NEW OBSERVATIONS ON HIEROGLYPHIC SEALS*

by JOHN G. YOUNGER

The class of Cretan sealstones called Hieroglyphic date apparently to the late 18th and 17th centuries B.C. Most of the hieroglyphic seals in soft stones (steatite and serpentine) should probably date late in the 18th century, since a new tool, the horizontal bow-lathe, seems to have been introduced ca. 1700 B.C., which made it possible for seal-makers to engrave stones harder than 6 on the Mohs hardness scale. Consequently, hieroglyphic seals in hard stones should date within the 17th century B.C.

As a class, hieroglyphic seals are fairly homogeneous. Most have three or four faces, their shape resembling a three-sided or four-side prism; the three-sided prisms generally have elliptical faces (3EPr), though some have circular or square faces, and the four-sided ones have rectangular faces (4RPr). There are a few other hieroglyphic seals in other shapes, notably the Petschaft. Most hieroglyphic sealstones of hard stones are of red cornelian or green jasper.

Sir Arthur Evans first identified this class of seals and catalogued its members [1]. We now know of over of 160 hieroglyphic seal inscriptions: over 110 seal-

---

* The «new observations» published here derive from a special study I made of the hieroglyphic seals in the New York Metropolitan Museum; I am very grateful to Dr. Joan Mertens of the Museum's Department of Greek and Roman Antiquities, who graciously allowed me space and ample time to examine almost all the seals in the Museum's care. References to seals published in volumes of the Corpus der minoischen und mykenischen Siegel will omit the abbreviation «CMS»; thus «XII 105» refers to seal no. 105 in CMS volume XII.

[1] See A.J. Evans, Scripta Minoa I (Oxford University Press, 1909) pp. 1ff. for a general account of the hieroglyphic script and its earliest bibliography.

stones and 50 impressions of seals on clay sealings and pots. The seals represented seem to carry hieroglyphic inscriptions using some 140 pictographic signs. Such inscriptions are also known inscised on clay tablets and labels, and these inscriptions, usually quite short, are often accompanied by numbers.

Few scholars have worked with hieroglyphic inscriptions. Ernst Grumach was assembling a corpus of them when he died; his project has now fallen to the Belgian scholar Jean-Paul Olivier.

Over the last ten years or so Jean-Paul Olivier has given two major lectures on the subject. In 1978 at the second Marburg symposium he gave a paper entitled «Les sceaux avec des signes hiéroglyphiques. Que lire? Une question de définition» [2]. This paper raised the basic questions: was the hieroglyphic script as seen on sealstones a real script? was it ever meant to convey precise meanings as other scripts do?, or was it really only, as Olivier concluded, «une écriture ornementale»?

Recently, however, in January 1989 at the Austin conference, «Aegean Seals, Sealings and Administration», Olivier gave a second and major paper on hieroglyphic seals and inscriptions, «The Relationship between Inscriptions on Hieroglyphic Seals and Those on Written Archival Documents», in which he presented evidence for now believing that hieroglyphic inscriptions were indeed meant to convey lexical or textual information.

In support of Olivier's new position I should like to submit additional observations made in the Fall of 1987 when I had the short but extremely gratifying opportunity to ponder the hieroglyphic seals at the New York Metropolitan Museum of Art. Dr Joan Mertens of the Museum's Department of Greek and Roman Antiquities graciously allowed me to examine their collection of sealstones, of which 22 carry hieroglyphic inscriptions, almost one-fifth of the entire corpus of hieroglyphic seals.

My major reason for examining the Metropolitan's hieroglyphic seals was to determine if there was any pattern to the orientations of inscriptions on different sides of a hieroglyphic prism and, if there were, whether such patterns depended on the inscriptions themselves. To be specific, if a hieroglyphic prism had inscription «y» on face a and inscription «z» on face b and these were oriented upside-down to each other, would this same orientation be observable on other prisms with the same two inscriptions? If several such patterns could be observed between inscriptions and the orientation of the faces that carry them, then these should imply that the inscriptions convey meaning and the nature of the orientation should reflect the relationship between the inscriptions, right-side up to each other implying some sympathetic relationship and up-side down to each other implying some contrasting relationship.

---

[2] CMS Beiheft 1: 105-115.

One would think that it would be easy to observe the relationships between different sides of a prism and that one would not have to travel to the Metropolitan Museum to do it. On the contrary, it is very difficult to ascertain the orientation of one side of a prism to another for the simple reason that most publications of hieroglyphic prism seals publish the inscribed faces in separate photographs and the authors orient these separate photographs cosmetically so that the signs look right-side up and the inscriptions look like they can be read, either left-to-right or top-to-bottom. Only one publication indicates the orientation of the faces of prisms, Etudes Crétoises vol. 26 [3]; here, however, each face is still illustrated right-side up, according to the authors, and the orientation of a prism's face with a vertical stringhole to the sides adjacent is indicated by an arrow. This mark makes it possible to calculate the orientation [4] but only with some mental effort. One needs a composite photograph of the impressions of the faces to convey the relationships between them visually and directly, but no publication does this as yet.

When I examined the hieroglyphic seals in the Metropolitan Museum I was determined to record the relationships between the faces. For each prism (FIG. 1: XII 70) I shaped a large, single block of plasticine to accommodate the impressions of all three or four of its faces. I held the seal in one position with the stringhole vertical, impressed the first face into the extreme left of the plasticine block, then rolled the seal clockwise to my right, to make impressions of the other faces; all the impressions of the hieroglyphic prisms were thus taken in a consistent manner, and each block of plasticine records both the sequence of the seal's faces (that is, which face is next to which face), and their orientation in respect to each other (that is, which faces are horizontal and which vertical, and which faces are right-side and which up-side down to each other).

Naturally I checked my measurements and other data for the Metropolitan seals against their publication in volume XII of the Corpus of Minoan and Mycenaean Sealstones; corrections and other notes have been submitted both to the Metropolitan Museum and to the offices of the CMS in Marburg, Germany. One interesting correction emerged: five of the Metropolitan's four-sided prisms have their faces published out of natural sequence [5].

---

[3] B. Detournay, J.-C. Poursat, & F. Vandenabeele, Fouilles exécutées à Mallia. Le Quartier Mu, II (Etudes Crétoises vol. 26) ch. VII: Sceaux et empreintes de sceux (pp. 157-229, esp. pp. 159-166 nos. 230-235)

[4] Thus, with prism no. 231 (EtCret 26: 160-161), face «a» carries an agrimi head with stringhole vertical; according to the arrow in the discription, the neck of the agrimi should be adjacent to the top of the bucranium on side «b» while the nose of the agrimi should be adjacent to the bottom of the decorative motif on side «c».

[5] XII 67, actual sequence: a, b, d, c; 106, actual sequence: a, b, d, c; 109, actual sequence: a, c, b, d; 112 [FIG. 9], actual sequence: a, c, b, d; and 113, actual sequence: a, b, d, c. Such wrong

In terms of the relationship between the signs on one face and those of the other faces, several interesting patterns did indeed emerge even within the limited number of hieroglyphic seals in the Metropolitan Museum [6].

Let me present some examples, pointing out how understanding the orientations of the faces and the relationships between them may affect our understanding of the hieroglyphic inscriptions.

The early soft-stone prisms often have just one or two faces carrying a hieroglyphic inscription; the remaining face or faces carry decorative designs. For example, two three-sided prisms XII 83 (FIG. 2) and 84 (FIG. 3) each have one face carrying a hieroglyphic inscription; the other two faces carry a horizontal bucranium on one and an ambivalently oriented pattern in radial symmetry on the other. On the three-sided prism XII 72 (FIG. 4) two sides seem to carry horizontal inscriptions (one face is difficult to read) and the third carries again the horizontal bucranium; all faces are right-side up to each other.

The four-sided prism XII 70 (FIG. 1) has two sides carrying inscriptions, one horizontally (with the Leg sign) and one vertically (with the Trowel sign); a third side carries a squatting man, probably not a hieroglyphic sign, and a fourth carries another ambivalently oriented pattern in radial symmetry. The pair of sides with inscriptions is contiguous and contrasted, one being horizontal and the other vertical, and the pair with figurative and decorative motifs is also contiguous. But while the decorative side may be horizontal, possibly complementary to the inscription with the Leg sign, the figurative side is definitely contrasted to both inscriptions, being vertical to the horizontal Leg inscription and up-side down to the Trowel inscription.

The later, hard-stone prisms also commonly restrict the hieroglyphic inscriptions to only one or two of the faces. One of the most obvious examples is the thick rectangular plate XII 111 (FIG. 5); while each of the two short sides carries a pair of lines, one face carries a vertical (?) inscription and the other carries an ambivalently oriented palmette pattern. On the three-sided prism XII 93 (FIG. 6), one side carries an ambivalently oriented pattern of circles like the Olympic logo, another carries two vertical juglets, and the third carries the horizontal inscription.

Sometimes the non-hieroglyphic faces are recognized only with difficulty.

---

sequences may mislead scholars; Olivier's publication of XII 113 in CMS Beiheft 1, p. 110 figs. 5-8, for instance, follows the published, wrong sequence, and uses it to bolster his argument there that hieroglyphic seals carry erratic inscriptions. For three-sided prisms it is of course impossible to publish the three faces out of sequence since all faces are all contiguous to each other.

[6] For hieroglyphic seals I have not seen personally, I can sometimes reconstruct the orientation of the faces by examining the published photographs of the faces themselves, comparing chip-marks on the edges of contiguous sides or larger chips across the stringhole.

On the three-sided prism XII 115 (FIG. 7), the messy engraving style obscures the identification of hieroglyphs on two sides and the pattern of two quadrupeds in radial symmetry on the third side.

On XII 110 (FIG. 8) one side carries a horizontal sign-group we will examine again, the Gate+Leg+Frond group, one side carries a scroll pattern that hides a second common, vertical sign-group, the Trowel+Eye group, and the third side carries a third common, horizontal sign-group, the Trowel+Arrow group flanking a large sun-like pattern. Since the horizontal Trowel+Arrow group is up- side down to the horizontal Gate group and the Trowel+Eye group is vertical, it would seem that the Gate group probably stands alone, uncomplemented by the other two inscriptions, perhaps because their incorporated patterns (the scroll on side a and the «Sun» on side b) deny the full expression of their hieroglyphic meaning [7].

Compare XII 112 (FIG. 9); one face carries a unique horizontal inscription, two faces carry the two Trowel inscriptions, both vertical and right-side up to each other, and the fourth face carries a fancy horizontal Cat Mask flanked by thick spiraling whiskers; here the two vertical Trowel inscriptions seem again to contrast with the horizontal inscription, though they may complement each other.

From these preceding introductory observations, it seems obvious to me that the seal-engravers deliberately restricted hieroglyphic inscriptions to one or two faces, with the remaining face or faces carrying decorative motifs, and they deliberately gave these inscriptions and decorative patterns specific orientations to each other, with the patterns being vertical to the horizontal inscriptions or up-side down to inscriptions read right-side up.

To me it seems possible that the seal-engravers are issuing specific instructions to the seal-users, requiring them to choose with care the faces with which they wish to impress a sealing: «the inscription is on side c; be careful! Otherwise, you will impress the sealing with a meaningless bucranium and up-side down, too!» For XII 112 (FIG. 9) I can hear the seal-engraver say to the patron «look the seal over; the unique horizontal side is the one with the main hieroglyphic inscription; if you also want to add one of the two Trowel groups you can either turn the seal completely over and add the Trowel+Eye or turn the seal one-quarter turn to add the Trowel+Arrow, but pay attention because if you turn the seal the wrong way you get a Cat Mask!»

It seems possible then that the seal-engravers

a) organized the decorated and inscribed faces to contrast with each other and

[7] Compare the similarly puzzling juxtaposition of these three groups on XII 105 (FIG. 12).

b) even more deliberately oriented the inscribed faces either to form complementary meanings or to facilitate separate readings.

Let us devise a test, a really difficult one, to see if this possibly valid observation may be true.

We will examine three sets of two sign-groups that appear on several seals (for a summary of the following argument, see the Chart appended); one sign-group will appear on one face of a seal and the other will appear on another face of the same seal; we will examine several seals where the same two sign-groups appear on different sides and we will see if these sign-groups are *always* right-side up to each other, or *always* up-side down, or if one is *always* horizontal and the other *always* vertical.

We examine seals with the three sign-groups Trowel+Arrow signs (the Arrow group), Trowel+Eye signs (the Eye group), and the Gate+Leg+Frond signs (the Gate group).

First, the Gate & Arrow groups:

three seals have one face with the Gate group arranged horizontally and another face with the Arrow group arranged vertically (XII 70 d Gate, a Arrow [FIG. 1]; similarly, II 2.256 b & d; and VII 40 b & a);

one seal presents this juxtaposition but vice-versa with the Gate group vertical and the Arrow group horizontal (XII 107 d & a, respectively [FIG. 10]), but then the Arrow group begins (?) a longer inscription employing signs 4/104 and 27.

To confirm the contrasting orientation of these two sign-groups, there are two seals with both faces arranged horizontally but the one up-side down to the other: XII 110 c (Gate) & b (up-side down Arrow) [FIG. 8] and, similarly, X 52 b & a.

It seems that another sign can substitute for the Frond sign in the Gate group. In two examples this substitution causes no change in the contrasting orientation of the two sign-groups: XI 13a carries the horizontal Gate group with Quirk 137 and XII 89b [FIG. 11] carries the horizontal Gate group with a misplaced large dot instead of the Frond; on both seals the face with the horizontal Arrow group is up-side down [8].

It seems then that when artists engraved one side of a seal with the Gate group and another side with the Arrow group they deliberately made one side up-side down to the other as if to present to the user of the seal a choice between the two inscriptions.

---

[8] For two other examples I cannot verify the orientations of the faces: a lost seal published in Scripta Minoa I (P17) substitutes the Pin sign 26 for the Frond and II 2.296 substitutes the Bull-Head sign 62.

Second, the Gate, the Arrow, and the Eye groups:

four seals carry all three inscriptions (XII 105 [FIG. 12], & VII 40; 110 [FIG. 8]; and II 2.296).

In all four the Gate group is horizontal.

In two of the seals XII 110 [Fig. 8] & II 2.296) the Eye and Arrow groups are also horizontal but up-side down to the Gate group; in VII 40 both Arrow and Eye groups are vertical to the horizontal Gate group.

XII 105 [FIG. 12] is ambiguous -- in both faces the Trowel sign looks right-side up to the Gate group; in the Eye group the Trowel is oblique (perhaps the side is really vertical) while the Arrow group is augmented with the Ship Prow 116 flanking the Trowel and vertically too.

Again, it seems that the seal engravers deliberately made the Trowel groups contrast vertically with, or up-side down to, the Gate group.

And third, the Gate group and another group consisting of the Template sign 19 and sign 30, which Evans called «A Pronged Instrument of Uncertain Use» (SM I pp. 192-193) and which I call Ice Tongs.

The group of Ice Tongs and Template often employs another sign, usually Frond 92, though apparently it can also use the Fleur-de-Lys 90 (HM 2184a), the Croix Pometée 112 (XII 10Da [FIG. 13]), or a scroll pattern (CS 172b; a scroll also substitutes for Frond 92 in the Gate group on side a).

The Template and Ice Tongs are frequently positioned to face one another and to frame the Frond between; I call this configuration the «Cartouche».

Eight seals have the Gate group on one face and the Ice Tong group on another.

Four have the Gate group horizontal.

Three of these have a vertical Ice Tong Cartouche (XII 10D [FIG. 13], IV 137, and IX 21D); the fourth seal HM 2184 from Mallia has the Ice Tong group (not as a Cartouche) also horizontal but the publication does not make it clear whether it is right-side up or up-side down to the Gate group.

Four have the Gate group vertical.

Three have a horizontal Ice Tong group (CS 150, CS 172, CS 174); the fourth seal XII 117 [FIG. 14] has its Ice Tong group also vertical and the two sign-groups are right-side up to each other, but then this is a peculiar prism; it is the only one with the Ice Tong group to have circular faces and these circular faces have apparently induced the seal-engraver to duplicate signs in our two groups: two Legs in the Gate group and two Ice Tongs in the Ice Tong group.

In summary:

when the Gate group is horizontal, the Ice Tong group is vertical and arranged as a Cartouche; but

when the Gate group is vertical, the Ice Tong group is horizontal and never a Cartouche (all the sides of CS 174 resemble Cartouches in their formal arrangement of the signs but side b arranges the signs Template above Ice Tong above Frond vertically rather than having the Template and Ice Tong frame the Frond).

These patterns cannot be coincidental; they must exist because they reflect the relationships between the meanings of the hieroglyphic inscriptions.

That is, the hieroglyphic sign-groups do convey lexical information. I can imagine the seal-engraver being literate in hieroglyphic and thinking: «the patron wants two prisms: an Arrow group, an Eye group, and a Gate group on one and a Gate group and Ice Tong group on the other. For the Arrow+Eye+Gate prism since the Arrow and Eye groups basically say similar things I can arrange them horizontally and right-side up to each other -- it doesn't matter which side the patron uses; but the Gate group is different and I'll orient it vertically so he'll have to turn the seal around if he really wants to impress that side into the sealing. Now, for the Ice Tong seal: since these two groups mean something different I'll also have to orient them differently so the patron won't confuse the two.»

My observations on the one corpus of material I have examined, the hieroglyphic seals in the Metropolitan Museum, therefore lead me to make three observations:

1) it is probable that seal engravers deliberately organized the orientations and the alignments of the inscriptions on the faces of hieroglyphic seals;
2) occasionally certain inscriptions were aligned either up- side down to each other as if to contrast or to contradict each other or, contrariwise, right-side up to each other as if to complement each other; and
3) these alignments then must have forced the seal users to consider carefully which inscriptions they wished to use either alone or in conjunction with others, whether they wanted one inscription, one inscription with the added nuance of a second inscription, or two contradictory inscriptions.

Such patterns of orientation necessarily imply that these hieroglyphic inscriptions on prisms do indeed convey meaning. This meaning, however, may rely not on the inscriptions on single faces but on two or three faces being read together. It is therefore imperative for scholars of hieroglyphic seals to appreciate the proper sequences of four-sided prisms and the orientation of the inscriptions on all faces of all the prisms.

CHART OF FOUR COMMON INSCRIPTIONS APPEARING TOGETHER ON DIFFERENT FACES OF A SINGLE SEAL *

	GATE GRP		TROWEL + ARROW		TROWEL +EYE		ICE TONG GRP	
SEAL	92, 11, 44 038-010-031		13, 18 044-049		18, 5 044-005		19, 30 031-092	
II 2.256	b	H	d	V				
XII 70 (FIG. 1)	c	H	a	V^				
X 52	b + 137	H	a FL 136	Hv				
XII 89 (FIG. 11)	b 11, Dot, 44	H	a	Hv				
SM I P17	a 11, 44, 26	H	b + 138	H^				
XII 107* (FIG. 10)	d	H	a + 4/114,27	H^				
XII 105 (FIG. 12)	b	H	a + 116	H/V	c	V		
XII 110 (FIG. 8)	c	H	b FL Sun	Hv	a Desig	?Hv		
II 2.296	a 11, 44,62	H	b	?Hv	c	?Hv		
VII 40	b	H	a	V	c	V	d no 90/92	V
XI 13	a + 26 137 =92	H	c +?	Hv			b + 92	V
XII 10D (FIG. 13)	b	H			c	Hv	a CART+112	V
HM 2184	b 11, 44, 30	H			c 5, 18, 39	H	a +90	H
IV 137	a 90, 11, 92	H			c + 137	H	d CART+92	V
XII 117 (FIG. 14)	b + two 11s	V			c FL + 86	H	a+92, 30, 30	V^
IX 21D	a	H					c CART+92	V
CS 150	a	V					d+ 92	H
CS 172	a scroll = 92	V					b + scroll	H
CS 174	a + 84 FL 75	V					b CART?+92	H*
SEAL	92, 11, 44 GATE GRP		13, 18 TROWEL+ARROW		18, 5 TROWEL+EYE		19, 30, 90/92 TONG GRP	

* ABBREVIATIONS

^ Right-side up in respect to the first horizontal or vertical face listed
v Up-side down to the first horizontal or vertical face listed
H horizontal inscription
V vertical inscriptions
◇ flanked by
FL flanking

XII 107 the faces alternate a-H^, b-H^, c-Hv, d-Vv
CS 174b the stringhole is horizontal but the three signs are aligned vertically in the center and are flanked by two palmettes
XII 112c all three signs on this face are radially symmetrical and thus there is no internal means of determining which orientation is right-side up
CS 167 compare XII 117c for the arrangement of the signs flanking sign 18

Fig. 1. XII 70, impression of a four-sided prism with rectangular faces (L-R: d: signs 92, 11, 44; c: 2/man; b: 84/Zweipass; a: 18 above 13)

Fig. 2. XII 83, impression of a three-sided prism with elliptical faces (L-R: b: signs 63/bucranium & fillers; c: 18 above 13 & fillers; a: two tête-bêche groups of signs 107/108 & 26 & dots)

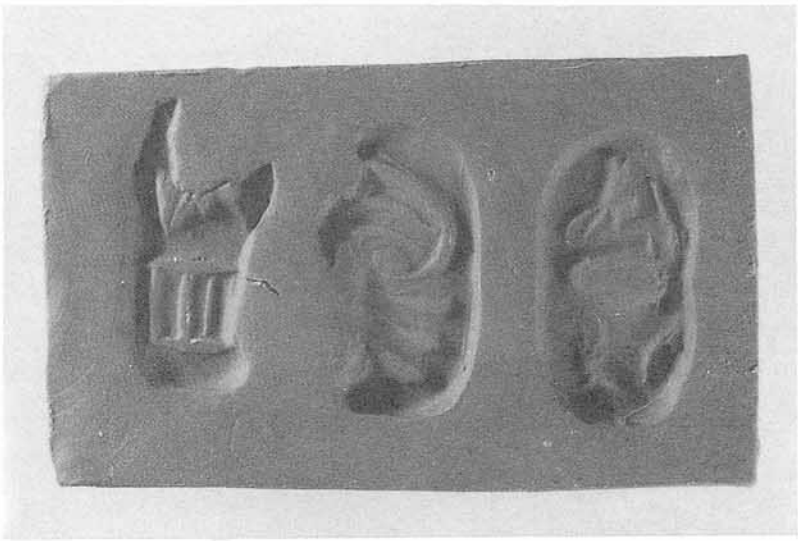

Fig. 3. XII 84, impression of a three-sided prism with elliptical faces (L-R: a: signs 44, 18?; c: two 137's tête-bêche; b: 63/bucranium flanked by two upside down 65/bull-heads)

Fig. 4. XII 72, impression of a three-sided prism with elliptical faces (L-R: c: signs 27, 4/114, 24; b: bucranium 67? flanked top & bottom by lines; a: 13, 18 & fillers)

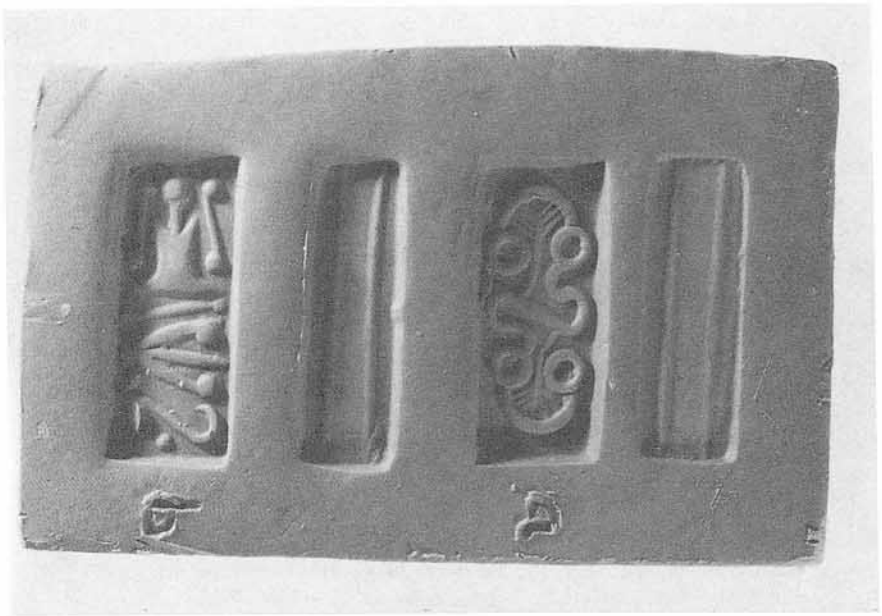

Fig. 5. XII 111, impression of a rectangular plate (L-R: b: signs 18, 13, 136/S & fillers; edge; a: two palmettes flank 136/S; edge)

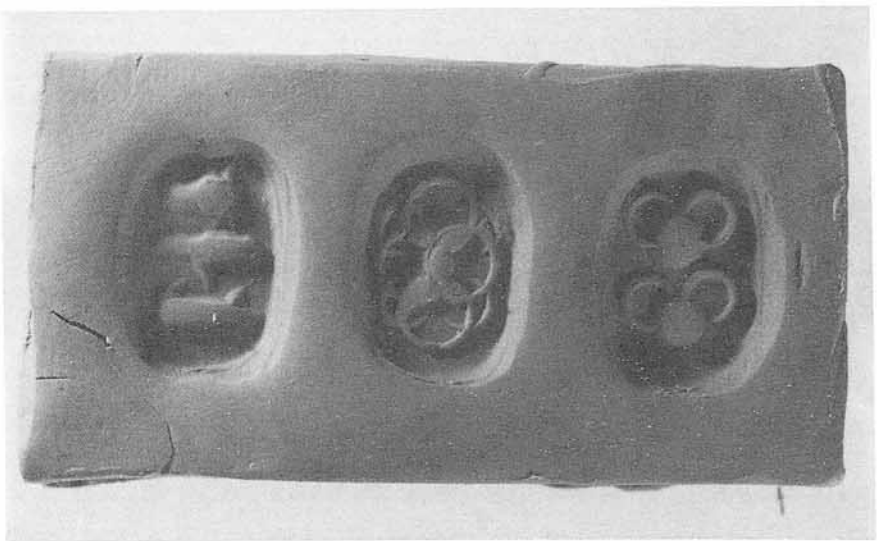

Fig. 6. XII 93, impression of a three-sided prism with elliptical faces (L-R: a: signs 63, 9, 95; b: 91/ «Olympic Circles»; c: two pots)

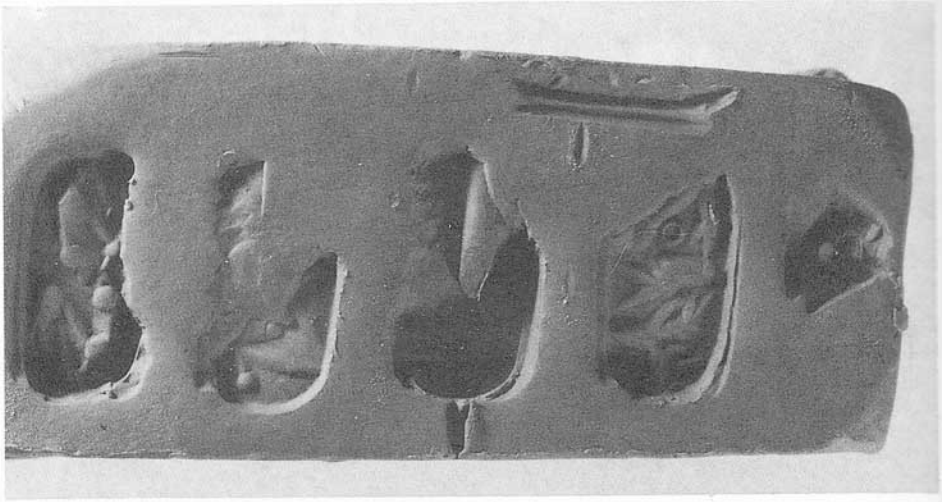

Fig. 7. XII 115, impression of a three-sided prism with elliptical faces; side c is impressed twice, the second time more deeply to reveal the drilling marks within the stringhole (L-R: a: two caprids tête-bêche; c: signs -, ?, 13; b: 101, 68, 13? & circles)

Fig. 8. XII 110, impression of a three-sided prism with elliptical faces (L-R: b: signs 13, 107, 18; a: 18 above 5 incorporated into a bilateral scroll pattern; c: 92, 11, 44, & fillers)

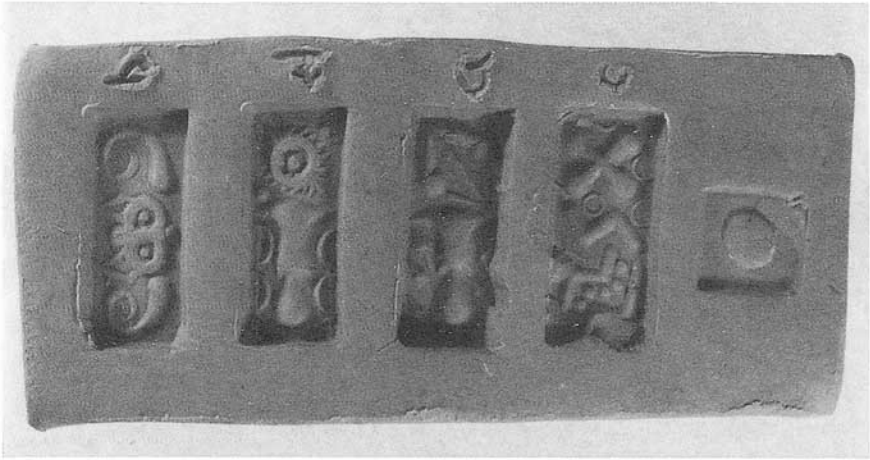

Fig. 9. XII 112, impression of a four-sided prism with rectangular faces (L-R: b: signs 74/Cat Mask & fillers; d: 18 above 5/107 & fillers; a: 18 above double-ended 13 & fillers; c: 115, 84, 112 & fillers)

Fig. 10. XII 107, impression of a four-sided prism with rectangular faces (L-R: c: signs 7, 26, 62, 137; d: 44, 11, 92 & fillers; a: 13, 18, 4/114, 27; b: 21 above 18 & fillers)

Fig. 11. XII 89, impression of a three-sided prism with elliptical faces (L-R: b: signs 11, 109/54, 44; c: 24, 4/114, 27 & fillers; a: 13, 18 & fillers)

Fig. 12. XII 105, impression of a three-sided prism with elliptical faces (L-R: b: signs 92, 11, 44 & fillers; a: 116, 18, x, 13; c: 18, 5 & fillers)

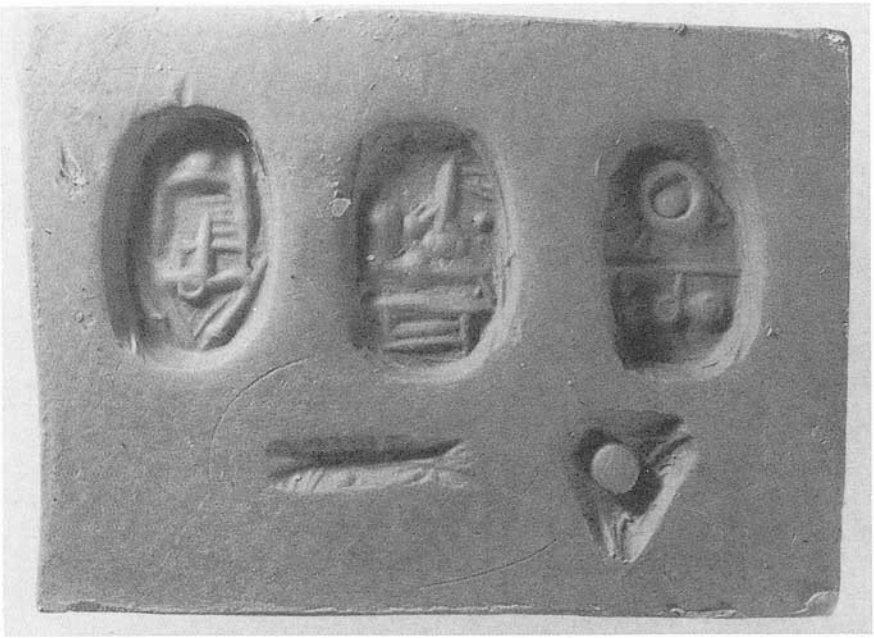

Fig. 13. XII 10D, impression of a three-sided prism with elliptical faces (L-R: a: signs 19 above 112? above 30 in a «Cartouche»; b: 44, 11, 92?; c: 5 & 18 in two panels)

Fig. 14. XII 117, impression of a three-sided prism with circular faces (L-R: c: signs 86, 18, 5; a: 19 above two 30's above 92; b: two 11's flank 92 above 44 & fillers)