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Context and Shape: Geographical and Chronological Distribution of Handled Stamp Seals in Anatolia and Northern Levant

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Abstract. This article focuses on handled stamp seals, their typological classification, archaeological contexts and geographic distribution. By analyzing a total of 679 seals (302 from good archaeological contexts) over a time period from the Early Bronze Age to the Iron Age, it was possible to point out that specific shapes can be considered typical for the Anatolian region, while others were adopted from Anatolia in the Levant or belong to specific site productions. The data have shown that of the three predominant types (Stalk, Domed and Modelled Domed Knob Seals), probably only one passed from Anatolia to the Northern Levant with a consequent proliferation of variants. All other types of handled stamp seals didn't provide sufficient data in archaeological contexts to better define the dynamics of production or geographical displacement: therefore, it was only possible to present the general data and propose some hypotheses.

Keywords. Stamp seals, handled stamp seals, typology, Anatolia, Northern Levant, stalk seals, knob seals.

INTRODUCTION

The focus of this study is on a specific type of stamp seal called 'handled', characterized by the presence of a shaped handle. The aims of this paper are: to propose a more defined typology and to identify the origin and development of specific morphologies over time and geographical areas.¹

Handled seals are a well-known artefact in Anatolia and Northern Levant during the 2nd and 1st millennium BC. These seals were first studied by David G. Hogarth (1920: 18-23), who create a typological classification based on the handle-base distinction and the seal body shape. Briggs

¹ For issues relating to the realization of seal typologies refer to Meyer 2008: 33-34; Von Wickede 1990: 10.

Buchanan and Peter R.S. Moorey (1984: XI-XVI) accomplished in 1988 a more accurate subdivision based on Hogarth's classification (Buchanan, Moorey 1988: X). This work was then resumed by Jan-Waalke Meyer some years later (2008: 33). In our study has been used a method that consider the archaeological contexts of the objects in addition to their morphological features. This helped to identify a possible chronological and geographical origin of certain types, their development over time and the materials used for their production.

To this purpose, only handled stamp seals published in catalogues and excavation reports related to Anatolian and Northern-Levantine sites have been taken under consideration. Was then possible to reconstruct an hypothetical chrono-morphological evolution for each type. Specimens without a clear stratigraphic context were used to provide information on the morphology and geographical area even they didn't help to establishing a chronology. It should be emphasized that the dating of the stratigraphic context in which the seals were discovered is considered relevant for the use of the seals. Obviously, the production date of the piece could precede that of the context's one. In addition, the contexts dating considered for this study is based on the information recovered from the excavation reports.

This study can give new insights with the analysis of iconographies shown on the stamp surfaces and of their shapes, giving information about the existence of relationships with the seal's body shape. The other existing stamp seal types should also be considered with particular attention to the stratigraphic contexts.

Eight morphological types were identified. Stalk (ST), Domed (P_{Ma}) and Modelled Domed Knob Seals (P_{Mb1}) are the predominant ones and are analyzed here below in detail. Other types will be considered only for the general analysis.



1. HANDLED STAMP SEALS TYPOLOGY

For the seals typology the documentary base consists of 679 specimens, of which 302 come from dated contexts.

The first characteristic considered in the creation of the typology is the handle shape (Buchanan, Moorey 1984: XI-XIII), which should be distinguished and well recognized from the seal base bearing the stamp surface (Buchanan, Moorey 1984: XI). The second is the base and stamp surface shape: this characteristic is neglected for some typologies with some exceptions (e.g., von Wickede 1990: 11-12 or Nunn 2000: 1-5).





The correlation of these two characteristics allowed in some cases to verify a relationship between handle and base shapes and the stamp surface.² Thus, the stamp surface shape may be capable of defining further sub-divisions, but it remains a secondary element that cannot define by itself new types (Meyer 2008: 35).

Table 1

STALK SEALS			
Code	Pieces	Description	
ST	Total: 93 In context: 47	The simplest type of handled seal is characterized by a variable length handle without distinctive elements at the upper end. We can distinguish two sub-types according to the shape of the handle and the base.	
STa	Total: 42 In context: 22	'Thin' variant (e. g., Fig. 2.10): the handle is elongated and mostly rounded, not always drilled, with a smooth surface. The thin base is cylindrical or parallelepiped, with circular and squared stamp surfaces.	
STb	Total: 51 In context: 25	'Thick' variant (e. g., Fig. 2.20): the more or less elongated handle is rounded or squared, generally drilled, with a smooth surface. The thick bases have truncated-conical, cylindrical or parallelepiped shapes, with circular and squared stamp surfaces.	

² This has been helpful for the relocation of particularly fragmentary manufactures.

Table 2

KNOB SEALS			
Code	Pieces	Description	
PM	Total: 468 In context: 230	Group characterized by a differently shaped apical element at the upper edge of the handle.	
PMa	Total: 276 In context: 148	<p>'Domed' Knob Seals: specimens characterized by a round apical eyelet, always perforated, and conical handle. The surface treatment of the handle allows the identification of a:</p> <ul style="list-style-type: none"> • smooth variant (e. g., Fig. 3.12); • faceted variant (e. g., Fig. 3.6); • variant with more or less dense horizontal incisions (e. g., Fig. 3.17). <p>The bases are mainly cylindrical, and in lower quantity lobed and elliptical: the surface is more frequently smooth, but it is engraved only in some specimens of the second variant.</p>	
PMb	'Modelled' Knob Seals include a great variety of forms with thick bodies. Based on the conformation of the apex, three sub-types can be distinguished.		
	1	<p>'Domed' variant: the smooth or engraved rounded apex often shows a relationship with some base shapes. The most numerous variants have a hole on the handle.</p> <p>Overall, we can identify two specimens:</p> <ul style="list-style-type: none"> • with apex not engraved, various body length and base shape (e. g., Fig. 4.11); • with predominantly engraved or sculpted apex, thick bodies and cylindrical, triangular or lobed bases (e. g., Fig. 4.17). 	
	2	<p>'Pyramidal' variant (e. g., Fig. 5.3): the truncated-pyramidal apex is placed on a predominantly parallelepiped handle, both with a smooth surface. Bases and stamp surface have parallelepiped, cylindrical or triangular shapes.</p>	
	3	<p>'Squared' variant (e. g., Fig. 6.5): the squared apex is placed on a parallelepiped handle, usually perforated. All the bases have a squared shape, and therefore only produce squared image fields.</p>	

It is also relevant how some cases of irregular conformation or drilling may result from fractures, modifications or reuse over time (von Wickede 1990: 12).

For Stalk and Knob Seals we can note that some specimens have a body shape that differs from the most common one.

A morphology excluded in this typology is defined as 'bell-shaped' in the online catalogue of the MET Museum of New York. It is represented by nine glyptic specimens, characterized by the presence of an apical loop placed

Table 3

HAMMER SEALS		
Code	Pieces	Description
MR	Total: 51 In context: 14	<p>Group with a shaped apex like a hammer head. We can define three types:</p> <ul style="list-style-type: none"> • a smooth conical handle with variable shape bases (e. g., Fig. 7.5); • a faceted conical handle with cylindrical base (e. g., Fig. 7.2); • a faceted conical handle with an engraved prismatic base (e. g., Fig. 7.13). <p>Five pieces out of context allow us to identify another less elaborate variant, with a rounded appearance and smooth surface.</p>




Table 4

HUMAN FIST SEALS		
Code	Pieces	Description
PG	Total: 32 In context: 4	<p>Specimens with a human fist shape apex. The most realistic pieces have:</p> <ul style="list-style-type: none"> • smooth truncated-cone, globular or parallelepiped shape bases (e. g., Fig. 8.2); • elliptical-cylindrical bases engraved with horizontal lines (e. g., Fig. 8.4). <p>The less elaborate specimens have a sketchy and more rounded shape, with a smooth surface. The image fields are predominantly circular and elliptical.</p> <p>The perforation can be between the fingers of the fist, or between the hand figure apex and the base.</p>




Table 5

ANTHROPOMORPHIC HEAD SEALS		
Code	Pieces	Description
TA	Total: 4 In context: 0	<p>The small quantity and aesthetic variability of these seals make their classification complicated.</p> <p>Their only common element is the apex made like a human head (e. g., Fig. 9.1). When present, the handle can be truncated-conical or hemispherical and the treatment of the surfaces can be variable.</p> <p>The image field is only circular.</p> <p>The hole is drilled in an outer suspension ring on the upper end of the head.</p>




Table 6







FRAME SEALS			
Code	Pieces	Description	
SO	Total: 12 In context: 2	Type with the body made by joining some segments to an apical ring and a basal element. We can define two sub-groups based on the manufacture.	
SOa	1 Total: 5 In context: 1	<p>The ‘Double-frame’ variant has two segments connected to the apex and the base, and it can be:</p> <ul style="list-style-type: none"> • monomaterial (SOa1; e. g., Fig. 10.1), made in a single stone block without perforation; • polymaterial (SOa2; e. g., Fig. 10.6), composed of a hemispherical stone at the metal support base and an apical suspension ring. <p>The image fields are all elliptical.</p>	
	2 Total: 3 In context: 0		
SOB	Total: 4 In context: 1	The ‘Triple-frame’ variant (e. g., Fig. 10.7), in literature ‘Tripod Seals’, is made by welding three metal segments to a disc base and an apical suspension ring: the body is therefore empty. Image fields can only be circular.	


Table 7

DOUBLE-STAMPS SEALS			
Code	Pieces	Description	
DS	Total: 10 In context: 4	Seals united by the presence of two different stamp surfaces on the body. Some similarities between the bodies allow to identify three variants.	
DSa	Total: 2 In context: 0	‘Cylindrical’ variant (e. g., Fig. 11.1): the body has a horizontally shaped rings surface, not always perforated. The image fields are only circular.	
DSb	Total: 5 In context: 3	‘Hourglass’ variant (e. g., Fig. 11.5): despite the different shapes, the bodies share a median narrowing in which the perforation is always placed. We can have a different base shapes, and therefore image fields.	
DSc	Total: 3 In context: 1	‘Flattened’ variant (e. g., Fig. 11.8): the large and flattened bodies have a variable shapes and based. The hole is drilled in the middle of the handle.	

on a cylindrical body with raised edges.³ Only one example in the collection catalogued by von der Osten (1934: 7, 57, n. 377) is defined as ‘Hittite’ and placed approximately in Asia Minor and Syria in the Middle Bronze Age (c. 2000-1200 BC). This type hasn’t been considered despite the similarity to the Pendant Seals because its attribution belonging to the area under control of the Urartu Kingdom in the 1st millennium BC.

³ E.g., <https://www.metmuseum.org/art/collection/search/326628?searchField=All&sortBy=Relevance&ft=stamp+seal&offset=800&rpp=20&pos=806>.

Table 8

PENDANT SEALS			
Code	Pieces	Description	
PN	Total: 8 In context: 1	<p>This group of heterogeneous glyptic shapes is characterized by a perforated apical loop placed on a base. The bodies have variable appearance, although the stamp surfaces are all circular.</p> <p>The specimens out of context could suggest:</p> <ul style="list-style-type: none"> • for the Levantine area, a more rounded shape production (e. g., Fig. 12.1); • for the Anatolian area, a more tapered shape production (e. g., Fig. 12.3). 	

2. CHRONO-MORPHOLOGICAL ANALYSIS OF MAIN TYPES

In Fig. 1 are indicated all the archeological sites from which come all the glyptic manufactures used in this work.



Fig. 1: Location of the investigated archaeological sites.

2a. *Stalk Seals (ST)***Table 9:** Stalk Seals.

TYPE	NORTHERN LEVANT	ANATOLIA	
	STb	STa	STb
TOTAL	13	38	29
IN CONTEXT	12	22	13
OUT OF CONTEXT	1	16	16

The regions of the investigated sites yielded many Stalk Seals (Fig. 2; Tab. 9). These findings confirm in part that the Anatolian and Iranian plateaus are the original area for this type as indicated by von Wickede (1990: 14).

The North-Levantine sites yielded 13 artefacts, of which 12 from contexts datable between the Iron Age I and II at the sites of Tell Judaidah, Tell Tayinat and Çatal Höyük. 67 seals (35 in archaeological context) were found in Anatolian sites.

The three oldest pieces in context coming from Alişar Höyük are dated to a phase between the Chalcolithic and the Early Bronze Age I-II (3500-2500 BC), and we can note a recurrent use of metal as a manufacturing material. The largest group of this kind was found in Early Bronze Age II-III contexts (2500-2000 BC) while only a few were identified in later phases as remnants from previous periods or as a marker for a diminishing production. In contrast, Stalk Seals were found only in Iron Age I North-Levantine contexts, suggesting that this specific shape was not used in earlier periods.

Based on the two identified variants the pieces in context show:

- a considerable quantity of the STa variant in Anatolia (22), including one specimen that can be defined as ‘spiked’ due to the thinness of the stem (Fig. 2.8), and a smaller amount of the STb variant (13), including two seals with lobed base (Fig. 2.15; 2.16);
- the exclusive presence of the STb variant in the Northern Levant (12). It should be noted the presence of one seal with a squared stem but a particular engraved apex (Fig. 2.18), which constitutes a unique specimen.

The unstratified pieces correspond to the STa and STb variants, including those types with unknown origin (13); once again, we can see one ‘Spiked’ Seal (Fig. 2.11) and one unique STb specimen with incised base (Fig. 2.23).

The Anatolian stalk morphology changes in the Northern Levant: in fact, the Northern-Levantine seals’ morphology (STb) is homogeneous as opposed to the variety of shapes present in Anatolia in the previous periods (STa and STb).

Regarding the variations of the material the seals in context show an exclusive use of stone in the Northern Levant. In Anatolia the most represented material is metal, followed by terracotta, bone and ivory and lithic materials (note that metal is used only for some Anatolian STa seals). The unstratified Levantine seals confirm this situation, while the Anatolian highlight a prevalent use of stone and terracotta.

Looking at the materials the Stalk Seal production in context shows:

- the prevalent use of metal and terracotta, but also the presence of stone and organic materials in the Early and Middle Bronze Age;
- that the only seal found in Anatolian Late Bronze Age contexts was crafted in metal (Fig. 2.10);
- in the Iron Age, the exclusive use of metal in Anatolia and of lithic materials in Northern Levant.

2b. Knob Seals (PM)

Table 10: Knob Seals.

TYPE	NORTHERN LEVANT				ANATOLIA		
	PMa	PMb1	PMb2	PMb3	PMa	PMb1	PMb2
TOTAL	4	74	23	20	243	24	1
IN CONTEXT	2	44	14	10	146	14	–
OUT OF CONTEXT	2	30	9	10	97	10	1

A conspicuous documentary base was available even for the Knob Seals of the Northern-Levantine and Anatolian sites (Tab. 10). In Northern Levant a total of 121 seals, of which 70 in context, has been identified for all variants, while in Anatolia a total of 268 seals, of which 160 in context, has been founded (except for the PMb3 variant). This type has been defined in literature as a characteristic of the Hittite area of the 2nd millennium BC (von Wickede 1990: 14).

Domed Knob Seals (PMA)

The North-Levantine area yielded 4 seals, of which two belonging to datable contexts from the end of the Iron Age (III) and later periods, in the sites of Tell Tayinat (Fig. 3.26) and Tell Judaidah (Fig. 3.27). The highest number of glyptic artifacts have been found in the investigated Anatolian sites, for a total of 243 (146 in context).

The ten oldest pieces in context come from Anatolian site of Alişar Höyük, dated to the Early Bronze Age (2500-1900 BC): among these, three specimens have a morphology that differs from the common one and aren't made of lithic materials (Fig. 3.3-5). The North-Levantine pieces in context allow to place the first attestation of the PMA type between the end of the Iron Age and later periods.

Based on the three variants identified the context pieces show:

- in the Anatolian sites the massive presence of incised (52) and smooth (51) variant seals, with cylinder and lobed bases. Is also present a minor quantity of faceted variant seals (32), even with incised bases with vertically lines. Noteworthy two pieces differs from this kind of type (Fig. 3.4,19), while one specimen is comparable to that, despite having no comparisons (Fig. 3.20). For nine pieces remain only the cylindrical bases, so it can only be presumed that they belong to the PMA type.
- in the Northern Levant, the presence of two smooth variant pieces with a different body shape if compared to Anatolian pieces.

The unstratified seals can be compared with the identified variants, including those domed knob type of unknown origin (30): however, there are some specimens with anomalous shape (e.g., Fig. 3.28, 29 and 31).

The presence of the domed knob morphology at the end of the Iron Age in Northern Levant shows a change in the body shape compared to the Anatolian area.

Regarding the variations of the material the seals in context show a prevalent use of stone and terracotta, with very few seals in metal, for Anatolia, while in the Levant the exclusive presence of lithic materials. This situation is confirmed by the out of context seals: in Anatolia is encountered a prevalent use of stone, followed by metal and terracotta, and a very few pieces in organic material.

Looking at the materials the Domed Knob Seal production in context shows:

- the prevalent use of stone, with some pieces in backed clay and metal, in the Early Bronze Age;
- the prevalent use of stone and terracotta, with very few pieces in metal, in the Middle Bronze Age;
- the prevalent use of stone, with few specimens in backed clay, in the Late Bronze Age;

- in the Iron Age and later periods the use of stone and metal in Anatolia, and only the stone in Northern Levant.

Modelled Domed Knob Seals (PMb1)

The North-Levantine sites of Çatal Höyük, Tell Judaidah and Tell Tayinat have yielded 74 artefacts, of which 44 by datable contexts from the start to the end of the Iron Age and later periods. The Anatolian sites investigated have returned 24 glyptic artifacts (14 in context).

The two oldest pieces in Anatolian context, dated between the Chalcolithic and the Early Bronze Age (3500-2500 BC), come from Alişar Höyük (Fig. 4.1) and Küllüoba Höyük (Fig. 4.2): these belong to the variant without engraved apex. The North-Levantine in context pieces allow to place the first attestation of the PMb1 type at the start of the Iron Age (I).

Based on the two variants identified the pieces in context show:

- some non-engraved apex variant pieces with a quite variable body shape (11) in Anatolia. Three seals have a more particular forms and aren't comparable with the others (Fig. 4.2, 6 and 7).
- the presence of specimens with (29) and without (15) engraved apex in the Northern Levant. The seals in the first group show all the body shape variations.

The out of context pieces, including those modelled domed knob type of unknown origin (46), are recognizable within the identified morphological variants, but three specimens aren't attributable to any group (Fig. 4.25, 29 and 34).

The acquisition of the modelled domed knob type from Anatolia shows some differences in the Northern Levant: in fact, these seals develop many new forms during the Iron Age compared to the Anatolian.

The glyptic materials show the exclusive use of stone for both geographical areas: only in Anatolia there are few specimens in metal, terracotta and organic materials.

The material analysis on the Modelled Domed Knob Seal in context shows:

- an equal use of stone and terracotta in the Early Bronze Age;
- the prevalent use of stone, with some pieces in terracotta and organic materials, in the Middle Bronze Age;
- in the Iron Age and later periods the use of stone and metal in Anatolia, while only stone in Levant.

3. GENERAL ANALYSIS

Tab. 11 shows an overview of the seal distribution according to their context of retrieval. The numerical data provided by the stratified seals (209 Anatolian; 93 North-Levantine) allow to trace patterns of development for single morphological type, and to verify the possible existence of a connection between types found in the two geographical areas. Some types allow us to hypothesize a plausible connection between seal morphologies, seal materials, geographical areas and chronological range without a necessarily passage from Anatolia to the Southern territories.

The most numerous group of Stalk Seals (ST; Fig. 2) is placed in Anatolia between Early and Middle Bronze Age and disappeared in the Iron Age I. In the Levant appears only the STb sub-type from the Iron Age I onwards: this variant is here found only in these contexts, while in the Anatolian plateau it was already identified in Middle Bronze Age contexts. The scarcity of STb seals in Late Bronze Age Anatolian contexts hinders us from a direct link between the Anatolian and Levantine productions. By contrast, the STa seems to be produced only on the Anatolian plateau until the Iron Age I.

The largest production of Domed Knob Seals (PMa; Fig. 3) is placed in Anatolia between Early and Late Bronze Age, with particular relevance in the Middle Bronze Age, while it disappears in the Iron Age I. In the Northern Levant we can't talk about production because there are only two specimens dated from the end of the Iron Age III. The morphological difference between the seal's body shapes demonstrates that the PMa production

Table 11: Seals found in stratigraphic context per region and period.

		EARLIER PERIODS	EBA	MBA	LBA	IA			LATER PERIODS	
						I	II	III		
ST	a	3	10	5	1	3				ANATOLIA
	b	4	9							
PM	a		10	123	11	2				
	b	1	1	1	10	2				
		2	none in context							
	3	none in context								
MR				10	3	1				
PG		none in context								
TA		none in context								
SO	a	1	none in context							
		2	none in context							
	b	none in context								
DS	a	none in context								
	b	none in context								
	c	none in context								
PN		none in context								
ST	a	none in context								
	b			1		1	5	3	2	
PM	a							1	1	
	b	1				1	25	12	6	
		2					1	9	3	1
	3					1	5	3	1	
MR		none in context								
PG							3	1		
TA		none in context								
SO	a	1						1		
		2	none in context							
	b					1				
DS	a	none in context								
	b							3		
	c							1		
PN							1			

was born originally in Anatolia: afterwards, at the end of the Iron Age, seals with similar body composition arrived or were made in North-Levantine territories.

The Modelled Domed Knob Seals (PMb1; Fig. 4) production is very scarce in Anatolia between Early and Middle Bronze Age, while large quantities of seals are visible in Northern Levant in the Iron Age II-III. The morphological characteristics of PMb1 in these two geographical areas are very similar, but stratified seals don't allow us to reconstruct a continuity between the Anatolian Middle Bronze Age tradition and the North-Levantine Iron age one. The Late Bronze Age documentary void constitutes an unsolvable problem but allows us to figure out two different scenarios. The absence of Late Bronze Age evidence for this shape could be related to archaeological randomness or different origins. In the first scenario it is possible to hypothesize in the passage from Late Bronze to Iron Age a transfer to Northern Levant of manufacturing traditions, artisans or artefacts, who introduced this specific shape in the local Iron Age production. In the second scenario the productions of the two groups (Anatolian and North-Levantine PMb1) had different origins and developed independently at different times.

Pyramidal (PMB2; Fig. 5) and squared (PMB3; Fig. 6) variants of the Modelled Knob Seals were produced mainly in the Northern-Levantine area during Iron Age II-III, as seems to suggest their complete absence in Anatolia.

The only Hammer Seals context production (MR; Fig. 7) is placed between Middle and Late Bronze Age: despite the similarity between all the documented specimens, even without provenience, we can only support a sure production in Anatolia for this chronological range. This type is already considered as typically Hittite by Hogarth (Buchanan, Moorey 1984: XVI) due to the presence on some stamp surfaces of Luwian hieroglyphs peculiar to the Anatolian epigraphic tradition (Buchanan, Moorey 1988: 33).

None of the fist (PG; Fig. 8), anthropomorphic head (TA; Fig. 9), frame (SO; Fig. 10), double-stamps (DS; Fig. 11) and pendant (PN; Fig. 12) types were found in the Anatolian stratigraphic context, while only 11 were found in the Levantine one: this lack of data may suggest that these seal types were created in Northern Levant. Moreover, it should be emphasized that the stratified objects are very few, and for some types are none (e.g., TA). For these types it could be argued that they are:

- special or experimental morphologies rarely produced, by specific requests or for specific activities;
- site-specific morphologies: for example, the only two Frame Seals identified were found in Zincirli (SOa2; Fig. 10.5, 6);
- specimens imported from other geographical areas: for example, the out of context monomaterial variant of the Double-frame Seals (SOa1) is made only in calcedonium or in stones that can imitate the precious one. This could be attested by the fact that a black limestone specimen can imitate diorite (Fig. 10.4): this is an out of context piece attributed on a stylistic basis to the Assyrian cultural sphere of the 7th century BC.

The most uncertain group is represented by the TA type, since none of them was found in context and two outsiders were bought in Egypt (Fig. 9.3, 4).

About the Fist Seals type (PG), we can observe that its finding in the North-Levantine sites and its morphological characteristics suggest a similar production method to PMB1; moreover, the complete absence in Anatolia suggest a North-Levantine origin as in the case of PMB2 and PMB3.

The materials used in the handled stamp seals production can give some additional information regarding the chronological and geographical location of the specimens. Some materials used in Anatolia are completely absent, abandoned or never used in Levant. The exclusive use of lithic materials in the second area may be due to:

- their greater availability on the Levantine land;
- a better knowledge of their processing by the craftsmen;
- a specific request based on their better durability.

However, it should be considered that organic and plastic materials are certainly worse preserved than stones, and that metals have always been subject of remelting. Therefore, metals could occur more frequently in Anatolia due to their massive presence in the area and a developed knowledge of metallurgical processing. These observations allow us to hypothesize that:

- the discovery of stone seals can be ascribed to both geographical areas and each chronological range taken into consideration;
- the presence of other materials is attributable to the Anatolian area and, based on the context data, to an older chronological range.

In conclusion, the analyzed data prove that the only handled stamp seal type that passed in the Northern Levant from Anatolia during Iron Age I is the PMB1 variant: afterwards, the Levantine craftsmen added the PMB2 and PMB3 variants in the Iron Age II.

The passage of the Anatolian PMB1 type in the Levant around the 12th century BC could correspond to the displacement of the Hittite ruling class from the imperial capital Hattuša, perhaps intending to arrive in the centre

of royal power in Syria, Karkemiš (de Martino 2016: 109-115). This is supported by the discovery of morphologies comparable with Anatolia and not with other geographical areas or belonging to other cultural spheres. Therefore, these glyptic stamp forms, with the cylindrical seal commonly used in Levant, may have accompanied the performance of some administrative practices as a traditional Hittite cultural element (Herbordt 2005: 25-39).

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INV. N.	MUS. N.	MAT.	SIZE	CONS.	CODE	SITE	CONT. DATE	BIBLIOGRAPHY	PICTURE
2.1	b 898	Metal, copper		Complete	ST 1; STa	Alışar Höyük (Turkey), Layer I	3500 - 2500 BC	SCHMIDT, 1932, pp. 55 - 56, fig. 64, b 898.	
2.2	b 295	Metal, copper		Complete	ST 2; STa	Alışar Höyük (Turkey), Layer I	3500 - 2500 BC	SCHMIDT, 1932, pp. 55 - 56, fig. 64, b 295.	
2.3	b 294	Metal, copper		Frag. < 50%	ST 3; STa	Alışar Höyük (Turkey), Layer I	3500 - 2500 BC	SCHMIDT, 1932, pp. 55 - 56, fig. 64, b 294.	
2.4	AG 22-82	Terracotta	(30+x) x 30 x 30	Frag. = 50%	ST 6; STa	Küllüoba Höyük (Turkey), trench AG 22	2800 - 2500 BC	TÜRKTEKI, 2020, p. 25, fig. 2.i.	
2.5	e 456	Stone, serpentine or diorite		Complete	ST 7; STa	Alışar Höyük (Turkey), Citadel, Level 8	pre-XXIV cent. BC	VON DER OSTEN, 1937, p. 184, fig. 186, e 456.	
2.6	b 2366	Terracotta		Frag. < 50%	ST 8; STa	Alışar Höyük (Turkey), HH 9, Layer II, Level 2, Building complex I	2500 - 1900 BC	SCHMIDT, 1932, p. 147, fig. 184, b 2366.	
2.7	501/o	Stone, green stone	23 x 24 x 24	Frag. < 50%	ST 9; STa	Boğazköy (Turkey), Unterstadt J/21, g/10d, Level 4c	XIX - XVIII cent. BC	BERAN, 1967, p. 18, pl. 1, n. 4.	
2.8	102/s	Metal, bronze	19 x 17 x 17	Complete	ST 10; STa	Boğazköy (Turkey), Unterstadt 4 L/18	XIX - XVIII cent. BC	BOEHMER, GÜTERBOCK, 1987, p. 17, pl. I, n. 2.	
2.9	Kt. i/k 46	Organic, ivory	24 x 30 x 30	Complete	ST 11; STa	Kültepe (Turkey), p/14, Level Ib	XIX - XVIII cent. BC	ÖZGÜÇ, 1968, p. 70, pl. XXX, n. 1a-b; ÖZGÜÇ, 1959, pp. 47 - 48, pl. III, a-b.	
2.10	d 2372	Metal, bronze or copper		Complete	ST 14; STa	Alışar Höyük (Turkey), S 28, Levels 9-10 T	XVI - X cent. BC	VON DER OSTEN, 1937, p. 422, fig. 478, d 2372.	
2.11	c 1824	Metal, bronze or copper		Complete	ST 15; STa	Alışar Höyük (Turkey), R 29, Levels 8-9 T	XII - VII cent. BC	VON DER OSTEN, 1937, p. 421, fig. 478, c 1824.	
2.12	Al. c. 3	Stone, black stone	20 x 15 x 15	Complete	ST 20; STa	Alaça Höyük (Turkey)		KOSAY, 1951, pp. 191 - 192, pl. LXXX, fig. 1.	
2.13	1890.94	Stone, steatite	27 x 23 x 14	Complete	ST 23; STa			BUCHANAN, MOOREY, 1988, p. 30, pl. VII, n. 204; HOGARTH, 1920, n. 268 - 269.	
2.14	AM 450	Metal, copper	35 x 16 x 16	Complete	ST 25; STa			DELAPORTE, 1923, p. 198, pl. 98, 12a-b A.964.	
2.15	Al. t. 4	Terracotta	28 x 32 x 32	Frag. < 50%	ST 4; STb	Alaça Höyük (Turkey), Levels V-VI	Early Bronze Age	KOSAY, AKOK, 1973, p. 109, pl. LXV, LXXXII, Al. t. 4.	
2.16	Al 23-52	Terracotta	31 x 28 x 28	Complete	ST 5; STb	Küllüoba Höyük (Turkey), trench Al 23	3000 BC	TÜRKTEKI, 2020, p. 25, fig. 2.b.	

Fig. 2: Stalk Seals (ST) examples.

2.17	Kt. s/k 1	Organic, ivory	32 x 28 x 28	Complete	ST 12; STb	Kültepe (Turkey), bb/21-22, Level Ib	XIX - XVIII cent. BC	ÖZGÜÇ, 1968, p. 71, pl. XXXI, n. 1a/c.		
2.18	x-2208	Stone, serpentine	26 x 23 x 22	Complete	ST 13; STb	Tell Judaidah (Turkey), k-6, Layer 3	L	MEYER, 2008, pp. 486 - 487, n. 187.		
2.19	t-3107	Stone, green steatite	25 x 20 x 17	Complete	ST 16; STb	Tell Tayinat (Turkey), XIV, sub-Layer 3	Oa	MEYER, 2008, pp. 484 - 485, n. 181.		
2.20	b-1092	Stone, serpentine	28 x 25 x 22	Complete	ST 17; STb	Çatal Höyük (Turkey), k-6, Layer 1	O_Late	MEYER, 2008, pp. 484 - 485, n. 183.		
2.21	z-545	Stone, serpentine	33 x 24 x 24	Complete	ST 18; STb	Tell Judaidah (Turkey), f-7, Layer 1	Oc-S	MEYER, 2008, pp. 390 - 391, n. 25.		
2.22	z-780	Stone, steatite	22 x 23 x 23	Complete	ST 19; STb	Tell Judaidah (Turkey), f-7	Oc-Q	MEYER, 2008, pp. 480 - 481, n. 176.		
2.23	2134	Organic, bone	17 x 14 x 8	Complete	ST 21; STb	Alişar Höyük (Turkey), Plot XI		VON DER OSTEN, SCHMIDT, 1932, p. 47, fig. 42, n. 2134.		
2.24	329	Stone, black steatite	19 x 21 x 19	Complete	ST 22; STb	Ras Shamra (Syria), RS, 30.X.68, 30.289		NUNN, 2000, pp. 128 - 129, pl. 1.		
2.25	Schmidt 177	Stone	31 x 31 x 27	Complete	ST 24; STb			KEEL-LEU, 1991, p. 147, n. 181.		

Fig. 2: (continued).




INV. N.	MUS. N.	MAT.	SIZE	CONS.	CODE	SITE	CONT. DATE	BIBLIOGRAPHY	PICTURE
3.1	b 2439	Stone, limestone		Frag. < 50%	PMa 1	Alişar Höyük (Turkey), GG 9, Layer II, Level 1	2500 - 1900 BC	SCHMIDT, 1932, p. 144, fig. 180, b 2439.	
3.2	b 1478	Stone, brown limestone		Frag. = 50%	PMa 2	Alişar Höyük (Turkey), FF 11, Layer II	2500 - 1900 BC	SCHMIDT, 1932, pp. 144 - 145, fig. 182, b 1478.	
3.3	b 2423	Metal, bronze or copper		Frag. < 50%	PMa 3	Alişar Höyük (Turkey), GG 9, Layer II, Levels 1 - 2	2500 - 1900 BC	SCHMIDT, 1932, p. 149, fig. 187, b 2423.	
3.4	b 1484	Terracotta		Frag. < 50%	PMa 4	Alişar Höyük (Turkey), FF 11, Layer II	2500 - 1900 BC	SCHMIDT, 1932, p. 146, fig. 183, b 1484.	
3.5	b 2754	Terracotta		Frag. < 50%	PMa 5	Alişar Höyük (Turkey), J 33, Layer II, Levels 1 - 2	2500 - 1900 BC	SCHMIDT, 1932, p. 147, fig. 184, b 2754.	
3.6	219/o	Stone, green serpentine	28 x 21 x 21	Complete	PMa 6	Boğazköy (Turkey), Unterstadt J/20, k/1a West, Level 4a	XIX - XVIII cent. BC	BERAN, 1967, p. 21, pl. 4, n. 40.	
3.7	Kt. k/176	Stone, green stone	27 x 20 x 20	Frag. < 50%	PMa 7	Kültepe (Turkey), Level Ib	XIX - XVIII cent. BC	ÖZGÜÇ, 1968, p. 71, pl. XXXIII, n. 1a-b.	
3.8	181/m	Stone, black serpentine	22 x 14 x 14	Complete	PMa 8	Boğazköy (Turkey), Büyükkale y-z/12, Building G, Levels IVc-d	XIX - XV cent. BC	BERAN, 1967, p. 19, pl. 2, n. 12.	
3.9	270/o	Stone, serpentine	27 x 21 x 21	Complete	PMa 9	Boğazköy (Turkey), Unterstadt J/20, k/1a East, Level 4b	XIX - XVIII cent. BC	BERAN, 1967, p. 21, pl. 4, n. 35.	
3.10	259/p	Stone, black serpentine	18 x 14 x 14	Complete	PMa 10	Boğazköy (Turkey), Unterstadt J/20, h/7b, Level 4	XIX - XVIII cent. BC	BERAN, 1967, p. 21, pl. 4, n. 36.	
3.11	491/o	Stone, grey marl	32 x 29 x 29	Frag. < 50%	PMa 11	Boğazköy (Turkey), Unterstadt J/20, Level 4, Trench C	XIX - XVIII cent. BC	BERAN, 1967, p. 24, pl. 7, n. 69.	
3.12	75/169	Stone, green steatite	26 x 19 x 19	Complete	PMa 12	Boğazköy (Turkey), Unterstadt 4 I/20, House 15, VII/75-East	XIX - XVIII cent. BC	BOEHMER, GÜTERBOCK, 1987, p. 26, pl. V, n. 50.	
3.13	71/272	Stone, blue marble	27 x 21 x 21	Complete	PMa 13	Boğazköy (Turkey), Unterstadt 4 J/19, House 10	XIX - XVIII cent. BC	BOEHMER, GÜTERBOCK, 1987, p. 26, pl. VI, n. 58.	
3.14	75/398	Terracotta	29 x 21 x 20	Complete	PMa 14	Boğazköy (Turkey), Unterstadt 3 I/20	XVII - XV cent. BC	BOEHMER, GÜTERBOCK, 1987, p. 42, pl. IX, n. 103.	
3.15	70/20	Stone	18 x (x) x (x)	Frag. < 50%	PMa 15	Boğazköy (Turkey), Stadplanquadrat J/19, Bauschicht	XIX - XVIII cent. BC	NEVE, 1975, p. 28, fig. 15b.	
3.16	Kt. g/k 129	Metal, gold	13 x 10 x 10	Complete	PMa 16	Kültepe (Turkey), v/23, tomb, Level Ib	XIX - XVIII cent. BC	ÖZGÜÇ, 1986, p. 34, pl. 71, n. 5a-b; ÖZGÜÇ, 1968, p. 70, pl. XXX, n. 2a-b.	

Fig. 3: Domed Knob Seals (PMa) examples.

















3.17	Kt. n/k 161	Terracotta	26 x 19 x 19	Complete	PMa 17	Kültepe (Turkey), aa/20, Level Ib	XIX - XVIII cent. BC	ÖZGÜÇ, 1968, p. 72, pl. XXXVI, n. 4a-b.	
3.18	Kt. i/k 289	Metal, bronze	(17+x) x 17 x 17	Frag. < 50%	PMa 18	Kültepe (Turkey), N/23, Level Ib	XIX - XVIII cent. BC	ÖZGÜÇ, 1968, p. 73, pl. XXXIX, n. 1a-b.	
3.19	Kt. p/k 173	Metal, bronze	33 x 22 x 22	Complete	PMa 19	Kültepe (Turkey), bb/24, Level Ib	XIX - XVIII cent. BC	ÖZGÜÇ, 1968, p. 74, pl. XXXIX, n. 4a-b.	
3.20	e 2310	Stone, limestone		Frag. = 50%	PMa 20	Alişar Höyük (Turkey), Level 10 T	XX - XII cent. BC	VON DER OSTEN, 1937, p. 226, fig. 249, e 2310.	
3.21	303/p	Stone, brown flint	39 x 27 x 27	Complete	PMa 21	Boğazköy (Turkey), Unterstadt K/20, a/6c, Level 2	XV - XIV cent. BC	BERAN, 1967, p. 20, pl. 3, n. 29.	
3.22	Al. t. 120	Stone	22 x 20 x 20	Complete	PMa 22	Alaça Höyük (Turkey), Level IIIb	middle-hittite	KOSAY, AKOK, 1973, p. 83, pl. XLIII, LXXXII, Al. t. 120.	
3.23	13546	Stone	39 x 30 x 30	Complete	PMa 23	Beycesultan (Turkey), Trench A, Level II	XIII - early XII cent. BC	MELLAART, MURRAY, 1995, p. 146, fig. O.33, n. 292.	
3.24	c 162	Metal, bronze or copper		Complete	PMa 24	Alişar Höyük (Turkey), J 29, Level 8 T	XII - VII cent. BC	VON DER OSTEN, 1937, p. 421, fig. 478, c 162.	
3.25	c 1677	Stone, diorite		Complete	PMa 25	Alişar Höyük (Turkey), CC 24, Level 8-9 T	XII - VII cent. BC	VON DER OSTEN, 1937, p. 421, fig. 478, c 1677.	
3.26	t-1028	Stone, steatite	15 x 15 x 15	Complete	PMa 26	Tell Tayinat (Turkey), I, Layer 3	Oc	MEYER, 2008, pp. 486 - 487, n. 188.	
3.27	z-759	Stone, serpentine	15 x 17 x 17	Complete	PMa 27	Tell Judaidah (Turkey), e-7	Oc-Q	MEYER, 2008, pp. 488 - 489, n. 189.	
3.28	d 1822	Stone, steatite		Complete	PMa 28	Alişar Höyük (Turkey), O 33-34		VON DER OSTEN, 1937, p. 225, fig. 248, d 1822.	
3.29		Stone		Complete	PMa 29	Kuşaklı (Turkey), Acropolis		MÜLLER-KARPE, 2017, p. 50, fig. 44b.	
3.30		Metal, silver	22 x 18 x 18	Complete	PMa 30	Boğazköy (Turkey)		BERAN, 1967, p. 25, pl. 8, n. 81.	
3.31	38.1644	Metal, bronze	34 x 17 x 17	Complete	PMa 31	Tarsos (Turkey)		MORA, 1982, p. 214, fig. 3, n. 38; GOLDMAN, 1956, p. 237, pl. 392, n. 15.	
3.32	1872.826	Stone, black serpentine	20 x 11 x 11	Complete	PMa 32			BUCHANAN, MOOREY, 1988, p. 30, pl. VII, n. 206.	

Fig. 3: (continued).













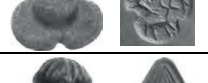




INV. N.	MUS. N.	MAT.	SIZE	CONS.	CODE	SITE	CONT. DATE	BIBLIOGRAPHY	PICTURE
4.1	b 853	Stone, serpentine		Complete	PMb1 1	Alişar Höyük (Turkey), Layer I	3500 - 2500 BC	SCHMIDT, 1932, pp. 55 - 56, fig. 64, b 853.	
4.2	AD 20-106	Terracotta	13 x 23 x 23	Complete	PMb1 2	Küllüoba Höyük (Turkey), Trench AD 20	2800 - 2500 BC	TÜRKTEKI, 2020, p. 25, fig. 2:e.	
4.3	75/481	Stone, black stone	33 x 22 x 22	Complete	PMb1 3	Boğazköy (Turkey), Unterstadt 4 I/20, XI/75, surface	XIX - XVIII cent. BC	BOEHMER, GÜTERBOCK, 1987, p. 30, pl. VIII, n. 80.	
4.4	73/483	Stone, steatite	14 x 19 x 18	Complete	PMb1 4	Boğazköy (Turkey), Unterstadt 4 J/20	XIX - XVIII cent. BC	BOEHMER, GÜTERBOCK, 1987, p. 17, pl. I, n. 1.	
4.5	Kt. n/k 165	Organic, ivory	19 x 22 x 22	Complete	PMb1 5	Kültepe (Turkey), Z/26, Level Ib	XIX - XVIII cent. BC	ÖZGÜÇ, 1968, p. 73, pl. XXXIX, n. 3a-b.	
4.6	Kt. j/k 98/96	Stone, steatite	11 x 19 x (x)	Complete	PMb1 6	Kültepe (Turkey), P/26, Level Ib	XIX - XVIII cent. BC	ÖZGÜÇ, 1968, p. 74, pl. XL, n. 2a b; ÖZGÜÇ, 1959, p. 48, pl. III, e.	
4.7	e 1126	Metal, bronze or copper		Complete	PMb1 7	Alişar Höyük (Turkey), O 12, Level 4a M	XII - VII cent. BC	VON DER OSTEN, 1937, p. 422, fig. 478, e 1126.	
4.8	e 2203	Stone, serpentine		Complete	PMb1 8	Alişar Höyük (Turkey), P 10, Level 4a M	XII - VII cent. BC	VON DER OSTEN, 1937, p. 423, fig. 478, e 2203.	
4.9	Ant (no reg.); b-2057	Stone	13 x 17 x 17	Complete	PMb1 9	Çatal Höyük (Turkey), II_09	03_N_Beg	PUCCI, 2019, p. 119, n. 861; MEYER, 2008, pp. 538 - 539, n. 302.	
4.10	OIM_A127 20; a-0285	Stone, grey steatite	15 x 18 x 18	Complete	PMb1 10	Çatal Höyük (Turkey)	O_Beg	PUCCI, 2019, p. 132, n. 953; MEYER, 2008, pp. 516 - 517, n. 252.	
4.11	Ant (no reg.); a-2444	Stone	16 x 22 x 22	Complete	PMb1 11	Çatal Höyük (Turkey), I_05	07_O_Mid	PUCCI, 2019, p. 120, n. 868; MEYER, 2008, pp. 532 - 533, n. 286.	
4.12	OIM_A126 96; a-2373	Stone, black serpentine	18 x 26 x 22	Complete	PMb1 12	Çatal Höyük (Turkey), I_05	07_O_Mid	PUCCI, 2019, p. 120, n. 867; MEYER, 2008, pp. 484 - 485, n. 182.	
4.13	OIM_A269 76; e-0045	Stone, black stone	19 x 27 x 27	Complete	PMb1 13	Çatal Höyük (Turkey), IVa_03a	06_O_Beg	PUCCI, 2019, p. 119, n. 865; MEYER, 2008, pp. 524 - 525, n. 272.	
4.14	x-1999	Stone, steatite	15 x 30 x 30	Complete	PMb1 14	Tell Judaidah (Turkey), f-7, Layer 4	Oa	MEYER, 2008, pp. 498 - 499, n. 210.	
4.15	t-2755	Stone, steatite	21 x 38 x 34	Complete	PMb1 15	Tell Tayinat (Turkey), XIII	Oa	MEYER, 2008, pp. 526 - 527, n. 274.	
4.16	OIM_A127 25; a-0461	Stone, green stone	18 x 22 x 19	Complete	PMb1 16	Çatal Höyük (Turkey), I_02	08_O_Late	PUCCI, 2019, p. 123, n. 890; MEYER, 2008, pp. 524 - 525, n. 270.	
4.17	x-1509	Stone, serpentine	21 x 30 x 26	Complete	PMb1 17	Tell Judaidah (Turkey), g-12, Layer 5	Ob/c	MEYER, 2008, pp. 526 - 527, n. 275.	
4.18	t-2321	Stone, steatite	26 x 42 x 36	Complete	PMb1 18	Tell Tayinat (Turkey), VII, 1, surface	Oc	MEYER, 2008, pp. 526 - 527, n. 273.	

Fig. 4: Modelled Domed Knob Seals (PMb1) examples.


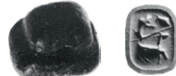














4.19	t-2435	Stone, green steatite	17 x 22 x 22	Complete	PMb1 19	Tell Tayinat (Turkey), XV, Layer 2	Oc	MEYER, 2008, pp. 550 - 551, n. 325.	
4.20	1938.282	Stone, steatite	20 x 14 x 14	Complete	PMb1 20	Al Mina (Turkey), Level 4	VI - V cent. BC	BUCHANAN, MOOREY, 1988, p. 2, pl. I, n. 6; WOOLLEY, 1938, p. 160, pl. XV, MNN 144.	
4.21	OIM_A127 12; a-0066	Stone, orange stone	18 x 21 x 21	Complete	PMb1 21	Çatal Höyük (Turkey), I_00	09_P-S	PUCCI, 2019, p. 124, n. 899; MEYER, 2008, pp. 382 - 383, n. 11.	
4.22	Ant_4802; c-0130	Stone, grey steatite	21 x 29 x 29	Complete	PMb1 22	Çatal Höyük (Turkey), I_01	10_T	PUCCI, 2019, p. 125, n. 900; MEYER, 2008, pp. 528 - 529, n. 278.	
4.23	z-332	Stone, steatite	20 x 33 x 33	Complete	PMb1 23	Tell Judaidah (Turkey), f-7	S	MEYER, 2008, pp. 520 - 521, n. 260.	
4.24	o.Nr.	Stone, black serpentine	19 x 20 x 18	Complete	PMb1 24	Boğazköy (Turkey)		BERAN, 1967, p. 18, pl. 1, n. 2.	
4.25	117	Stone, brown jasper	(17+x) x 15 x 14	Frag. < 50%	PMb1 25	Alişar Höyük (Turkey)		VON DER OSTEN, 1936, p. 17, pl. X, n. 117.	
4.26	OIM_A174 66; b-1788	Stone, grey stone	19 x 23 x 23	Complete	PMb1 26	Çatal Höyük (Turkey)		PUCCI, 2019, p. 132, n. 950; MEYER, 2008, pp. 518 - 519, n. 257.	
4.27	1913.752	Stone, steatite	26 x 17 x 17	Complete	PMb1 27	Deve Höyük (Turkey)		BUCHANAN, MOOREY, 1988, p. 11, pl. III, n. 79; MOOREY, 1980, pp. 113 - 114, fig. 19, n. 480; pl. II, n. 480; WOOLLEY, 1914-16, pl. 29, A. 15.	
4.28	S 26	Stone, serpentine		Complete	PMb1 28	Zincirli (Turkey)		ANDRAE, LUSCHAN, 1943, p. 157, pl. 37, b.	
4.29	S 2883 - VAN 9684	Stone, steatite	21 x 23 x 16	Complete	PMb1 29	Zincirli (Turkey)		JAKOB-ROST, 1975, p. 37, pl. 8, n. 152; ANDRAE, LUSCHAN, 1943, p. 157, pl. 37, f.	
4.30	1890.93	Stone, steatite	27 x 21 x 17	Complete	PMb1 30			BUCHANAN, MOOREY, 1988, p. 33, pl. VIII, n. 242; HOGARTH, 1920, n. 142.	
4.31	1920.67	Stone, steatite	45 x 35 x 26	Complete	PMb1 31			BUCHANAN, MOOREY, 1988, p. 32, pl. VIII, n. 230.	
4.32	1952.49	Stone, black steatite	15 x 22 x 21	Complete	PMb1 32			BUCHANAN, MOOREY, 1988, p. 31, pl. VII, n. 218.	
4.33	AM 452	Stone, grey steatite	16 x 19 x 15	Complete	PMb1 33			DELAPORTE, 1923, p. 200, pl. 99, 13a-b A.996.	
4.34	26.31.219	Stone, steatite	18 x 21 x 21	Complete	PMb1 34			https://www.metmuseum.org/art/collecton/search/322546	

Fig. 4: (continued).

INV. N.	MUS. N.	MAT.	SIZE	CONS.	CODE	SITE	CONT. DATE	BIBLIOGRAPHY	PICTURE
5.1	Ant (no reg.); a-2251	Stone, steatite	15 x 25 x 25	Complete	PMb2 1	Çatal Höyük (Turkey), II_08	04_N_Mid	PUCCI, 2019, p. 119, n. 862; MEYER, 2008, pp. 498 - 499, n. 212.	
5.2	Ant (no reg.); a-1817	Stone	22 x 23 x 23	Complete	PMb2 2	Çatal Höyük (Turkey), I_04	07_O_Mid	PUCCI, 2019, p. 122, n. 883; MEYER, 2008, pp. 536 - 537, n. 297.	
5.3	Ant (no reg.); a-1047	Stone	16 x 20 x 17	Complete	PMb2 3	Çatal Höyük (Turkey), II_06	06_O_Beg	PUCCI, 2019, p. 119, n. 864; MEYER, 2008, pp. 536 - 537, n. 296.	
5.4	Ant (no reg.); c-0051	Stone	15 x 19 x 19	Frag. < 50%	PMb2 4	Çatal Höyük (Turkey), IVa_03b	06_O_Beg	PUCCI, 2019, p. 119, n. 863; MEYER, 2008, pp. 538 - 539, n. 303.	
5.5	x-801	Stone, steatite	21 x 28 x 28	Complete	PMb2 5	Tell Judaidah (Turkey), f-8, Layer 4	Oa	MEYER, 2008, pp. 540 - 541, n. 306.	
5.6	t-2856	Stone, serpentine	12 x 13 x 13	Complete	PMb2 6	Tell Tayinat (Turkey), XIII	Oa	MEYER, 2008, pp. 540 - 541, n. 305.	
5.7	t-3197	Stone, green steatite	14 x 15 x 14	Complete	PMb2 7	Tell Tayinat (Turkey), T-11, 1, surface	Oa	MEYER, 2008, pp. 512 - 513, n. 246.	
5.8	OIM_A127 01; a-1247	Stone, black stone	21 x 23 x 23	Complete	PMb2 8	Çatal Höyük (Turkey), I_03	08_O_Late	PUCCI, 2019, p. 123, n. 887; MEYER, 2008, pp. 540 - 541, n. 308.	
5.9	x-1802	Stone, serpentine	11 x 16 x 16	Complete	PMb2 9	Tell Judaidah (Turkey), f-15	Oc	MEYER, 2008, pp. 532 - 533, n. 289.	
5.10	t-568	Stone, steatite	13 x 26 x 26	Frag. < 50%	PMb2 10	Tell Tayinat (Turkey), I	Oc	MEYER, 2008, pp. 532 - 533, n. 287.	
5.11	OIM_A127 40; c-0129	Stone, black steatite	19 x 24 x 21	Complete	PMb2 11	Çatal Höyük (Turkey), I_01	10_T	PUCCI, 2019, p. 125, n. 901; MEYER, 2008, pp. 538 - 539, n. 299.	
5.12	d 2242	Stone, tuff		Complete	PMb2 12	Alişar Höyük (Turkey), R 28		VON DER OSTEN, 1937, p. 225, fig. 249, d 2242.	

Fig. 5: Modelled Pyramidal Knob Seals (PMb2) examples.

INV. N.	MUS. N.	MAT.	SIZE	CONS.	CODE	SITE	CONT. DATE	BIBLIOGRAPHY	PICTURE
6.1	x-325	Stone, steatite	12 x 20 x 17	Complete	PMb3 1	Tell Judaidah (Turkey), d-8, Layer 1	N	MEYER, 2008, pp. 548 - 549, n. 320.	
6.2	Ant (no reg.); b-1074	Stone	12 x 24 x 19	Fram. < 50%	PMb3 2	Çatal Höyük (Turkey), II_04	07_O_Mid	PUCCI, 2019, p. 120, n. 871; MEYER, 2008, pp. 502 - 503, n. 218.	
6.3	Ant (no reg.); a-1045	Stone	15 x 22 x 22	Fram. < 50%	PMb3 3	Çatal Höyük (Turkey), II_06	06_O_Beg	PUCCI, 2019, p. 119, n. 866; MEYER, 2008, pp. 542 - 543, n. 309.	
6.4	x-1140	Stone, steatite	6 x 12 x 12	Fram. < 50%	PMb3 4	Tell Judaidah (Turkey), f-8, Layer 4	Oa	MEYER, 2008, pp. 500 - 501, n. 216.	
6.5	t-2800	Stone, green steatite	13 x 15 x 14	Complete	PMb3 5	Tell Tayinat (Turkey), XV	Oa	MEYER, 2008, pp. 538 - 539, n. 301.	
6.6	Ant (no reg.); c-0260	Stone, grey steatite	15 x 20 x 20	Complete	PMb3 6	Çatal Höyük (Turkey), I_03	08_O_Late	PUCCI, 2019, p. 123, n. 892; MEYER, 2008, pp. 522 - 523, n. 264.	
6.7	OIM_A127 07; a-1397	Stone, green serpentine	24 x 43 x 43	Fram. < 50%	PMb3 7	Çatal Höyük (Turkey), I_03	08_O_Late	PUCCI, 2019, p. 122, n. 885; MEYER, 2008, pp. 532 - 533, n. 288.	
6.8	327	Stone, limestone	40 x 30 x 15	Complete	PMb3 8	Khan Shaykhun (Syria), Level 4D	V - IV cent. BC	NUNN, 2000, pp. 128 - 129; MESNIL DU BUISSON, 1932, p. 184, n. 7.	
6.9	330	Stone	11 x 20 x 19	Fram. < 50%	PMb3 9	Ayn Issa (Syria)		NUNN, 2000, pp. 128 - 129, pl. 1.	
6.10	OIM_A174 51; b-1431	Stone, green serpentine	21 x 20 x 19	Complete	PMb3 10	Çatal Höyük (Turkey)		PUCCI, 2019, p. 128, n. 921; MEYER, 2008, pp. 536 - 537, n. 298.	
6.11	328	Stone, limestone	20 x 32 x 24	Fram. < 50%	PMb3 11	Tell Ahmar (Syria)		NUNN, 2000, pp. 128 - 129.	
6.12	1911.272	Stone, grey serpentine	19.5 x 19 x 11	Fram. < 50%	PMb3 12			BUCHANAN, MOOREY, 1988, p. 33, pl. VIII, n. 240; HOGARTH, 1920, n. 211.	

Fig. 6: Modelled Squared Knob Seals (Pmb3) examples.

INV. N.	MUS. N.	MAT.	SIZE	CONS.	CODE	SITE	CONT. DATE	BIBLIOGRAPHY	PICTURE
7.1	Al. t. 124	Metal, bronze	30 X 24 X 24	Complete	MR 1	Alaç Höyük (Turkey), Level IIIa	middle-hittite (XX - XV cent. BC)	KOSAY, AKOK, 1973, p. 83, pl. XLIII, LXXXII, Al. t. 124.	
7.2	78/4	Metal, bronze	30 x 23 x 23	Complete	MR 2	Boğazköy (Turkey), Unterstadt 3 J/21, Stadt-Tor	XVII - XV cent. BC	BOEHMER, GÜTERBOCK, 1987, p. 50, pl. XIV, n. 136.	
7.3	256/p	Terracotta	21 x 20 x 20	Complete	MR 3	Boğazköy (Turkey), Unterstadt J/20, i/7c-d Est, Level 3	XVII - XV cent. BC	BERAN, 1967, p. 19, pl. 1, n. 11.	
7.4	77/443	Terracotta	32 x 26 x 19	Complete	MR 4	Boğazköy (Turkey), Unterstadt 4 K/20, House 11	XIX - XVIII cent. BC	BOEHMER, GÜTERBOCK, 1987, p. 21, pl. II, n. 22.	
7.5	76/291	Terracotta	34 x 28 x 28	Frag. < 50%	MR 5	Boğazköy (Turkey), Unterstadt 4 J/20, I/1	XIX - XVIII cent. BC	BOEHMER, GÜTERBOCK, 1987, p. 26, pl. V, n. 56.	
7.6	62/124	Metal, bronze	22 x 25 x 25	Complete	MR 6	Boğazköy (Turkey), Unterstadt 3, surface	XVII - XV cent. BC	BOEHMER, GÜTERBOCK, 1987, p. 51, pl. XIV, n. 142.	
7.7	376/o	Stone, limestone	(21+x) x 23 x 23	Frag. = 50%	MR 7	Boğazköy (Turkey), Unterstadt J/20, Level 2, Trench C	XV - XIV cent. BC	BERAN, 1967, p. 22, pl. 6, n. 53.	
7.8	133/o	Stone, brown flint	11 x 21 x 14	Complete	MR 8	Boğazköy (Turkey), Unterstadt J/20, i/1b, Level 1b	XIV - XIII cent. BC	BERAN, 1967, p. 20, pl. 3, n. 28.	
7.9	13545	Organic, ivory	38 x 28 x 28	Complete	MR 9	Beycesultan (Turkey), Trench M, Level 1b	XII - XI cent. BC	MELLAART, MURRAY, 1995, p. 150, fig. O.41, n. 343.	
7.10	Al. c. 379	Metal, bronze or copper	(x) x 21 x 19	Complete	MR 10	Alaç Höyük (Turkey)		KOSAY, 1951, p. 195, pl. LXXIX, fig. 2.	
7.11	114	Metal, bronze	24 x 28 x 28	Complete	MR 11	Alişar Höyük (Turkey)		VON DER OSTEN, 1936, p. 17, pl. X, n. 114.	
7.12	1896 - 1908.0.5	Stone, white limestone	19 x 19 x 18	Complete	MR 12			BUCHANAN, MOOREY, 1988, p. 35, pl. IX, n. 250; HOGARTH, 1920, n. 254.	
7.13	AM 422	Stone, hematite	38 x 24 x 22	Complete	MR 13			DELAPORTE, 1923, p. 201, pl. 101, 3a-b-c-d-e-f A.1028.	
7.14	AO 3758	Metal, silver	25 x 18 x 18	Complete	MR 14			DELAPORTE, 1923, p. 202, pl. 101, 6a-b A.1034.	

Fig. 7: Hammer Seals (MR) examples.





INV. N.	MUS. N.	MAT.	SIZE	CONS.	CODE	SITE	CONT. DATE	BIBLIOGRAPHY	PICTURE
8.1	1954.229	Stone, limestone	(9+x) x 20 x 20	Frag. < 50%	PG 1	A1 Mina (Turkey), Level 8-7	early VII sec. a.C. (O_Mid)	BUCHANAN, MOOREY, 1988, p. 2, pl. I, n. 7; WOOLLEY, 1938, p. 161, pl. XV, MN 451.	
8.2	Ant_4829; a-0251	Stone, green stone	30 x 25 x 25	Complete	PG 2	Çatal Höyük (Turkey), II_04	07_O_Mid	PUCCI, 2019, p. 121, n. 880; MEYER, 2008, pp. 550 - 551, n. 326.	
8.3	t-2866	Terracotta	20 x 21 x 21	Frag. < 50%	PG 3	Tell Tayinat (Turkey), XIII, Layer 2	Oa	MEYER, 2008, pp. 548 - 549, n. 322.	
8.4	OIM_A12704; a-1318	Stone, green stone	14 x 13 x 8	Complete	PG 4	Çatal Höyük (Turkey), I_03	08_O_Late	PUCCI, 2019, p. 122, n. 884; MEYER, 2008, pp. 548 - 549, n. 323.	
8.5	Ant (no reg.); b-1048	Stone, green stone	15 x 20 x 20	Frag. < 50%	PG 5	Çatal Höyük (Turkey)		PUCCI, 2019, p. 130, n. 939; MEYER, 2008, pp. 516 - 518, n. 255.	
8.6	WA 108683	Terracotta	20 x 18 x 18	Complete	PG 6	Deve Höyük (Turkey)		MOOREY, 1980, pp. 113 - 117, fig. 19, n. 499.	
8.7	S 1334-857-VAN 8655	Stone, limestone	20 x 20 x 17	Complete	PG 7	Zincirli (Turkey)		JAKOB-ROST, 1975, p. 28, pl. 6, n. 90; ANDRAE, LUSCHAN, 1943, p. 158, pl. 37, c.	
8.8	Al. d. 190	Terracotta	30 x (x) x (x)	Complete	PG 8	Alaça Höyük (Turkey)		KOSAY, 1951, p. 195, pl. LXXX, fig. 2a-b.	
8.9	1984.175.17	Stone, black chlorite	20 x 23 x 28	Complete	PG 9			https://www.metmuseum.org/art/collecton/search/326916	
8.10	VA 2499 - VAN 3816; 3817; 8726	Stone, yellow marble	24 x 20 x 17.5	Complete	PG 10			JAKOB-ROST, 1975, p. 49, pl. 10, n. 207.	
8.11	1889.967	Stone, steatite	14 x 21 x 20	Complete	PG 11			BUCHANAN, MOOREY, 1988, p. 31, pl. VII, n. 216; HOGARTH, 1920, n. 209.	
8.12	VA 759 - VAN 9650	Stone, steatite	21 x 20 x 20	Complete	PG 12			JAKOB-ROST, 1975, p. 26, pl. 6, n. 81.	
8.13	N 2288	Metal, silver	23 x 21 x 21	Complete	PG 13			LAMBERT, 1979, pp. 32 - 33, pl. XII, n. 107.	
8.14	1952.154	Organic, ivory or bone	25 x 18 x 16	Complete	PG 14			BUCHANAN, MOOREY, 1988, p. 37, pl. IX, n. 264.	

Fig. 8: Human Fist Seals (PG) examples.


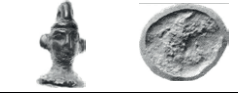


INV. N.	MUS. N.	MAT.	SIZE	CONS.	CODE	SITE	CONT. DATE	BIBLIOGRAPHY	PICTURE
9.1	WA 108697	Metal, bronze	22 x 14 x 14	Complete	TA 1	Deve Höyük (Turkey)		MOOREY, 1980, pp. 113 - 114, fig. 19, n. 481; WOOLLEY, 1914-16, p. 118, pl. 29, A. 3.	
9.2	1966.1142	Metal, bronze	26 x 15 x 13	Complete	TA 2			BUCHANAN, MOOREY, 1988, p. 37, pl. IX, n. 268.	
9.3	1921.1196	Metal, bronze	23 x 15 x 15	Frag. < 50%	TA 3			BUCHANAN, MOOREY, 1988, p. 37, pl. IX, n. 270.	
9.4	1922.6	Metal, bronze	23 x 16 x 16	Complete	TA 4			BUCHANAN, MOOREY, 1988, p. 37, pl. IX, n. 269.	

Fig. 9: Anthropomorphic Head Seals (TA) examples.

INV. N.	MUS. N.	MAT.	SIZE	CONS.	CODE	SITE	CONT. DATE	BIBLIOGRAPHY	PICTURE
10.1	t-784	Organic, bone	25 x 23 x 10	Frag. < 50%	SO 1; SOa1	Tell Tayinat (Turkey), I, Strato 1	Oc	MEYER, 2008, pp. 552 - 553, n. 328.	
10.2	1891.340	Stone, blue chalcedony	18 x 15 x 10	Complete	SO 2; SOa1			BUCHANAN, MOOREY, 1988, p. 63, pl. XIV, n. 428.	
10.3	1911.247	Stone, white chalcedony	28 x 18 x 14	Complete	SO 3; SOa1			BUCHANAN, MOOREY, 1988, p. 63, pl. XIV, n. 429.	
10.4	99.22.17	Stone, black limestone	23 x 22 x 17	Complete	SO 4; SOa1			https://www.metmuseum.org/art/collect/search/322286	
10.5	S 3704	Polymaterial, gold, black stone		Complete	SO 4; SOa2	Zincirli (Turkey)		ANDRAE, LUSCHAN, 1943, p. 166, pl. 45, n.	
10.6	S 3942	Polymaterial, silver, black stone	20 x (x) x 12	Frag. < 50%	SO 5; SOa2	Zincirli (Turkey), North Palace		ANDRAE, LUSCHAN, 1943, p. 159, pl. 38, e.	
10.7	OIM_A57200; b-2523	Metal, bronze	29 x 22 x 22	Complete	SO 6; SOb	Çatal Höyük (Turkey), II_10	03_N_Beg	PUCCI, 2019, p. 242.	
10.8	85/302	Organic, ivory	26 x 22 x 22	Complete	SO 7; SOb	Boğazköy (Turkey), Oberstadt M/8-e/1, House 21		DINÇOL, DINÇOL, 2008, p. 62, pl. 30, n. 308a-c.	
10.9	VA 3455 - VAN 9716	Metal, silver plated copper	38 x 32 x 32	Complete	SO 8; SOb			JAKOB-ROST, 1975, p. 24, pl. 5, n. 78.	

Fig. 10: Frame Seals (SO) examples.



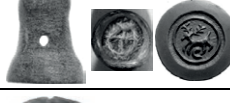







INV. N.	MUS. N.	MAT.	SIZE	CONS.	CODE	SITE	CONT. DATE	BIBLIOGRAPHY	PICTURE
11.1	AM 753	Stone, green serpentine	30 x 14 x 14	Complete	DS 1; DSa			DELAPORTE, 1920, p. 91, pl. 58, 23a-b-c C.20.	
11.2	AM 483	Stone, brown marble	24 x 11 x 11	Complete	DS 2; DSa			DELAPORTE, 1923, p. 200, pl. 99, 9a-b-c A.989.	
11.3	Ant (no reg.); a-2374	Stone, green stone	31 x 27 x 27	Complete	DS 3; DSb	Çatal Höyük (Turkey), I_03	08_O_Late	PUCCI, 2019, p. 123, n. 891; MEYER, 2008, pp. 482 - 483, n. 177.	
11.4	x-1315	Stone, tuff	25 x 25 x 22	Complete	DS 4; DSb	Tell Judaidah (Turkey), j-9, Layer 3	Ob/c	MEYER, 2008, pp. 528 - 529, n. 280.	
11.5	t-742	Stone, steatite	20 x 17 x 17	Complete	DS 5; DSb	Tell Tayinat (Turkey), T-1, 1, surface	Oc	MEYER, 2008, pp. 428 - 429, n. 89.	
11.6	332	Stone, jasper	25 x 22 x 20	Complete	DS 6; DSb	Khan Shaykhun (Syria)		NUNN, 2000, pp. 130 - 131, pl. 1; MESNIL DU BUISSON, 1932, p. 185, n. 8.	
11.7	333	Stone, serpentine	17 x 15 x 12	Complete	DS 7; DSb			NUNN, 2000, pp. 130 - 131.	
11.8	z-502	Stone, steatite	18 x 49 x 49	Complete	DS 8; DSb	Tell Judaidah (Turkey), j-15	Oc	MEYER, 2008, pp. 544 - 545, n. 313.	
11.9	1889.317	Stone, steatite	21.5 x 20 x 12	Complete	DS 9; DSb			BUCHANAN, MOOREY, 1988, p. 30, pl. VI, n. 200; HOGARTH, 1920, n. 71.	
11.10	1889.321	Stone, brown marble	31 x 20 x 16	Complete	DS 10; DSb			BUCHANAN, MOOREY, 1988, p. 30, pl. VI, n. 197; HOGARTH, 1920, n. 264.	

Fig. 11: Double-Stamps Seals (DS) examples.









INV. N.	MUS. N.	MAT.	SIZE	CONS.	CODE	SITE	CONT. DATE	BIBLIOGRAPHY	PICTURE
12.1	t-2059	Terracotta	23 x 22 x 22	Complete	PN 1	Tell Tayinat (Turkey), XXI, Layer 1	Ob	MEYER, 2008, pp. 552 - 553, n. 327.	
12.2	1913.659(1)	Glassy, green faience	19 x 17 x 17	Complete	PN 2	Deve Höyük (Turkey)		BUCHANAN, MOOREY, 1988, p. 11, pl. III, n. 73; MOOREY, 1980, p. 114, fig. 19, n. 474; pl. II, n. 474.	
12.3	302/n	Terracotta	31 x 27 x 27	Frag. < 50%	PN 3	Boğazköy (Turkey), Büyükkale s/17		BOEHMER, GÜTERBOCK, 1987, p. 89, pl. XXXIV, n. 268; BERAN, 1967, p. 23, pl. 6, n. 58.	
12.4	AOD 163	Stone, brown limestone	32 x 17 x 17	Complete	PN 4	Susa (Iran)		DELAPORTE, 1920, p. 78, pl. 54, 34a-b D.140.	
12.5	VA 507 - VAN 9664	Stone, hematite	20 x 17 x 16	Complete	PN 5			JAKOB-ROST, 1975, p. 26, pl. 6, n. 80.	
12.6	AO 7285	Stone, blue stone	18 x 14 x 11	Complete	PN 6			DELAPORTE, 1923, p. 200, pl. 99, 16a-b A.998.	
12.7		Stone, red jasper	27 x 16 x 15	Complete	PN 7			VON DER OSTEN, 1934, p. 57, pl. XXV, n. 374.	
12.8	AO 7201	Stone, serpentine	40 x 16 x 15	Complete	PN 8			DELAPORTE, 1923, p. 206, pl. 104, 19a-b A.1129.	

Fig. 12: Pendant Seals (PN) examples.