set of prescriptions that had to be strictly respected in

order to produce a standard seal legally authorized to identify a specific social and probably also bureaucratic role within the Indus or Indus-related societies. The use of these standardized seals within a hierarchically regulated structure of officially established and liaising socio-economic – and possibly political – roles might explain the persistence of a restricted set of symbols and material expressions spread with minor variations and limited developments within the Indus cultural spheres, across the greater Indus Valley and even beyond, for more than six centuries in an evident condition of highly unbalanced oligopoly.

In summary, while the near-eastern cylinder seals – with all their variations through time and space and attempts for diversification – were ‘owned’ by single individuals and even when used to testify public procedures they represented first a ‘private person’ and then a socio-economic and political role, the standard Indus seals seem to have instead represented more the ‘public persona’ of official ‘users’ rather than the personal identity of their owners.

I do hope this paper has contributed to answer the question raised by Mark when he stated that ‘When carved in stone the zebu bull probably represents the most powerful clan’ or ‘top officials of Mohenjo-daro and Harappa’ (Kenoyer 1998: 84).

Acknowledgments

Being an editor of this volume makes me feel particular, strong emotions (and allows me to write an entire page of acknowledgments). First of all, I am of course very honored and proud to have the possibility of proving to Mark how much he has been and still is important for all of us as a scholar, mentor and also a friend. Moreover, I eventually realized that this volume has an intimate significance for me. My relationship with the Indus Civilization was a love at first sight. I was studying for the course of ‘General principles of linguistic’ when I first bumped into the Indus. By chance, the same afternoon I came across a book in Italian with the Priestking on cover. I read it in just a few hours and, in spite of being one of those terrible books about ‘mysterious archaeology’, the topic got me! Over the next weeks, I read all pages on www.harappa.com and JMK became a kind mythical figure for me. His *Ancient Cities of the Indus Valley Civilization* is the first book I read in English!

As a consequence, I suddenly and completely changed the courses I had to follow for graduating. A few days later, I was called by Prof. Alex Passi, then Professor of Indology and Sanskrit at the University of Bologna and coordinator for courses and exams at Ravenna, who had some questions about my decision. When I explained my reasons for such a drastic revolution, he literally told me ‘You’re looking for trouble!’ (for sake of historical reconstruction, he told me ‘vuoi mettere il culo nelle pedate!’), ‘there are no serious ongoing projects on the Indus’. I immediately replied, ‘What about the Americans at Harappa?’. I will never forget his final words before signing and approving my new plan, ‘Yes, they’re very good! But you will never find a way to work with them’. It was 1999 and now here we are.

So, my first thank goes to Prof. Alex Passi who challenged me. I want to thank also Prof. Paolo Biagi, who during that same period replied to all my silly emails encouraging me to follow my path. He also suggested me to contact a big man who was then teaching at Ravenna, but that’s another story... A big thank-you to Giò Morse for the last-minute review of my self-taught English.

I really want to thank my co-editors – Gregg bhai and Randy bhai – my ‘brothers in arms’, and Richard Meadow for having supported this project since its beginning. Nothing of this would have happened without their hard work and wise suggestions. I want to thank Massimo Vidale from the very bottom of my heart for being a great teacher, an incomparable example and a true friend... and for having introduced me to Mark.

What can I say about Mark Kenoyer? He unconsciously oriented my life with his research, he unconsciously

saved my career several times when I was about to give up, he made me feel the soul inside every object. Working with Mark possibly made me a better archaeologist, but it definitely made me a better person. Thanks, *Sikander Ji!*

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