5. Towards an Understanding of the Social Cognition

5.1. Cognitive Archaeology

[…] what individuals inherit from their ancestors is not a mind, but the ability to develop a mind.[410]

The realization that artefacts are "representations of social norms"[411] inevitably connects materiality and iconography to cognition. To be able to create composite creatures the mind needs the ability to differentiate between "events and states that violate intuitive expectations and [… those] that do not."[412] 'Intuitive expectations' are based on empirical evidence from the natural world – whereas hybrid 'monsters' do not feature in the real world.[413] "Counter-intuitive"[414] images, such as composite creatures, collide with this empirical background. However, as they are assembled from body parts of different real-world beings they are, in the words of Wengrow, "provocations to, rather than outright departures from, our innate understanding of how the world works."[415] As real-world creatures are perceived through the senses, mainly the sense of vision, it might prove worthwhile to cover some recent neuroscientific insights in human cognition and to supplement these with findings from the humanities on social cognition.

In their paper on "the neural basis of visual body perception", Marius Peelen and Paul Downing emphasize a fact most everyone will attest to: Humans are not solitary beings, but highly social and strongly interconnected. The daily basis of inter-human contact calls for a deeper understanding of others than on a level of language – we need to be able to differentiate whether a person is benevolent or hostile before he or she acts accordingly.[416] The human brain allows for the – admittedly not infallible – determination of other peoples' "identities, actions, emotions and intentions."[417] This function of the biological apparatus is not limited to the perception of living humans or animals, but also processes information from pictorial sources.

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[410] Griffiths – Stotz 2000, 31.

[411] Griffiths – Stotz 2000, 45.

[412] Boyer 1994, 36.

[413] Wengrow 2011, 133. Sperber 1996, 140.

[414] Boyer 1994, 100.

[415] Wengrow 2011, 133.

[416] *Cf.* Itier – Batty 2009, 844: „The human face is arguably the most important visual stimulus we process everyday as it informs us how to behave socially: being able to discriminate whether the person coming at you is your friend or your boss and whether he looks angry or joyful will certainly make a difference in how you interact with him."

[417] Peelen – Downing 2007, 636.

While a large amount of information is gathered from facial expressions, recent cognitive neuroscience studies show that the visual perception of the human body as a whole and in parts is equally significant for such information. Both human faces and bodies are visually salient and attention capturing. Several studies reveal that human bodies, even when they are obscured, capture much more attention than non-human bodies and objects.[418] Several parts of the brain are highly specialized to process information gained from observing human faces and bodies – in some areas these capacities overlap, whereas other zones of the brain are more highly specified. Due to functional and anatomical distinctions between the neural systems involved in face and body processing, people are able to quickly process information gained from observing a person in totality as well as on seeing individual body parts. For instance, "a focal region of the lateral occipitotemporal cortex" is highly responsive "to static images of human bodies and body parts."[419] On the other hand, this zone responds much less to animal and even less to object depictions.[420] For these reasons, this area of the lateral occipitotemporal cortex has been called "the extrastriate body area (EBA)."[421] This part of the brain is "involved in maintaining an accurate representation of the shape of body parts"[422] – an interesting fact when dealing with human-animal hybrids which would imply that on a level of mere looking (in contrast to scientific scrutiny) this area of the brain would place attention on the human parts of the creature first, then followed by the animal parts. It might also explain why single body devices on seals are rendered in such a fashion as makes them recognizable even to modern viewers, *e.g.* single limbs, heads, etc.

Another body-selective region of the brain lies in the fusiform gyrus and "responds selectively to whole bodies and body parts, as well as to schematic depictions of the body"[423] such as the ones we encounter in the case of Bronze Age seals and sealings and other media depicting human bodies. This area, called the fusiform body area (FBA), as well as the EBA do not need to observe a living human specimen – they activate on seeing silhouettes, stick figures and schematic body parts even when they do not add up to a coherent figure at all.[424]

The occurrence of fragmented and re-assembled human and animal parts on Bronze Age seals and sealings would have activated the same neural systems and processing in a Minoan observer as in a modern one. Hence, from the biological basis, we

[418] *Cf.* Downing, P., Bray, D, Rogers, J. and Childs, C. 2007. "Bodies capture attention when nothing is expected". *Cognition* 93.1: B27-B38, and cited literature.

[419] Peelen – Downing 2007, 638.

[420] Its response is also higher to mammals than to birds or fish. Peelen – Downing 2007, 638.

[421] Peelen – Downing 2007, 639.

[422] Peelen – Downing 2007, 640.

[423] Peelen – Downing 2007, 639, n. 60, 66–67.

[424] Peelen – Downing 2007, 639–40.

today will most probably make the same inferences about the viability of a composite body as the prehistoric observer would have. The *neural* cognition would be quite similar. The *social* cognition, on the other hand, underlies the circumstances of a person's cultural background, including their (pre-) conceptions of 'the norm' and 'the abnormal', their religious or spiritual upbringing, and concepts of age and gender to name just a few of the countless categories that are highly specific and learned traits of a social group. We cannot leave our own social cognition behind and take up the emic perspective of a Minoan. Rather, we need to study Minoan visual und material culture closely in order to gain insights on how people of this time might have perceived the depiction of composite bodies. This is reiterated by Griffiths and Stotz in the introductory quote of this chapter: Minds are not inherited, they are developed.

Many elements of cognitive development are subject not only to intrinsic conditions, but also to external influences. This is supported by recent insights from the fields of "cognitive, social, developmental, comparative and affective neuroscience" which have revealed that the brain is not a "fixed biological entity" but rather a "dynamic biocultural system" that undergoes continuous transformations on both a structural as well as anatomical level triggered by regular "developmental engagement with cultural practices and the material world."[425] An approach connecting biological and social parameters has been presented by Lambros Malafouris who has shown the feasibility of *probabilistic epigenesis* in archaeology. This emphasizes the brain's development not in a unidirectional way, which is how molecular biology has approached cognitive development. Rather, it stresses "the interactions between experience and gene expression"[426] that are developed by reciprocal influences from within and without the human being, *e.g.* "genetic activity, neural activity, behavior, and the physical, social, and cultural influences of the external environment."[427] This approach is called *probabilistic*, because the outcomes of these reciprocal developmental influences on the human cognition are not accurately calculable and, consequentially, presumptive. The archaeological task lies in identifying the external factors involved in the epigenesis. This calls for a context-based approach – part and parcel of the discipline proper.

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[425] Malafouris 2010, 55. The author calls the brain a cultural artefact that "like any other item of material culture, e.g. a ceramic vessel, […] can be grown and moulded into different shapes and decorated in different styles. Like a piece of clay, thrown on the wheel of culture the human mind and brain is subject to continuous re-shaping […]." As much as this metaphor avails itself to an archaeologist it carries the risk of emphasizing an arbitrariness in the development of cognition that could not be explained from a neuro-archaeological point of view and that would confine studies to the realm of philosophy. However, the view of the brain as an item of material culture supports the evidence of recent research and allows for an archaeological approach to human cognition.

[426] Malafouris 2010, 53.

[427] Gottlieb 2007, 1 after Malafouris 2010, 53. Put simply by Malafouris: "[...] differences and variations in life and learning experiences caused by social, environmental, and cultural factors, can cause individuals of the same genotype to have different neural, cognitive, and behavioral outcomes."

Moreover, when discussing the composite creatures, *e.g.* on the Zakros sealings, it does not suffice to look at how their body schemes are configured or how they compare to other images of the period. Rather, after clarifying the iconographical baseline we need to move on to questions of the immediate context these figures have arisen from, due to the human mind's openness to cultural stimuli and variation "embedded and inextricably enfolded with a *plastic culture*."[428] In the context of Material Engagement Theory, this characteristic of the brain as an "environmentally contextualized adaptive organ"[429] is called *metaplasticity*[430] and focuses on the reciprocal influence of brain and culture.[431] It is necessary to consider this plastic culture, *i.e.* the material world and, in the case of this study, the material engagement of Bronze Age people and the seals and sealings they created and used.

5.2 Questions of Materiality and Material Engagement

Following the iconographical observations of the first chapters and the brief outlook on the neural basis of perception, it is necessary to consider the material scope of Bronze Ages seals and sealings. Their practical function lay in the realms of administration, where seals were impressed on lumps of clay that could secure diverse objects (*e.g.* containers, folded written documents, doors, boxes, and much else) while at the same time providing identification of a person, office or transaction through the impressed image.[432] The resulting impression was a medium of *external symbolic storage*,[433] extending the action and authority of the producer of the sealing through space and time, as the impression could be stored or moved and viewed, as well as understood, by different people at different times making the immediate presence of the seal user unnecessary.[434] In effect, impressing a seal in clay created a "cognitive extension"[435] of the seal-user's body.

While a clear affordance of a seal was to impress it into clay, producing a plastic image of the cut intaglio, not all seals were obviously meant for that task, such as some LB III seals that were produced as grave goods.[436] Most seals were intended to be worn

[428] Malafouris 2010, 55 (emphasis in original).
[429] Malafouris 2013, 45.
[430] Malafouris 2013, 45–50.
[431] Malafouris 2013, 46.
[432] For a detailed account of sphragistic use *cf.* Krzyszkowska 2005, 21–23.
[433] *External symbolic storage* is a key concept developed by Merlin Donald in his seminal work "Origins of the Modern Mind" (1991) where he traces the development of human symbolic capacity and cognition. It signifies "the development of devices outside the human body (hence 'external') devised explicitly or unconsciously to hold and convey information" (Renfrew – Scarre 1998, xi). Applied to archaeology and material culture *cf.* Donald 1998, *passim*.
[434] *Cf.* Anderson 2016, 51, 55.
[435] Malafouris 2013, 4.
[436] Krzyszkowska 2005, 22.

on the body, suspended from the neck or worn around the wrist by strings threaded through the drilled string-holes. Others had hoops and could be worn as finger rings or also suspended.[437] Signs of wear are clearly identifiable in the case of abraded string-holes.

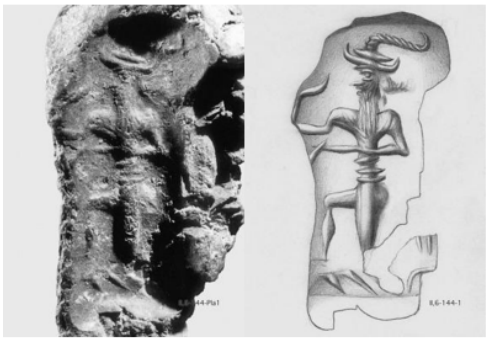

Fig. 9 Minoan impression of a MBA Anatolian cylinder seal (*CMS* II6 no. 144).

It is crucial to understand that the object category of 'seals' cannot be considered as a static, unchanging artefact group with the same functions, affordances and roles in the cognition of Bronze Age social groups throughout space and time. Not only did these groups give shape to seals and their imagery, but in turn the objects shaped the minds of their creators, triggering a reciprocal process of forming objects that in turn formed the people. Emily Anderson explains this dynamic effect material culture has on social culture through its characteristic openness, activeness and responsivity:

> *Things are a vital part of how people relate, their specific character affecting the nature of those relations, just as people's relations, in turn, influence the character of objects made, desired and engaged with.*[438]

This applies not only to the crafted, but also to imported objects, *i.e.* imported seals and their foreign iconography. Often, "the object in its sheer materiality is […] unchanged,"[439] instead, the context of such an artefact, "the social practices, meanings, and traditions connected with the object"[440] changes. A transformation in social practice we can follow within the archaeological record is the use of imported cylinder seals to make not a rolled but a stamped impression *(fig. 9)*. This negates the original affordance of the seal to be rolled and can only be understood against the background of Minoan sealing practices, which were based on centuries of stamping. Transferred to cylinder seals, this practice created a new tradition for this class of seals. Further, it indicates a different understanding of the engraving that was originally meant to compose a complete scene or even narrative, while Minoan users instead could select a part of the design to make an impression, which made the rest of the engraving dispensable.

A considerable aspect of a seal's materiality is naturally its small scale. In the Protopalatial period seal faces usually ranged from 1–1.5 cm in diameter.[441] In early

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[437] Krzsyszkowska 2005, 21. Some hoops are very small, which is why some scholars believe they were used for suspension rather than worn on a finger.

[438] Anderson 2016, 48.

[439] Stockhammer 2012, 50.

[440] Stockhammer 2012, 50.

[441] Krzyszkowska 2005, 83. The author points out that there were also many smaller seals, quoting prisms of "no more than 1.5 x 0.5 cm".

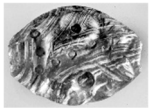

Fig. 10 MD.15, banded agate; scale 1:1.

Neopalatial times seals are seldom larger than 1–2 cm in diameter or width.[442] This calls for a precise working of the object's surface and meticulous planning of the motif to be engraved. Unlike other, larger scale media bearing iconography, there would have been no second chances to correct a line that had been drawn (*i.e.* engraved) too long or in an incorrect way.

Their relatively small size during the Middle and early Late Minoan periods effected a restriction of who could see the objects and the motifs engraved on them. When seals were worn on the body, a fact attested in other media as well as through observed string hole abrasion, the observer could undergo successive stages of perception. The first is the perception of an item of adornment worn on another person's body and therefore closely linked to that person. The observer could next infer whether this was a seal or a piece of jewelry (*e.g.* by observation of the shape, which was grounded on a repertoire of 'canonical' forms from the Neopalatial period onward).

The color of the seal could hint at its material and be a first indicator on the level of social symbolism. A colorful imported stone, such as an amethyst, would likely have been recognizable as such with some distance between the bearer of the seal and an external observer, while the inconspicuous local soft stones would have been less prominent. A member of the community would thus gain information about the status and wealth of the bearer. However, it needs to be pointed out that wearing a seal would only supplement this kind of information, as more subtle and conspicuous indicators such as clothing, hairstyles, and demeanor that cumulate to the *habitus*[443] of the bearer would be perceived before any small object worn on the body struck the eye. Only when the observer got into close range of the bearer of the seal, would he or she have been able to perceive the engraved seal face.[444] A close passerby might still not have been able to make out the motif in the case of multicolored or banded stones that would obscure the engraving (*fig. 10*). Close spatial proximity alone does not suffice to recognize the image in such cases. Moreover, such a seal afforded a close social proximity to and the consent of the seal bearer in order to bring the observer's eyes close enough (and long enough) towards the engraved image.

[442] Krzyszkowska 2005, 126. Metal signet rings pose an exception as they tended to be somewhat larger; 2–3 cm of width is common.

[443] The concept of *habitus* introduced by Bourdieu is followed here. See Bourdieu 2015, 153.

[444] At this point it needs to be added that some seals must have been worn with the intaglio against the skin. In such a case, even a very close range to the object worn on the body would not have given any information on the engraving. For more details on this subject see Anastasiadou 2015, 266–67.

While these observations hold true for most seals of the Middle and early Late Minoan Periods, we can observe an increase in size from LM II on. In this phase, lentoids grow up to 2–2.5 cm and even larger specimens are known.[445] The larger the image, the less close an observer would have needed to come in order to perceive it. Additionally, larger seals worn on the body stood out easier and were seen from farther away. This change hints at a new façade of the object, that in this period was increasingly *meant to be seen*. The same applies to seals that were encased in gold: While there are some Minoan examples, such as *CMS* II3 no. 24 from a LM IB context in Knossos and others from LM II–IIIA grave contexts, most gold-embellished seals derive from the Greek mainland.[446] The adding of gold "caps, circlets and decorated string-holes"[447] emphasizes the appreciation of seals not only as objects of practical use, but above and beyond as items of adornment and value. Furthermore, most mainland seals were made from hard semi-precious stones. The combined evidence of material and gold embellishment demonstrates the seals' role as items of "conspicuous display"[448] in the Aegean Bronze Age and, most notably, on the Greek mainland.

On the level of production, whoever ushered a seal faced a set of choices including the material, shape and engraving of the object. Before being able to produce seals, the engravers needed to select their workpiece from an array of materials they could process, such as soft and hard stones, bone and ivory, metals and glass. These show different degrees of hardness which in turn afford different tools, techniques and, ultimately, the respective know-how and tacit knowledge[449] necessary to apply them. Some materials, such as certain soft stones (*e.g.* serpentine or schist) were available locally, while others had to be imported (*e.g.* hippopotamus ivory or hematite).[450] Metals and man-made materials such as 'white paste' had to be crafted at a preceding stage. While the availability of certain raw materials as well as the technology on hand restricted the selection of materials at times, the shape of the seal followed trends. For example, three- and four-sided prisms occurred frequently in MM II while amygdaloids, cushion seals and lentoids arose in the early Neopalatial period, followed by a high prevalence of lentoids from LM II onwards.[451]

Another point in question is the choice of motifs to be engraved on a seal face. Given their close connection to the body, seals were very personal objects and as such likely to accrue a strong personal value. In essence, these objects played a twofold role, leaving marks of identification in the form of impressions that referred back to the seal

[445] Krzyszkowska 2005, 196.
[446] Krzyszkowska 2005, 240–41.
[447] Krzyszkowska 2005, 240.
[448] Krzyszkowska 2005, 240.
[449] Polanyi 2015, *passim*, esp. 16, 23, 25.
[450] Krzyszkowska 2005, 12.
[451] Krzyszkowska 2005, 12–13.

owner, while at the same time acting as signifiers for the owner's social identity as expressed through the choice of material, shape and motif that had the potential to indicate their (real or desired) place in society. Anderson has pointed out that seals with elaborate motifs could "symbolically assert both social connections (through the shared iconography) and distinctions (through the differentiable attributes of each individual piece)."[452]

Given these points, seals prove to have been deeply entangled not only in administrative acts, but also, in the words of Anderson, "in various crucial and developing dimensions of social life involving identity, control, will and symbolism."[453] They were not only functional, but symbolic and personal objects. Knappett has shown that, generally, "cognition and information are […] implicated"[454] in what he terms "body-object conjunctions"[455]. Accordingly, the wearing of a seal results in "a coalescence of mind, body and object."[456] This is the point where implications for the social cognition are to be sought.

5.3 The Rise of Composite Creatures

> *Il est préférable de considerer la création des animaux imaginaires comme le résultat de l'activité de perception et de description de certains animaux réels, bref, d'une activité cognitive humaine impliquant tant la reconnaissance des formes que les processus de nomination. Les images des êtres composites donnent à voir les évocations que des parties d'animaux réels ont générées mentalement lors de leur perception.*[457]

These observations Dimitri Karadimas made on 16th century tapestries and late medieval to early modern illuminations strikingly resonate the findings of Bronze Age composite creatures. While these transcend the possibilities of nature, they strongly and invariably draw on nature's 'toolbox'. Organic composites are forged by adding parts of different species together in a 'natural' way – the center of the human body (the waist) is attached to the center of an animal body (the abdomen) creating an animal-human hybrid that is composed following the natural rules for the sequence of body parts. The resulting images combine perceived qualities of both species. Not only the visual perception of elements of the natural world, but, significantly, the ideas evolving around them made them adequate constituents for composite creatures. Consequently, it comes as no surprise that animals which dominate the glyptic record, such as bulls, goats, lions and boars, are also chosen for the creation of occasional hybrids.

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[452] Anderson 2016, 50.
[453] Anderson 2016, 48.
[454] Knappett 2005, 33.
[455] Knappett 2005, 33.
[456] Knappett 2005, 34.
[457] Karadimas 2010.

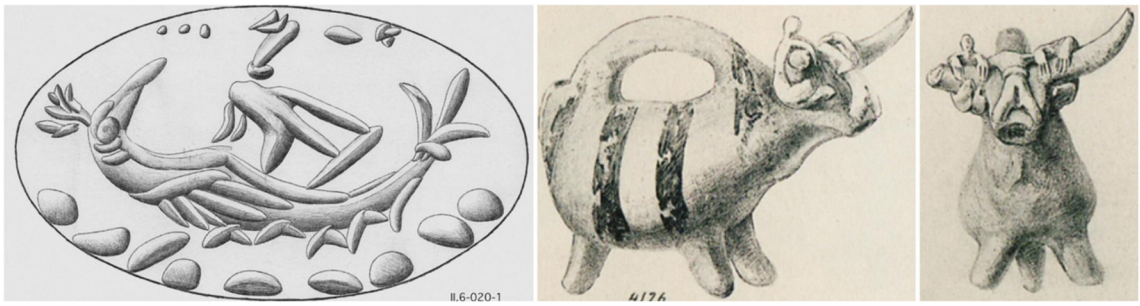

Fig. 11 Left: a rower in a griffin-boat, impression of the metal signet ring *CMS* II6 no. 20. Right: zoomorphic vessel in the shape of a bull with three human figures from Koumasa (Xanthoudides 1924, pl. II).

These combine characteristics of the animal part, such as the strength of the bull, with human athleticism at its best, leading to a hybrid of empowered qualities.

A point often overlooked is the question of what was *not* used as a constituent part of a composite creature. Properties claimed for faunal composite parts, *e.g.* the qualities of the bull used for elite representation, might also be found in man-made things. Take for example ships: the technology of ship-building and the capacity to build up a fleet was an essential motor for the expansion of Bronze Age material culture in the Aegean and likely the major vehicle for the spread of Minoan cultural traits, leading to prosperity in the island's urban coastal centers.

Elite groups would have been the first to have benefited from this, as they could provide the resources for shipbuilding and gain a return on their investment. The ship was the material manifestation of the so-called Minoan 'thalassocracy'[458] and is as such often an item of elite display throughout pictorial media. However, hulls, masts or rudders never constitute composite elements. Accordingly, although an established figure of elite self-representation, ships must have transgressed the cognitive boundaries that limited what could and what could not be used in the creation of composites, as they exceeded the realm of the natural world. Consequently, the creation of 'cybernetic'[459] composites is something that breaches the possibilities of cognition throughout the probably different social groups[460] producing composite creatures in the

[458] Towards a critical evaluation of the concept of thalassocracy' *cf*. Wedde 1991, 91–93.

[459] A cybernetic organism, or 'cyborg' is defined as a hybrid of machine and organism (Haraway 2007, 314). The term derives from the Greek term *κυβερνήτης* which originally belonged to the realm of maritime activity, as it denoted a steersman (e.g. in Hom. Il. 19.43, Od. 9.78). It is rendered here in inverted commas due to its modern meaning which connects it to advanced machineries; something that cannot be found to such extents in the Bronze Age. A neologism coined to express this phenomenon is *fyborg*, "biological organism functionally supplemented with technological extensions" (Chislenko 1995, after Knappett 2005, 20). Knappett proposes to consider the use of most basic tools as a "prosthetic extension of the body" (ibid.) and, ultimately as a constituting element of a *fyborg*.

[460] Unfortunately, we lack a comprehensive study that could inform us on the actual social groups who were making and using the different kinds of seals with composite creatures. Due to the variability of materials, techniques and motifs encountered throughout the range of composite depictions, it can be assumed that different social groups were involved. Their identity can only be sought in an extensive study of the individual seals and their contexts, as well as distribution. Until then, one can only speculate whether these were members of the elite, sub-elite, producing, wealthy or less wealthy social groups.

Bronze Age Aegean. Intriguingly, a metal signet ring whose face was preserved in various impressions shows a boat in the shape of a bird, or possibly even a griffin, as proposed by the CMS (*fig. 11, left*). This demonstrates the capability of the Minoans to transfer organic items to inorganic objects – something that can also be said in the case of anthropomorphic and zoomorphic vessels (*fig. 11, right*). However, there are no instances that prove the reverse was possible, *i.e.* transferring inorganic matter to organic creatures.

Furthermore, not all representatives of the natural world that are frequently encountered in Aegean Bronze Age art and glyptic were adequate for fantastic compositions. While fish and marine animals are present throughout the pictorial media, no composite creatures were created out of them. It was possible to add a fan-tail and wings to an animal not capable of flight, but, on the other hand, neither fins nor flippers where used as devices that would have given a composite creature the ability to swim. Although most of the important seal-using and producing communities were very close to the Cretan shoreline, *e.g.* Malia, Knossos or Kato Zakros, it seems that never once it occurred to the producers and consumers of the seals to create maritime composites.

Perhaps a reason for this lies in a different significance of the sea- from the landscape, the first being even more inaccessible to mankind than the remotest areas of Crete, that could at least be viewed from the distance, whereas there was no possibility to peer behind the blue curtains of the deep ocean. Apart from fishermen and cockle pickers, few people encountered live marine creatures on a regular basis. As has been observed above and in the literature, Late Minoan figural representations bear witness of a close observation of the movements and anatomy of live beings. Considering this, the Minoan's limited possibilities of visual and tangible engagement with *live* marine animals compared to the feasibility of observing land- and air-bound animals' movements and habits is one possible explanation for the lack of marine elements in composite creatures. However, pottery displays abundant maritime imagery, so this is unlikely the main reason. A further explanation lies on a more practical level: Fish and marine creatures might simply not have been deemed suited to conjoin with other species, as they were tied to specific techniques and styles, in particular the 'Talismanic' Style, which was too removed from the near-natural representations used for composite creatures. Therefore, they belonged to a different, more ornamentally conceptualized, mental category.

The rise of individual fixed hybrids has been discussed in the respective chapters. Their occurrence on Crete was first triggered by foreign connections with Egypt and the Levant in the late Prepalatial period. Apart from the hybrids discussed above, one could also assume a fantastic quality of other animals imported to Crete from these areas, such as the lion and the monkey. As Blakolmer has pointed out, these

were not endemic on Crete and might therefore have been attributed to the same 'metaphysical' sphere as griffins, Dragons etc.[461]

Often, it is not possible to attribute a single area of origin to the hybrids. While, for example, the griffin is first attested in the early Elam period, it was further developed in predynastic Egypt from where it was imported to Syria and again transformed according to local tastes and needs. Only then did griffin iconography spread to Minoan Crete, where it was customized to suit local demands.[462] The lesson learned by these observations is that the Bronze Age Mediterranean was open to cultural dissemination, its different social groups always adding own ideas and iconographical preferences to imported pictorial material. It also demonstrates the openness of different groups' social cognition to foreign 'metaphysical' concepts that included 'monsters' like the griffin. However, it seems that while it was conceivable to import composite creatures from places where other beliefs were prevalent, there is no attestation of a high-ranking 'metaphysical' instance, like a god or goddess, being introduced in Crete during the late Proto- and early Neopalatial period.

Wengrow points out that Mesopotamia was the "heartland of composite animals" and at the same time "the region where mechanical methods were first widely applied to the reproduction of images, via stamp and cylinder seals […]." He assumes a spread of composite creatures together with a proliferation of "mechanical modes of image production"[463] that led to a centralized production and use of these by institutions such as palaces and temples. As seals played an important role in Bronze Age administrative systems, they were used by elite groups as a means of accountability and control of the circulation of goods. At the same time, these groups exercised "control over the circulation and modification of designs."[464] While the composites were designed and spread by a small group of people, they were produced and re-produced many times, playing an important role in everyday transactions. Wengrow counts this "among those cultural strategies through which elite groups made 'legible' their cosmological and political roles in society," stating that these circumstances directly influence the "distribution of composite figures in the visual record."[465]

Moreover, he points out two main forces that account for the spread of composite creatures: technology and 'politics', *i.e.* the activities of elite groups. The flourishing of these parameters was accompanied by foreign connections, leading to an influx of exotic imagery and materials, which were in turn incorporated in their new cultural settings. A prominent example for this is the import of *Taweret* on Crete in the early

[461] Blakolmer 2019, 98.
[462] Aruz 2008, 288–89.
[463] Wengrow 2014, 81.
[464] Wengrow 2014, 81.
[465] Wengrow 2014, 81.

Neopalatial period and the demon's consequent transformation into the Minoan Genius, a composite creature with an iconography far removed from its Egyptian predecessor, and characteristics necessitated by its Minoan context. All of this happened during a very transformative time in Minoan culture, the beginning era of the second palaces that had been rebuilt after the destruction in MM IIB and now reached a new acme of power and outreach in the Mediterranean world. It is again in a time of transformation that dyad and triad species composites come into existence. After the LM IB destructions, whose causes are still a matter of debate, a strong Mycenaean influence can be traced on Crete and in Knossos in particular.[466] There is a distinctive break to earlier Minoan customs, and we can only assume that changes took place on a large-scale social level as well. A change in seal engraving can certainly be made out in this phase, *i.e.* a noticeable contraction of the iconographic repertoire – and even a possible interruption in the engraving – of soft stones.[467] The animal-human hybrids, which are rendered in hard stones, are an innovation in the glyptic repertoire, although they were probably not produced for a long period of time.[468]

These observations induce the hypothesis that composite creatures tend to appear in the Minoan glyptic repertoire in times of changes. Contacts to foreign civilizations, be they on a level of commerce, diplomacy or perhaps even a military take-over[469] prove part of a constellation that led to the rise of composite creatures in Minoan Crete.

As Krzyszkowska has noted, the Zakros seals display features that are otherwise unattested in the Cretan glyptic repertoire.[470] This accounts for the device combinations as such, which mostly seem to "lack convincing parallels of any date,"[471] but also for the frequent frontal depiction of heads and entire composites. This lack of connection to Minoan glyptic on an iconographical level and the very counter-intuitive creatures, at times created by bizarre combinations of devices, has led to wild speculations about the nature of the seals.[472]

Perhaps the location of Kato Zakros played an important role in the formation of these fantastic combinations. While it was isolated from the Minoan hinterland by a rugged and mountainous landscape that made travelling over land difficult, its bay

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[466] This can be seen in a change of burial customs, where mainland practices of communal burial are now employed in Crete; but also, administration is now strongly influenced by Mycenaean Greek and Liner B. See Krzyszkowska 2005, 193.

[467] Krzyszkowska 2005, 212.

[468] Krzyszkowska 2005, 208.

[469] A Mycenaean military take-over has been considered likely in the case of Knossos after the LM IB destruction.

[470] Krzyszkowska 2005, 152.

[471] Krzyszkowska 2005, 152.

[472] *Cf*. Krzyszkowska 2005, 151: "Condemned by some as crude and degenerate, they have been praised by others as inventive, if eccentric. They have even been ascribed to an artist in the grips of schizophrenia."

on the Cretan east coast was opportune for overseas trade. It was very likely a well-frequented stopover for trading ships coming from the East and heading to north-central Crete.[473] Due to this, the inhabitants of Zakros could have come in contact with foreign ideas and beliefs that might have given an impetus for the rise of the Zakros creatures.

However, this alone is not a sufficient explanation,[474] but needs to be considered against the topographical background of this specific region. Krzyszkowska proposes the idea that "the Zakros engravers were inspired by local customs, rooted in the wild country east of Dikte"[475] and assumes that perhaps local rites "involving capes and animal masks"[476] were a model for the creation of the types. The remote situation of the palace of Kato Zakros, which nearly closes it off from the rest of the island by way of land, could preserve such unique rites or local beliefs, whose restriction to the area would also explain why the composites did not spread, unlike the specimens of typical Neopalatial glyptic that are also evidenced at this findspot.

5.4 A Relational Outlook on Fantastic Creatures and Humans

This study has shown instances of combined human and animal parts that result in hybrid creatures such as bull-, lion-, goat-, deer- and boar-men as well as bird ladies and other winged hybrids. However, the relation of (whole) humans and composite creatures is another significant aspect in a cognitive approach to this material. On the majority of seals and sealings with fantastic creatures, humans are absent. They only engage with a small range of these, such as the griffin, Minoan Genius and Dragon, *i.e.* fixed hybrids. Most often, the human constitutes a central figure of power, flanked or otherwise attended by the creature. I propose that this does not transfer the fantastic animals from their supernatural realm into the real world. Rather, this allocates the human figure in the abstract sphere inhabited by the creatures.

Let us begin with the most prominent hybrid creature: the griffin. By understanding that the human figure is transferred from the real world to a 'supramundane' world, we can deduce that scenes which we describe as *potnios/potnia theron* depictions display not a human, but an anthropomorphic 'divine' figure of power that is capable of acting on the abstract level of fantastic creatures and has the power to subdue these. The creatures in such scenes, most often griffins, have a protective function – while they may afford danger to other creatures and animals (such as the

[473] Schwemmer 2010, 3.

[474] The supposed merchants from abroad would have introduced their same ideas and beliefs at other ports along the Cretan coast, but none of these places created composite creatures like those of Zakros.

[475] Krzyszkowska 2005, 152.

[476] Polinger Foster 2016 offers an interpretation of the Zakros composites and other hybrids creatures as masks that were worn during ritual.

quadrupeds they can hunt), this affordance seizes is relation to the human/anthropomorphic figures.[477] Blakolmer has noted that humans confronting a griffin are more often male, except when it comes to griffins flanking an anthropomorphic figure, which is more often female.[478] Apart from their association with possible deities, griffins were held in high esteem by rulers. This can be seen by their association in large-scale wall-paintings with architectural structures of power and rulership, such as in the Knossos and Pylos throne rooms, but also on seal images depicting griffins in the context of sitting human figures (*e.g.* **G.70**) or pillars and columns (*e.g.* **G.72–73**). This relation of griffins and rulers is an Aegean typicality that cannot be traced in the hybrid's area of origin in the Near East.[479] On the contrary, in Near Eastern depictions this hybrid is often an adversary of anthropomorphic figures, be they heroes or gods, that fought this creature. This negative connotation of the hybrid is absent in the Aegean understanding. Rather, this might be more closely related to Egyptian cognition, which in turn associated griffins with the protection of the Pharaoh.[480]

Related to griffins and of the same iconographic origin were the sphinxes. These, however, did not occur together with human figures. Perhaps its human head on an animal body dislocated the sphinx entirely from the sphere of human engagement, as this might have been the most counter-intuitive fixed hybrid in the eyes of the Bronze Age beholder. While human-animal hybrids with the head of an animal can appear in animal-attack scenes, the change to a human head shifted the apprehension of the creature away from a bestial and towards a 'humane' character. This may explain the difference to griffin iconography in that there are no attack scenes (or any narrative scenes) involving sphinxes. Moreover, they pertain an emblematic character that leaves open questions regarding the hybrid's relation to humans.

A creature that comes into very close contact with human figures is the Minoan Dragon. While not many seals and sealings display this composite creature, a conspicuous number show the creature as the mount of a female figure, mostly referred to as a goddess. Unlike the griffin, the Dragon does not protect or attend to the human figure. Moreover, it carries the elaborately clad female in a solemn manner (*e.g.* **MD.06**, **12–13**). As proposed in chapter 4.5, the relation of the Minoan Dragon to the human figure is of a much more intimate quality than of any other composite creature while it is at the same time restricted to female figures, in contrast to other hybrids that also engage with humans.

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[477] Similarly, this is also the case for lions, which underlines Blakolmer's observation that these also acted on a 'metaphysical' level; *cf.* Blakolmer 2019, 202.

[478] Blakolmer 2019, 129.

[479] Blakolmer 2019, 130.

[480] Blakolmer 2019, 128, 132.

The most complex relation of fantastic creature and human being is represented by the Minoan Genius. This begins with its iconography that, throughout its evolution in the Late Bronze Age, never seizes to represent an upright creature that can walk on two legs and hold an object in its hands. This humanoid appearance made it possible for an individual to understand the hybrid through their own body. The frequently shown poses of the Minoan Genius could easily be imitated by a human – consciously in an act of mimicry or without any direct association to the creature, *i.e.* when taking part in acts such as processions (*e.g.* **MG.11**) and libations (*e.g.* **MG.02**).

In Minoan cognition, the Genius was capable of doing what humans did, and vice versa (see *fig.* 7). However, it would be wrong to limit the understanding of this hybrid to an '*alter homo*' that could replace humans in depictions. Moreover, I propose to understand the Minoan Genius as an 'avatar' of humans performing rituals such as processions and libations on a supramundane level that could not be accessed by humans themselves. While it was perceived to have a strong agency, the Genius obviously had to observe at least some of the rules that applied to human beings and that were followed in ritual behavior in order to achieve specific aims that elude us nowadays.[481] Humans are not shown supplicating to the Minoan Genius. Rather, it is the Genius that attends to and aids human figures.[482] It can also be subdued in *potnios/potnia theron* scenes (*e.g.* **MG.22**), in which case the human figure should be understood as heroic or divine, as demonstrated above in the context of griffins.

A final comment on human-creature relations applies to all seals that were worn on the body. Wearing a seal around one's arm or neck establishes a very close, bodily relationship between the human bearer and the imagery engraved on the seal. A seal with figural iconography would likely have fostered a close personal association of the bearer with the creature engraved on his or her seal. While it is not possible to reconstruct the concomitant notions and beliefs of any individual, the mere existence of such relations on a very personal level needs to be kept in mind. The Aegean Bronze Age has left us impressive examples for the strong ties of individual seal owners to their seals, some of which were worn for a very long time causing strong abrasion that, in some cases, makes it impossible to recognize the original engraving.[483] While such seals had long lost their functionality on a level of identification and administration, they were kept because they had "[…] an amuletic significance for their owners independent of their function as sphragistics devices."[484] The following chapter will

[481] Likely aims of ritual acts such as libations are connected to the needs of an agriculturally dependent society, e.g. good weather, access to sufficient water etc.

[482] See the frontispiece for an example of a Minoan Genius actively helping a human warrior-hunter.

[483] For examples, see Anastasiadou 2015, 270–71.

[484] Anastasiadou 2015, 271.

pick up this notion of an amuletic function to elaborate on a final aspect in the cognitive scape of Bronze Age seal ownership, which is apotropaism.

5.5 Some Remarks on Apotropaism

> *[…] good and evil are not simply abstract concepts but are bound up with very practical everyday concerns: ensuring good harvests, good health, social cohesion, success in battle. Since prevention is better than cure, many prayers and rituals aim to supplicate and propitiate the supernatural powers, to elicit their favors and to appease them […] seeking to avert famine, plague, suffering and death.*[485]

The cosmology and beliefs of neighboring cultures of Minoan Crete have been preserved through texts that contained myths and religious practices. One of the most important aims of ritual actions was the maintenance of "order and harmony in the cosmos"[486] and the aversion of evil. It seems only natural that the nearby contemporary culture of Minoan Crete was likewise concerned with matters of good and evil and means of establishing the first and deterring the latter. Since there are no written accounts of such means, it may prove worthwhile to consult the imagery produced by the Bronze Age inhabitants of the island.

Iconography allows for the identification of ritual practices, such as libations, sacrifices or activities such as the hugging of a *baitylos*.[487] But the causality of these actions remains enigmatic. Whether these were proactive or reactive rituals intended to influence supernatural forces to enforce prosperity and forestall negative events, *i.e.* apotropaic acts, or performative acts with different intentions, for example worship or thanksgiving, remains elusive. Therefore, representations of ritual actions cannot further our knowledge about apotropaic practices in Minoan times. However, turning to the materiality of seals may offer new insights in apotropaism.

Seals that could be worn on the body, as bracelets or necklaces, have very much in common with amulets and talismans. These are small trinkets worn on the body that bear specific images believed either to "bring good fortune" (in the case of talismans) or to "ward off evil"[488] (in the case of amulets). Seals have the potential to carry symbolic depictions that could serve either case. The range of counter-intuitive depictions on seals presented in this study could well have been intended as apotropaic images. Especially the occasional hybrids that, in most cases, appear isolated on seal faces and cannot be assigned a standard function might have been considered as symbols with the potential to ward off evil or bring good fortune. Particularly the attention-catching dismembered and incoherent assemblage of many non-viable

[485] Krzyszkowska 2016, 115.
[486] Krzyszkowska 2016, 115.
[487] Krzyszkowska 2016, 116.
[488] Krzyszkowska 2016, 117.

composites violates the intuitive expectations a viewer had based on his or her empirical knowledge of the world. Bewildering as they appear, these composite creatures might well have fulfilled an apotropaic function when worn on the body like an amulet or talisman. The MM II Minoan grotesques could also be understood along these lines. While other standard hybrids do not simply stand alone for themselves and are bound up in narrative scenes or at least relational associations, grotesques mostly appear alone. Their bizarre frontal heads are typically bodiless, reflecting the gaze of the viewer with their large open eyes while threatening with their bared teeth. Although no direct relationship to Humbaba or Bes/Beset could be established, the existence of apotropaic frontal heads in the neighboring cultures, whose texts confirm this function, calls for the consideration of a perceived apotropaic quality of the motif also in Minoan cognition.[489]

[489] See Krzyszkowska 2016, 118–21.