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The MM three-sided soft stone prism is an axially symmetrical seal with triangular cross section, three engraved faces, and stringhole channel which runs in line with its axis. Its seal faces, which can often be outlined by grooves, are flat, have the approximately same shape and size, bear different images, and meet each other at about 60°.

The vast majority of prisms are manufactured in soft stones. Among these, steatite is most commonly used whereas chlorite is employed for a much smaller number of examples. Only individual pieces are cut in other soft stones or minerals, e.g. sepiolite. A few examples are manufactured from soft artificial substances such as paste or faience whereas the use of bone, if at all represented, is very scarce. The occasional employment of medium-hard stones, i.e. breccia, pebble stone, and pseudo-jasper, is encountered mostly on pieces which combine elements of soft material and hard stone glyptic and are for that reason placed halfway between soft material and hard stone engraving.

Most of the prisms are cut with hand tools manipulated freehand against the seal such that irregular, deep or more seldom shallower intaglios are created. Occasionally, drills and files are applied to the fixed seal from above and are moved rapidly in a backwards and forwards manner, either in a plain or over a fixed point to create lines or 'cup sinkings' and centred-circles respectively. In these latter cases, the formed intaglios are regular and smooth. The particularly smooth intaglios of individual examples do not rule out the possibility of the use for their manufacture of tools operated on the horizontal spindle. Knives, saws/files, solid and perhaps also tubular drills, wheels (?), abrasives, and polishers are some of the tools which would have been used for the manufacture of the prisms.

The likelihood that the manufacture of Minoan prisms was inspired by foreign influences cannot be ruled out as individual finds of triangular prismatic seals are met in Egypt and the East during the 3rd and 2nd millennium. On the other hand, evidence from Crete itself could suggest that the adoption of the form was an independent Minoan development. This would have come about from the experimentation with the position of the stringhole channel and the engraved faces on triangular prismatic boar's tusk/bone seals, the imitation of axially perforated such seals in stone, and the desire or need to combine more than one seal face in one seal.

Of great importance for the research and understanding of the prisms is the discovery in 1956 of a seal-cutter's workshop, itself part of a larger architectural complex with a probable official function which was situated some meters northwest of the Malia Palace. The great majority of the seals that come from the Workshop are cut in steatite whereas among them prisms cut with hand tools are by far the most commonly represented form. It

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is possible that at least some of the prisms which were found in the official buildings of the complex were manufactured at this workshop.

The distribution of the prisms suggests a special connection with east-central and eastern Crete and especially with Malia wherefrom comes a remarkably large number of examples. Fewer pieces come from the Mesara and the Knossos – Heraklion area whereas four examples come from sites outside Crete.

In Malia, all but one example have been recovered in the residential quarters of the town. On the other hand, prisms recovered in the rest of east-central Crete and in eastern Crete are often found in burial contexts. All the pieces that come from the Mesara have been recovered in tholoi, a picture which could be connected to the lack of excavated settlements in the area. In the Heraklion – Knossos area and in find places outside Crete, prisms have been found in both residential and burial contexts.

Context evidence and stylistic considerations suggest that the first prisms were manufactured as early as MM IA and continued to be in use down to MM III/early LM IA. However, the period of the floruit of the form is MM II, to which the vast majority of the extant examples are dated. The existence of sealings which have been impressed by prisms shows that these seals had a sphragistic function.

Iconography and to a certain extent material and technical execution point to the division of the prisms into several groups, part of which are also seals of other forms. The most important of these are the Malia/Eastern Crete Steatite Group, the Mesara Chlorite Group, and the Central Crete Ornamental Group. These groups are of particular significance because on the one hand, they can be localised in particular regions of Crete; and on the other, the different ratio prisms/seals of other shapes in each of them as well as their iconography seem to suggest a different function and significance of the prism in the different parts of Crete. This could perhaps, albeit with caution, be taken as an indication of the fact that these groups belong to different socio-political and/or religious systems. More to the point, the relative dating of each offers hints regarding the place of birth of the three-sided prismatic form. Moreover, it provides fertile ground for raising the question of the reasons of its adoption from the various regions of Crete.

The vast majority of the extant prisms belong to the Malia/Eastern Crete Steatite Group. Apart from a few exceptions, these seals are manufactured from steatite. Within this group, the bulk of the seals are prisms. Apart from these, also conoids, four-sided prisms, and signets are represented relatively often. The tools are mostly manipulated freehand such that deep, irregular intaglios are created. Frequent is the use of fast motion drills which are applied to the fixed stones from above and create regular, smooth ‘cup sinkings’. The tools penetrate deep into the stone and often create flat board-like intaglios with deeper outline walls which are seen as characteristic of the group. On these seals, the representational element prevails. Apart from descriptive and ornamental images, also met are hieroglyphic inscriptions as well as ‘pictographic’ images, i.e. combinations of motifs which show no interconnection with each other and create the impression that they function as pictographs of some kind.

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Also belonging to this group, which is dated to MM II, are almost all steatite seals which have come to light at the Malia Workshop. This, as well as the fact that the large majority of the seals come from Malia, point to the said town as one of the most important, if not the most important centre of production of the group. Apart from Malia, such seals are widely distributed in places around it, in the Lasithi Plateau, as well as in various sites of eastern Crete. A few pieces which have been recovered from central Crete and two said to come from Egypt are considered imports from the east-central and eastern part of the island.

A markedly smaller number of prisms constitute part of the Mesara Chlorite Group. The most commonly used material for the manufacture of these seals is chlorite. Within the group, the ratio prisms/seals of other forms differs noticeably from that of the previous group in that prisms are much more scarcely represented. The prisms can be divided into various clusters which also seem to differ chronologically. A restricted number of seals of other shapes, mainly conoids and stamp cylinders, come close to the earlier clusters. On the other hand, numerous buttons, bottles with horizontal perforation on the handle, as well as Petschafte, these latter made of chlorite or steatite, can be attached to the later clusters. As in the previous group, the tools are mostly manipulated freehand. However, in these seals both deep but also shallower intaglios are met whereas the use of fast motion drills for the creation of 'cup sinkings' is rare. Descriptive and ornamental images are encountered whereas hieroglyphic inscriptions and, with one exception, 'pictographic' images are not. With the exception of the seals of one of the earlier clusters, the ornamental element plays the most important role.

The earlier seals of the group are dated to MM IA late/MM IB and the later to MM II. The compositions of the group find good iconographic parallels with various seals types from the Phaistos sealings. This, as well as the fact that the vast majority of seals come from south-central Crete point to this area and particularly to the Mesara as the place of their production. A few seals which are said to have come from areas outside this region are considered imports from south-central Crete.

The last most important group of seals in which prisms are represented is the Central Crete Ornamental Group. Steatite and to a lesser extent various whitish materials are used for the manufacture of these seals. Material and iconography point to the division of these seals into two clusters. Whereas prisms are the most represented shape within the group, the ratio prisms/seals of other forms is comparable to that of the Mesara Chlorite Group and much smaller than that of the Malia/Eastern Crete Steatite Group. The majority of seals of other shapes which belong to the group are Petschafte and discoids. As opposed to the previous groups, the tools are presented to the fixed seal from above and are manipulated with fast motion that achieves cutting through abrasion. As a result of this, the intaglios are very regular and smooth such that their differentiation from intaglios created by tools operated in the horizontal spindle is not always straightforward. These seals are decorated exclusively with ornamental images put together of lines, 'cup sinkings', and centred-circles.

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The group is dated to MM II–MM III/early LM IA. The numerous parallels that the images of these seals find among seal types from the Phaistos sealings as well as their distribution in the Knossos – Heraklion area and south-central Crete suggests that their production centres were located in these areas. The few pieces which have come to light in other regions of Crete as well as three pieces which come from the rest of the Aegean were obviously imports from central Crete.

The picture drawn by the distribution of the above groups in MM Crete allows for some further considerations. First, the fact that the earlier prisms of the three groups come from the Mesara could be taken as an indication that this is the place where the triangular prismatic form was created or at least first adopted in Crete. The manufacture of multi-faced seals lies well within the tradition of the Mesara and can be traced back to EM II. Given the rich repertoire of such seals in south Cretan glyptic, the creation of a three-sided triangular shape does not seem out of place. The choice of chlorite for the manufacture of these seals, which is probably connected with the increasing tendency of MM glyptic for the use of stone instead of hippo ivory/bone, is explained by the abundance of chlorite sources in south-central Crete and also agrees with the wide use of the stone for the manufacture of MM stone vessels in the Mesara.

The adoption of the form by east-central and eastern Crete could have taken place sometime within MM IB/MM II under the influence of the Mesara. The eastern engravers would have used a different stone which would possibly have been more readily accessible to them, or less likely, would have had a special significance. The wide use of the form in this area suggests that it corresponded more to the needs of this society.

After the adoption and wide use of the form in eastern Crete, the use of steatite for its manufacture would have become commonplace. The steatite prism would then have been overtaken in MM II from the engravers of central Crete who used steatite also for the manufacture of other seal forms.

The present lack of knowledge regarding the meanings of the devices/motif combinations encountered on the prisms and the related seals places all suggestions regarding the exact function of these seals in the realm of hypothesis. However, two characteristics of the eastern steatite prisms that are absent from the prisms of central Crete deserve further attention. These are the appearance on these seals of ‘pictographic’ images and of hieroglyphic inscriptions. While the essence of the former totally eludes us, the fact that their devices are combined in ways similar to those in which the hieroglyphs are put together in inscriptions creates the impression that these combinations could transmit some kind of information. On the other hand, the small percentage of ‘pictographic’ images and hieroglyphic inscriptions encountered on these prisms as well as the fact that only rarely are such images encountered on all three sides of one piece speak against the supposition that the primary function of these seals was connected with the potential to transmit on their three faces a large amount of information by the use of such motif/device combinations. However, the question of whether the combinations of the devices on the three sides of

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each seal could actually be ‘read’ as ‘pictographic’ images, similar to the ones which can be met on one seal face, remains open.

While some symbolic significance for the devices of the Mesara prisms cannot be ruled out, the transmission of information by the combination of the images of their three sides seems less possible. This is mainly because such a system of device combination, whether this be in the form of the known hieroglyphic script or ‘pictographic’ images, is not met in connection with the chlorite seals of central Crete.²¹⁹⁰

The question of the possible information transmission by the combination of the depicted devices is not posed with regard to the Central Crete Ornamental Prisms. Their very similar ornamental images on all three sides and their smooth and regular intaglios would suggest that the primary goal of the engraver was the creation of aesthetically pleasant representations.

The lack of hieroglyphs on the prisms of the Mesara Chlorite Group agrees with the general scarcity of the script in south-central Crete.²¹⁹¹ On the other hand, that on the Central Crete Ornamental Group is connected with these specific seals but does not reflect a broader situation. Hieroglyphic inscriptions on sealings and clay documents are common in Knossos, where a large amount of seals belonging to the group has come to light.²¹⁹²

The question is posed whether the distribution of these three seal categories could reflect their belonging to different socio-political and/or religious systems. The appearance on the eastern steatite prisms of hieroglyphic inscriptions and ‘pictographic’ images, the prevalence of representational devices and images – which as opposed to ornamental devices are more likely to have had symbolic connotations – but most importantly their large numbers clearly suggest an important role of these objects in the society that was producing them. On the other hand, the small number of prisms that were produced in central Crete and the fact that their majority is engraved with ornamental devices suggest a much smaller and perhaps different role of these seals in the central part of the island. This difference suggests that the two societies, on the one hand that of east-central and eastern Crete, and on the other that of central Crete, had different ways in fulfilling one aspect of their needs or, less likely, had different needs (?). The question of whether this difference reflects the existence of different socio-political and/or religious systems in the two regions can only be answered when the nature of the needs which these seals fulfilled, i.e. administrative, religious, or other social, is known. However, worth noting is that the evidence from the study of Protopalatial seals agrees to a great extent with the evidence

²¹⁹⁰ However, such a system is seen in the combination of the devices of the Phaistos disc.

²¹⁹¹ Only one clay inscribed document (CHIC no. 122), three seals (CHIC nos. 190, 196, 313), and one sealing (CHIC no. 151) come from the area. Additionally, the inscriptions on two pot sherds from Phaistos could be interpreted as hieroglyphs (Olivier 1999, 420 nos. 330ter/01, 330ter/02). For these two inscriptions, see also Karnava 2000, 24.

²¹⁹² Sealings: CMS II,8 nos. 56, 57, 62–80, 82–86, 88–90. Clay documents: CHIC nos. 1–069. However, only one seal with hieroglyphs is said to come from Knossos (CMS VI no. 13). On the strength of its iconography and style, this piece can be connected to Archanes (see Sbonias’s *The ‘Archanes Script’ Group*, Sbonias 1995, 107–113). Worth noting is the lack of hard stone hieroglyphic seals from Knossos like the ones which impressed the clay sealings which have come to light in the palace complex.

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discussed by Cadogan in his studies regarding the existence of a Knossian and a Malia-Lasithi state in Protopalatial Crete.²¹⁹³

The wide distribution of the Central Crete Ornamental Group in both north and south-central Crete suggests a similar significance and function of the prisms in these two areas in MM II/MM III. On the other hand, the Mesara Chlorite Group represents a local development which grew from the earlier glyptic of the Mesara. The function of its prisms in MM I and MM II need not have been different from that of the other multi-faced seals which are encountered in the same area in the EM and MM periods. Also the small numbers of the prisms suggest that they did not have a special significance or function in comparison to seals of other forms.

Noteworthy is the fact that none of the Malia/Eastern Crete Steatite Seals has been recovered in the rest of the Aegean, although two are said to come from Egypt.²¹⁹⁴ On the other hand, the fact that a few pieces of the Mesara Chlorite Group and the Central Crete Ornamental Group have come to light in two islands and the Peloponnese would seem to suggest an opening of central Crete to the rest of the Aegean.²¹⁹⁵

Among the remaining prisms, the Prisms with EM III/MM I influences are close to the Malia/Eastern Crete Steatite Prisms but can perhaps be dated somewhat earlier than these, i.e. to MM IB/MM II. The Dawkins Prism which can tentatively be dated to MM I/MM II, the Platanos Ornamental Prism which is dated to MM IB/MM II, as well as the Phaistos Agrimi Prism and the Platanos Prism with the Cable Devices which are dated to MM II fit well in the glyptic tradition of central Crete. In the same tradition would be placed the British Museum Prisms which can be dated to MM IB/MM II. However, the idiosyncratic style and iconography of these seals poses the question of whether they are actually Minoan. Finally, the places of production of the Kalo Chorio and Psychro Prisms with the Cable Devices which are tentatively dated to MM I cannot be localised.

Turning to the iconography of the prisms, their devices can be divided into those which cannot be broken down to their individual elements in a meaningful way, which are named motifs, and those which are put together of other devices. These latter are further subdivided into representational composites, which have a representational character; compounds, which have an ornamental character; and miscellaneous composite devices.

As representational are seen those patterns which stand for physical formations, such as humans, animals, plants, objects, and various constructions; ornamental are those abstract patterns which do not describe any naturally defined quantities and have a purely decorative

²¹⁹³ Cadogan 1990; 1994; 1995. However, evidence for a Zakros-Palaikastro state is not available on the evidence considered in this study. For a discussion of the possible character of Protopalatial 'states' with a focus on the tentative Malia-Lasithi state, see Knappett 1997; 1999. For the political situation on Crete during the Protopalatial period as outlined by the distribution of seals and other artefacts, see Betancourt 2007. For some further studies dealing with the subject of the 'states'/political situation of Protopalatial Crete, see Poursat 1987; 1988, 79; Nowicki 1996, 34–42, esp. 38–39; Knappett – Schoep 2000.

²¹⁹⁴ However, the hard stone MM three sided prism CMS VI no. 36 is said to come from Kythera.

²¹⁹⁵ For this subject, see also Cadogan 1994 who studies other evidence to come to the conclusion that Knossos had 'a leading, or *the* leading, role in Cretan Middle Bronze Age external relations' (Cadogan, 1994, 67).

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function. Some vegetal elements, such as rosettes and flowers, can have a double nature as while they are *stricto sensu* representational devices, they are often used as purely decorative elements. The nature of these motifs is described as floral. Also exhibiting a dual nature are other representational devices such as animals whose bodies are configured in ornamental ways. Finally, motifs which are used as hieroglyphic signs combine their primary representational or, more rarely, ornamental nature with their quality as characters of a script.

The nature of numerous motifs cannot be identified. This is often because they do not find parallels in any object known to the modern observer from the ancient or modern world. Moreover, it is possible that at various times, some of the patterns which are understood as purely ornamental functioned as symbols of some kind. This is a caveat which each study of a society whose conceptual structure is unknown has to deal with.

In the images, the devices, whether free-standing or coalesced with other devices, constitute either independent units or building blocks of broader entities. In this latter case, they can function as basic elements, supplements, and supplemented devices. Basic elements are devices which are combined in such a way that their significance for the creation of the broader unit is the same. Supplements are devices which are attached to an already existing unit, the supplemented device, with the objective to further ornament it.

A total of 269 different motif types have been distinguished. Almost half of these are mainly representational, the remaining being ornamental, vegetal/floral, and of an unidentifiable nature. The majority of the motifs are schematically and summarily rendered, possible details most often being rendered by dentation on the outline of the devices or hatching in their interior. Attempts at the creation of more plastic, naturalistic motifs are seldom.

The representational composites are devices composed of different motifs but which seem to have been perceived as entities. They are represented by two types. The compounds are ornamental patterns composed of other devices. The constituent members of these patterns are easily recognizable devices by themselves. Depending on the way in which the component devices are brought together into a unit, the compounds are divided into repetition compounds, supplementation compounds, border compounds, C-spiral roof compounds, and miscellaneous compounds. Repetition compounds, which are represented by 19 schemes, are created by the combination of other devices in such a way that a new ornamental pattern, such as a whirl or a cross, is created. Supplementation compounds, divided into 6 schemes, are created by the attachment of small, mainly floral or ornamental devices, to already existing, as a rule, ornamental patterns. The two different schemes of border compounds result from the fusion of ornamental devices with their surrounding borders. C-spiral roof compounds come about from the combination of a C-spiral with other motifs in such a way that a new inseparable pattern is created. Finally, miscellaneous compounds are ornamental composite devices which do not fall into any of the above categories.

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Turning to the composition and the images, devices which can be observed as independent units can have two basic functions. They either play a primary role in defining the topic of the image, in which case they are named main devices, or they play a secondary role in it functioning as fillers. The lack of knowledge regarding the significance and possible symbolism of the various devices often hinders the distinction between main devices and fillers.

The compositions can be analysed on the basis of six strategies which are mobilised for the combination of the units, i.e. parataxis, rotation, antithesis, flanking, angle/curve-filling, and enclosure. The effects created by the compositions vary depending on the strategies which are mobilised for the combination of the units, the configuration of the latter, their number, as well as the way in which their combination develops in the seal face. These effects, of which more than one can be created by a composition, are frieze, rotation, radiation, quartering, circle, outline, rapport, centre-highlighting, centre-orientation, centre-detachment, and segmentation.

The images can conventionally be divided into those of descriptive, 'pictographic', and ornamental nature as well as in hieroglyphic inscriptions. In all kinds of images, the devices actually 'float' in the field since landscape elements are, with the exception perhaps of a few examples of ground-lines, totally absent. Most often represented are descriptive images, followed by ornamental ones whereas 'pictographic' images and hieroglyphic inscriptions are encountered only in a small number of examples.

The use of the term *descriptive* is reserved for those static or narrative images which can be seen in nature or everyday life. The term is only conventional as it describes what is perceived by the observer as a natural scene or image but does not rule out the possibility that each of the devices within it or even the whole image had some symbolic significance. Ornamental are those images which are not translated in a quantity, action, or idea but have a purely decorative character. 'Pictographic' are images put together of representational devices combined in ways similar to those in which signs of the hieroglyphic script are.

The significance of 'pictographic' images is totally unknown. It is possible that each of the motifs in them functioned as a pictograph of some kind and that combinations of two or more motifs transmitted some kind of message. On the other hand, the fact that only rarely are more than two devices combined in such an image speaks against the identification of these images as inscriptions of a script system that is different from the Cretan hieroglyphic system. The possibility cannot be ruled out that the devices in 'pictographic' images are actually signs of the Cretan hieroglyphic script. However, if this was the case, the question of why they are not encountered on other hieroglyphic documents must be asked. A further idea could be that 'pictographic' images imitate hieroglyphic inscriptions. If this were so, the combination of the devices in 'pictographic' images would be accidental and the search for a meaning behind them futile. Against this hypothesis could speak both the existence of some quite elaborate hieroglyphic inscriptions on prisms as well as a medium-hard stone hieroglyphic seal found in the Malia Workshop alongside seals which bear 'pictographic' images. The inscription on this hieroglyphic seal could suggest that the engraver of

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'pictographic' images had some knowledge of the hieroglyphic script. However, if the depictions on the seals are interpreted as having been chosen by the clientele as opposed to the engravers, this coexistence could be explained as a result of a process whereby the poorer illiterate or lower ranking clientele would order cheaper soft stone seals with images resembling hieroglyphs whereas the literate elite or higher officials would request inscribed seals cut in more precious materials. With regard to the relations of the devices on the three sides of a piece, one possibility is that their combination had a 'pictographic' character, i.e. that the combination of the three images transmitted some kind of message.

While the iconography of the prisms and their contemporaneous hard stone seals coincides to some extent, some of the devices met on the prisms as well as many of the descriptive images and the 'pictographic' images encountered there are almost exclusive to the soft stone seals. Similarly, certain devices met on hard stone seals are only very rarely met on soft stone seals while others are completely absent.

The fact that certain devices which are encountered on hard stone seals are absent from soft stone iconography could be related to the different techniques used for engraving the two kinds of stones. However, not all differences in the iconography of MM II hard stone and soft stone seals can be explained on the strength of the use of different techniques. It is not certain for example why hieroglyphic inscriptions are more common, more complex, and more elaborate on hard stone seals and why many descriptive images of the type met on the prisms and 'pictographic' images as a whole are absent from hard stone seals. One explanation put forward by Poursat would be that hard stone three- and four-sided prisms belonged to higher officials with more than one administrative/palatial function declared by the different inscriptions on their seals whereas soft stone examples belonged to lower officials with fewer responsibilities. On a similar note, if the opinion expressed by the present author that the 'pictographic' images could represent an attempt to imitate hieroglyphic inscriptions is accepted, the relative scarcity of hieroglyphic inscriptions on the prisms combined with the appearance on them of 'pictographic' images could be read as the attempt of individuals with a lower social/administrative status to imitate the habits of more privileged persons.

The process of creating new patterns can be easily followed on the prisms. New devices are created either by the substitution of parts of ornamental motifs by other devices or by the fusion or close fitting of more than one device in an entity. By far the most common is this second process. The fusion of devices which are combined with each other according to parataxis, rotation, antithesis, angle/curve-filling, and enclosure creates the new units which have been named compounds. Apart from that, transformation and abstraction are also attested as processes which result in the creation of ornamental devices from various kinds of motifs.