A Journey to the Late Bronze Age Minoan Underworld: The Reflection of Sunlight on the Sea as an Axis Mundi

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of an M.A. in Cultural Astronomy & Astrology

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Abstract

Around the times of sunrise and sunset, the sun's reflection on a large body of water, such as a sea, appears as an elongated gold band, also called a 'glitter path'. For the first time, this research explores this intangible manifestation of light from an archaeological perspective, focusing on the Late Bronze Age culture present on the Greek island of Crete. The observations gathered during the phenomenological fieldwork revealed that the elongated sunlight reflection has the qualities of a natural manifestation of the cosmological concept of the axis mundi, echoing the liminal convergence of opposing realities. By comparing Late Minoan III funerary iconography with the fieldwork results, this study developed an interpretation of Minoan eschatological beliefs establishing analogies between the cultural and the natural world. In particular, the hybrid form of the octopus-plant motif was analysed: the multivocality of the psychopomp octopus symbol may reveal, in its transformation into a flower and a water pillar, an affinity of shapes and qualities with the glitter path. A solar eschatology can be deduced in a Minoan world where life and death seems to procreate each other: the vision of the glitter path across the chthonic sea might have been regarded, in the Late Bronze Age, as the luminous roadway toward afterlife regeneration.

Introduction: Rationale, Scope, and Outline

Reflections of sunlight in water have often been undervalued in the archaeological research. Multiple kinds of light effects are created by the natural interaction between the sun and water, or can be created by the human manipulation of bodies of water, as I have previously argued.[1] A main inspiration for conducting the present research was the work of John McKim Malville, who highlighted the complexity of meanings bestowed to the sun and water by the Inca people.[2] Following Malville's work, the present study aims to add to the field of cultural astronomy by expanding on the little-explored perspective of how the liquid watery world can act as a medium to reflect the sky and, in particular, the sun. Previous archaeological researches on the topic with reference to the Bronze Age in Crete, Greece, stimulated me to further investigate how the watery reflection of the sun could have influenced the cosmology of the Minoan civilisation. First in this research, Lucy Goodison studied the Aegean Bronze Age funerary vessels called 'frying-pans', which seem to depict an underwater sun, suggesting that they might have been used for divinatory purposes and mantic communication with the dead when the vessels were filled with water for observing the sunlight's reflection within them.[3] Second, Göran Henriksson and Mary Blomberg argued that the ray of the rising equinoctial sun would have hit a concave paved stone

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[1] Ilaria Cristofaro, 'Reflecting the sky in water: a phenomenological exploration of water-skyscapes', *Journal of Skyscape Archaeology*, Vol. 3, 1 (2017), 112-126.
[2] John McKim Malville, 'Machu Picchu', in *Handbook of Archaeoastronomy and Ethnoastronomy*, edited by Clive Ruggles (New York: Springer, 2015), 879-891; John McKim Malville, 'Cosmology in the Inca Empire: Huaca Sanctuaries, State-Supported Pilgrimage, and Astronomy', *Journal of Cosmology,* Vol. 9 (2010), 2106–2120, http://journalofcosmology.com/AncientAstronomy116.html [accessed January 20, 2018]; John McKim Malville, 'Animism, Reciprocity and Entanglement', *Mediterranean Archaeology and Archaeometry,* Vol. 16, 4 (2016), 51–58.
[3] Lucy Goodison, 'Divination with Water: A Diachronic Perspective' (paper presented at the 9th International Congress of Cretan Studies, Elounda, Greece, 1–6 October 2001); Lucy Goodison, *Death, women, and the sun: symbolism of regeneration in early Aegean religion*, British Institute Classical Studies, Supplement 53 (London: Institute of Classical Studies, 1989), pp. 4, 20.

in the Inner Sanctuary corridor at Knossos, if the hole was filled with water, and reflected on the wall as a marker for the beginning of the year.[4] These researches are limited to a small quantity of water, and they show a variegated possibilities of interpretation on sunlight reflection, from ritual functions as described by Goodison, to the calendric one offered by Henriksson and Blomberg. Within Minoan archaeology, the evidence for the intentional reflection of sunlight on water is fragmentary. Preliminary fieldwork in Crete helped me to refine the research question: the elongated reflection of the sun on the sea during sunrises and sunsets, commonly called the 'glitter path', caught my attention. Despite the fact that this phenomenon is one of the most fascinating and regular events which it is possible to observe in coastal areas, no attempts at understanding its potential significance from an archaeological perspective have yet been made. The significant role of the sun and sea in Minoan religion, evident from previous studies in the field, prompted me to further investigate this phenomenon. In particular, the idea shared among Minoan-culture scholars that the sea was regarded as a chthonic realm, caused me to focus on the funerary world and the afterlife beliefs of this culture. This research investigates the sun's elongated reflection on the sea in its potential symbolic and cosmological significance within Minoan afterlife beliefs, by looking at the qualitative relationship between two kinds of primary sources: the glitter path and the funerary iconography.

This thesis focuses on the Late Minoan III (LM III) period in Crete, from circa 1425/1400 B.C. until 1050 B.C.. The emphasis here on the Late Bronze Age III period is due to the major body of iconographic funerary evidence for this period recovered

[4] Göran Henriksson and Mary Blomberg, 'The Evidence from Knossos on the Minoan Calendar', *Mediterranean Archaeology and Archaeometry*, Vol. 11, 1 (2011), 59-68, p. 61.

in tombs, through the introduction of decorated clay coffins and other pottery. According to Nanno Marinatos's analysis, from 1450 B.C. onwards, the Cretan civilisation was characterised by the abandonment of the major palace complexes, apart from Knossos, and the influence of the Greek mainland Mycenaean civilisation.[5] A syncretism of culture is believed to have spread across the Aegean world in the Late Minoan III period, although local customs remained. In this regard, whenever possible, material evidence mostly from Crete is used in this thesis. However, due to the lack of relevant secondary literature specifically relative to the LM III period in Crete, some scholars, who worked on primary sources from the Aegean area or from the Greek mainland, are cited and integrated within the analysis. The final interpretation of the results overlaps between the Minoan and the Mycenaean world, but this is justified by the cultural syncretism present on the island during the Late Bronze Age III period. Three main chronological systems are usually followed by Minoan scholars, as showed in figure 1, with the pottery chronology the best defined and the most reliable one, as Erik Hallager pointed out.[6] Consequently, Minoan pottery chronology is used to date the iconographic sources presented in this thesis. The chronological system commonly used to date Mycenaean pottery is named Helladic; in its third phase, the Late Helladic III (LH III) period, and its sub-periods, LH IIIA, LH IIIB, and LH IIIC, are synchronic with the Late Minoan III absolute dates, as Stuart W. Manning point out.[7]

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[5] Nanno Marinatos, *Minoan Religion and Ritual* (Columbia: University of South Carolina Press, 1993), p. 4.
[6] Erik Hallager, 'Crete', in *The Oxford handbook of the bronze Age Aegean (ca. 3000-1000 BC)*, edited by Eric H. Cline (Oxford: Oxford University Press, 2010), 149-159, p. 150.
[7] Stuart W. Manning, 'Chronology and Terminology', in *The Oxford handbook of the bronze Age Aegean (ca. 3000-1000 BC)*, edited by Eric H. Cline (Oxford: Oxford University Press, 2010), 11-28, p. 17.

Natural science	Historical	Pottery	Palaces			Administration	
1613	1540	LM IA	Neo-palatial	Neo-palatial	Neo-palatial	Minoan	Minoan
1525	1450	LM IB					
1425	1400	LM II LM IIIA:1		Mono-palatial	Final palatial	Mycenaean	Intermediate
1300	1300	LM IIIA:2 LM IIIB:1	Post-palatial	Final palatial			Mycenaean
1200	1200	LM IIIB:2 LM IIIC early		Post-palatial	Post-palatial		
1050	1050	LM IIIC late Subminoan					

Figure 1. Table of the three Minoan chronological systems, pottery, palaces, and administration in relation to absolute dates. Reproduced from Hallager, 'Crete', p. 150.

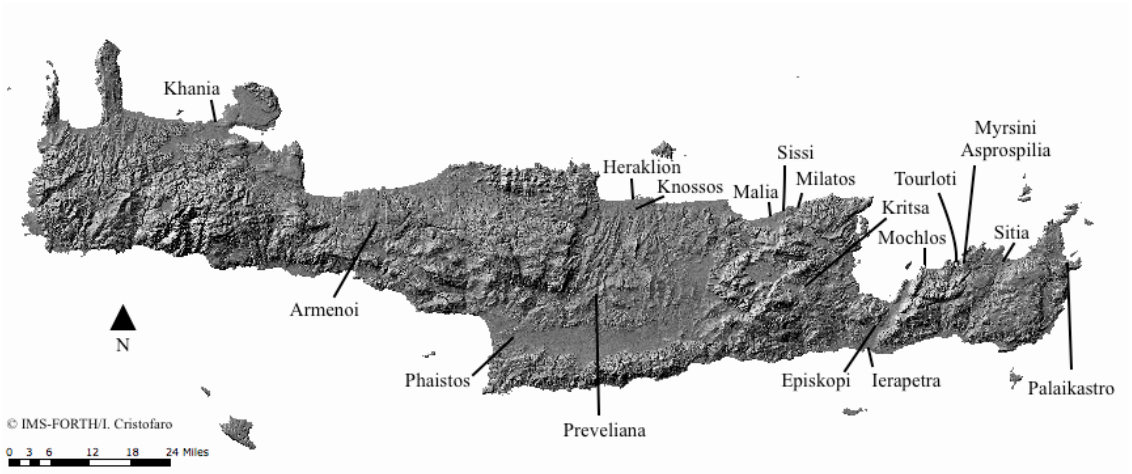


Figure 2. Map of Crete, with sites mentioned. Reproduced and adapted from the Institute for Mediterranean Studies-FORTH Website [accessed January 20, 2018].

The geographical setting of the research is Crete, an island located in the southern part of Greece. Homer (c. 8th century B.C) recounted that 'there is a land called Crete, in the midst of the wine-dark sea, a fair, rich land, begirt with water, and therein are many men, past counting, and ninety cities'.[8] A map of the island, with the Minoan sites cited in this study, is shown in figure 2. The outline of this thesis is as follows: it will start with a review of the academic literature on the after-life beliefs of Late Minoan III culture, with a particular focus on the role of the sun and of the sea, and on the cosmological entity of the 'axis mundi'. Then comes chapter II, with an exposition of the fieldwork conducted in Crete, the choice of the method adopted and its theoretical justification. In chapter III, the fieldwork results will be presented in the form of coded themes with the aid of selected pictures. Subsequently, in chapter IV, the discussion of the findings from the phenomenological fieldwork will be compared with the iconography, by contextualising the results within the theories presented in the literature review. The fragmentary prehistoric material culture will be complemented with later literary sources; a consideration of the limitations of this study will complete the chapter. A concluding section will bring together the arguments of this thesis. Although the archaeological reconstruction of the perceived prehistoric belief system seems to remain speculative, its interpretation is determined by the epistemology adopted through my experienced participation within the Cretan landscape.

[8] Homer, *The Odyssey*, translated by A. T. Murray (Cambridge, MA: William Heinemann, 1919), XIX, 172-174.

Chapter I. The Literature Review

Introduction

This chapter will consider previous academic researches into the role of sunlight reflected on sea within the secondary literature on Bronze Age Cretans. Although sun and water are primary factors in life, their symbolic interaction through reflection is an almost unexplored topic within Minoan archaeology. At first, the analysis will look at the role of the sun that previous scholars have recognised within Minoan religion. Subsequently, Late Minoan funerary art and some interpretations of related afterlife beliefs will be presented, with a focus on the motif of the octopus. Then, the idea of regeneration of life is discussed according to theories relating to the cosmological understanding of the sea and the chthonic role of the sun. Following this, the analysis will review the concept of the axis mundi, approached from a comparative-religion perspective, in order to disclose theories regarding the ways to reach the underworld. Finally, the phenomenon of the glitter path, the intangible primary source for this research, will be introduced. Since the implication of the glitter path for the Minoan culture was never discussed before, overall, this literature review focuses on parallel academic theories regarding meanings and symbolic values which might have been associated by the Minoans with the sight of sunlight interacting with the sea.

The Role of the Sun in Minoan Cosmology

The aim of the following section is to compare and contrast previous academic research efforts studying the role of the sun within Minoan culture. Arthur Evans developed an explanation of a Bronze Age Cretan world-view by comparing it with

other ancient cultures from the Mediterranean area. In particular, he believed that Egyptian solar worship influenced the Bronze Age Cretan culture.[9] In 1901, Evans argued that the Minoan religious belief system was centred on a tree-pillar cult which, among other elements, also had solar connotations.[10] Indeed, in ancient Egypt, two symmetrical animals are often depicted as guardians of the sun at the horizon. Minoan imagery used the same scheme of the two guardian animals but placed a pillar instead of the sun.[11] For Evans, in Minoan religion, the pillar was worshipped beyond its structural architectonic function and regarded as an image of divinity.[12] On this early phase of Minoan-religious scholarship, Martin Persson Nilsson published an influential work arguing against Evans' theory.[13] He claimed that the sun, as well as other heavenly bodies, did not play a cult role for the Minoans, although he believed they had some place within their religious ideas.[14] He interpreted most of the sun's depictions, such as the crossed circle, as merely decorative motifs.[15] However, Arne Furumark, within his pottery analysis, supported the idea that 'sun rites were among the religious customs of the Minoans', due to the prevalence and prominence of solar symbols within pictorial compositions, arguing against the ornamental function asserted by Nilsson.[16] From this early stage of the debate on Minoan cosmology, Evans' and Nilsson's opposite arguments laid the foundation for the debate on a possible solar cult within Minoan religious culture.

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[9] Arthur Evans, *The Mycenaean Tree and Pillar Cult and its Mediterranean Relations* (London: Macmillan, 1901), p. 64.
[10] Evans, *The Mycenaean Tree and Pillar Cult*, p. 64.
[11] Evans, *The Mycenaean Tree and Pillar Cult*, p. 64.
[12] Evans, *The Mycenaean Tree and Pillar Cult*, pp. 55, 63-65.
[13] Martin Persson Nilsson, *The Minoan-Mycenaean Religion and Its Survival in Greek Religion* (Lund: C. W. K. Gleerup, 1927).
[14] Nilsson, *The Minoan-Mycenaean Religion*, p. 413.
[15] Nilsson, *The Minoan-Mycenaean Religion*, pp. 355-363, 424.
[16] Arne Furumark, *The Mycenaean Pottery: Analysis and Classification* (Stockholm: Victor Pettersons, 1941), pp. 460-461.

In 1989, Goodison was the first arguing for a primacy of a solar goddess worship within Minoan cosmology.[17] Goodison based her analysis of Aegean religion on an interpretation of the changing symbolism from the Early Bronze Age to the Early Iron Age; archaeological findings from the Cyclades, Crete, and mainland Greece were analysed conjunctly.[18] The abundance of possible solar motifs on Minoan imagery causes her to highlight the importance of the sun in Cretan Bronze Age culture.[19] Most important for the present research, Goodison drew attention to the close relationship between the sun and the sea within Aegean funerary beliefs: she proposed that the journey of the deceased was connected with the movement of the sun across the chthonic sea.[20] Following the assumption of the solar goddess cult, Marinatos built upon Evans' work by adopting a Near Eastern lens for the interpretation of Minoan cosmology.[21] She argued that other Minoan symbols had a solar character; for instance, the symbolism of the double axes was interpreted as the regenerative potential of the rising sun at the horizon in order to explain its both sea-chthonic and celestial presence in Minoan iconography.[22] According to her interpretation, based on templates from Near East and Egyptian belief systems, 'the ultimate journey of the dead was the arrival at the land of the sun', the afterlife destination represented by the double axes.[23] At the present time, within the academic world, there is no strong agreement on the role of the sun within Minoan cosmology; the relationship between

[17] Goodison, *Death, women, and the sun,* pp. 72-73.
[18] Goodison, *Death, women, and the sun*, pp. xiii-xviii.
[19] Goodison, *Death, women, and the sun*, p. 15.
[20] Goodison, *Death, women, and the sun*, pp. 33-49.
[21] Nanno Marinatos, *Minoan Kingship and the Solar Goddess: A Near Eastern Koine* (Chicago: University of Illinois Press, 2010), p. 194.
[22] Marinatos, *Minoan Kingship*, pp. 114-130.
[23] Marinatos, *Minoan Kingship*, p. 148.

the sun and the chthonic sea was highlighted by Goodison and Marinatos, suggesting that the sun was regarded as an emblem of the soul's resurrection in the afterlife. Therefore, in the next step of this review, the evidence found in funerary art will help to better assess the possible significance of the sea as an underworld realm within Minoan culture.

Late Minoan Afterlife Beliefs from Larnax Art to Octopus Style Stirrup Jars

In the following section, the information brought to light by previous studies of representations of the underworld and of afterlife beliefs present in Late Minoan funerary art will be discussed. Major material for evidence and interpretation is offered by the decorations on clay coffins, or larnakes, examples of which are shown in figures 3, 4, and 5. This method of burial, in the form of a chest or bathtub receptacle, started to be used in the 14th century B.C., as L. Vance Watrous pointed out.[24] The main theme depicted on larnakes is the sea: on the 167 LM III Minoan and Mycenaean larnakes identified by Emma Saunder, 125 of them have marine illustrations, such as ships, octopuses, cuttlefishes, other fishes, and shells.[25] Apart from the marine images, larnakes have floral, fauna, human, and mythical figures depicted on them, such as waterfowls, lilies, palm trees, wild goats, sphinxes, chariots, and hunting scenes. Among these elements on Cretan larnakes, Vincent Robin d' Arba Desborough noted that 'the favoured motive being an octopus with very stylized loop tentacles' grasping

[24] L. Vance Watrous, 'The Origin and Iconography of the Late Minoan Painted Larnax', *Hesperia*, Vol. 60, 3 (1991), 285-320, pp. 285-288.
[25] Emma Saunders, 'Pictures from the sea: The role of marine imagery and artefacts in the Bronze Age Aegean' (unpublished doctoral dissertation, Trinity College Dublin, 2008), n.p., cited in Ina Berg, 'Marine Creatures and the Sea in Bronze Age Greece: Ambiguities of Meaning', *Journal Maritime Archaeology*, Vol. 8, 1 (2013), 1-27, p. 15.

its cultural significance, as Saunder quantitatively demonstrated in a later research.[26] Scholars such as Watrous, Marinatos, and Laura Preston separately argued that these artefacts depicted cosmological ideas regarding death and the afterlife.[27] Athanasia Kanta, however, favoured a different direction of enquiry, noting the depiction of funerary processions; and yet, human figures are rarely represented on Minoan larnakes.[28] Suggesting a richness of significance, larnax art seems to constitute a fundamental iconographic testimony of LM III eschatology, hence, it will be used in the present research as primary data for the characterisation of Late Bronze Age Cretan afterlife beliefs.



Figure 3. Bathtub larnax decorated with two stylised octopuses and a star-like motif. From Episkopi cemetery. LM IIIA2/B1. Archaeological Museum of Heraklion. Photo by I. Cristofaro, 2017.

[26] Vincent Robin d'Arba Desborough, *The Last Mycenaeans and their Successors: An Archaeological Survey c. 1200 - c. 1000 B.C.* (Oxford: Clarendon Press, 1964), p. 171; Saunders, 'Pictures from the sea', n.p., cited in Berg, 'Marine Creatures and the Sea in Bronze Age Greece', p. 16.
[27] Watrous, 'The Origin and Iconography', p. 302; Marinatos, *Minoan Kingship*, pp. 141, 150; Laura Preston, 'Contextualising the Larnax: Tradition, Innovation and Regionalism in Coffin Use On Late Minoan II-IIIB Crete', *Oxford Journal of Archaeology*, Vol. 23, 2 (2004), 177-197, p. 178.
[28] Athanasia Kanta, *The Late Minoan III Period in Crete: A Survey of sites, pottery and their distribution*, Studies in Mediterranean Archaeology, Vol. 58 (Göteborg: Paul Aströms Förlag, 1980), p. 158.



Figure 4. Chest larnax decorated with stylised octopuses. From Armenoi cemetery. LM III. Archaeological Museum of Khania. Photo by I. Cristofaro, 2017.



Figure 5. Chest larnax decorated with birds pecking at the palm tree between them, and a fish on the side. From Preveliana cemetery. LM IIIA2/B1. Archaeological Museum of Heraklion. Photo by I. Cristofaro, 2017.

According to Lucia Alberti, between the LM IIIB and the LM IIIC phases, a new form of burial pottery, known as Octopus Style stirrup jar, was manufactured in parallel with, and later substituting, the production of larnakes.[29] Examples of Octopus Style stirrup jars are shown in figures 6 and 7. Characterised by the decoration of cephalopods, these jars were mainly found in tombs; therefore, Alberti stated that the octopus motif was linked with a belief system regarding death and the afterlife.[30] Possibly, as William Cavanagh and Christopher Mee considered, stirrup jars were used as unguent vessels filled with perfumed oil for offerings or for anointing the deceased.[31] Mervyn Popham referred that this new style of pottery spread across the Aegean world but, as commonly agreed by archaeologists, has Cretan origins.[32] Even despite this geographical expansion, Desborough judged the decorative repertory found on these jars showed a uniformity in motifs.[33] This homogeneity of themes supports the idea, developed by Marinatos, that LM III funerary iconography showed a crystallised mythology about the afterlife.[34] Although the pottery evolved from larnakes to stirrup jars, the octopus motif seems to have been the fundamental iconographic depiction in funerary context at the end of the Minoan Bronze Age. This is evident by its attested continuity across both types of pottery and its acquisition of importance as main subject of a whole pottery style. In the next section, the significance of the octopus will be further examined.

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[29] Lucia Alberti, 'The Funerary Meaning of the Octopus in LMIIIC Crete', in *Studies in Mediterranean Archaeology for Mario Benzi*, edited by Giampaolo Graziadio, Riccardo Guglielmino, Valeria Lenuzza, and Salvatore Vitale, British Archaeological Reports International Series, Vol. 2460 (Oxford: Archaeopress, 2013), 69-77, p. 72.
[30] Alberti, 'The Funerary Meaning of the Octopus', p. 76.
[31] William Cavanagh and Christopher Mee, *A Private Place: Death in Prehistoric Greece*, Studies in Mediterranean Archaeology, Vol. 125 (Jonsered: Paul Åström Förlag, 1998), p. 119.
[32] Mervyn Popham, 'Some Late Minoan III Pottery from Crete', *The Annual of the British School at Athens*, Vol. 60 (1965), 316 - 342, p. 332.
[33] Desborough, *The Last Mycenaeans*, p. 171.
[34] Marinatos, *Minoan Kingship*, p. 150.



Figure 6. Octopus Style stirrup jar with a stylised octopus or cuttlefish. From Knossos-Venizeleio and Gypsades, Crete. LM IIIB. Archaeological Museum of Heraklion. Photo by I. Cristofaro, 2017.



Figure 7. Octopus Style stirrup jars with octopus motifs. From Ialysos, Rhodes, Greece. LM IIIC. Archaeological Museum of Rhodes. Reproduced and adapted from Constantinos Paschalidis, *The LMIII Cemetery at Tourloti, Siteia: The 'Xanthoudidis Master' and the Octopus Style in East Crete*, British Archaeological Reports International Series, Vol. 1917 (Oxford: Archaeopress, 2009), p. 64.

The Octopus-Plant Motif

In previous academic research, the possible role of octopus images within Minoan and Mycenaean cosmology was discussed. For example, Edgar J. Forsdyke stated that, with 'the octopus or cuttlefish being the chief creature of the sea', these were regarded as religious motifs within Minoan culture.[35] Robert Laffineur stated that, with its frequent presence in funerary contexts, it might be regarded as the function of guarantee of the way to the afterlife.[36] Similarly, Ernst Grumach suggested that the motifs of sea creatures on larnakes, such as the octopus, might have acted as safeguards of the dead on the journey through the underworld-sea.[37] With her doctoral thesis on the Octopus Style, Michimasa Doi concluded that the animal was a symbolic representation of the sea, suggesting the idea of its role of protector during seafaring journeys, and, in funerary contexts, as having an apotropaic function for the dead for securing 'their journey to the lands beyond the sea'.[38] Popham, and subsequently Kanta, however, drew attention to the presence of marine creatures on other vases apart from coffins, concluding that they had only an ornamental purpose.[39] Kanta also suggested a role for the octopus as a 'trademark' for perfumed oil: the imitation of the Octopus Style on the mainland and other islands, might be regarded as a marketing

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[35] Edgar J. Forsdyke, *Catalogue of Greek and Etruscan Vases in the British Museum: Prehistoric Aegean Pottery*, Vol. 1, 1 (London: British Museum, 1925), p. 194.
[36] Robert Laffineur, 'La mer et l'Au-delà dans l'Egée préhistorique', in *Thalassa: L'Egée prehistorique et la mer,* edited by R. Laffineur and L. Basch, Aegaeum, Vol. 7 (Liège: Université de Liège, 1991), 231-238 p. 231.
[37] Ernst Grumach, 'The Minoan Libation Formula-Again' (paper presented at the conference on Minoan and Mycenaean writing, University of Edinburgh, United Kingdom, 29th October 1966), 7-26, pp. 24-25.
[38] Michimasa Doi, 'The Octopus Style: A study of octopus-painted Aegean pottery of 12th-11th centuries B.C.E., its regional styles, development and social significance' (unpublished doctoral thesis, University College of London, 2006), p. 244.
[39] Popham, 'Late Minoan Pottery', p. 347; Kanta, *The Late Minoan III Period in Crete*, p. 157.

strategy 'to cash in on the Cretan market for perfumed oil'.[40] There seems to be some anachronistic thinking in Kanta's suggestion, overlooking the powerful role of the sea and of its creatures which, for islanders fully dependent on nature, was a daily challenge. Different opinions are evident regarding which concepts the octopus might have embodied, so, only a deeper analysis of pottery decoration can help to better uncover the cultural significance of this motif.

According to Doi's analysis, the LM IIIC Octopus Style stirrup jars acquired an addition of idiosyncratic decoration with respect to that in the previous LM IIIB period, with the inclusion of other elements, such as palm trees, animals, horns, and wheels.[41] In particular, Furumark developed the idea of the octopus-plant as a hybrid form of the 'Mycenaean flower' motif with the octopus motif, mainly basing the association on the visual resemblance between an octopus' eyes and a plant's volutes, as figure 8 highlights.[42] Moreover, in LM IIIC Octopus Style stirrup jar decorations, Alberti highlighted the possible presence of the cosmic tree and other elements from the natural world, which appear as if generated by the octopus, since they are evident occupying the space between its tentacles.[43] For this reason, Alberti synthesised the meaning embodied by the octopus in a 'symbol of a spirit of life, a regenerator element, from and to which every living being, animal or vegetal, arises and returns.'[44] The degeneration of natural representation into abstract shapes seems to have been intended as a way to represent the many layers of meaning which this animal embodies.

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[40] Kanta, *The Late Minoan III Period in Crete*, p. 296.
[41] Doi, 'The Octopus Style', p. 240.
[42] Furumark, *The Mycenaean Pottery*, pp. 288-292.
[43] Alberti, 'The Funerary Meaning of the Octopus', p. 76.
[44] Alberti, 'The Funerary Meaning of the Octopus', p. 76.

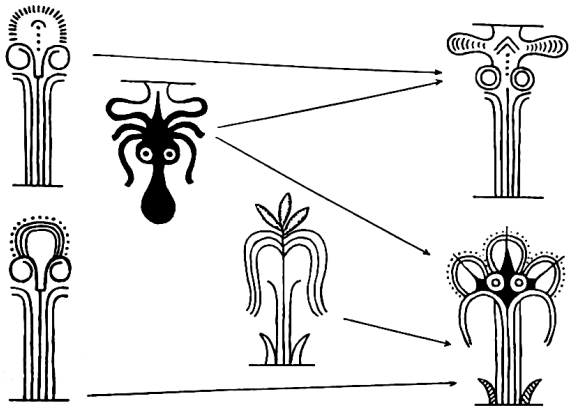


Figure 8. Process of hybridisation of the octopus-plant motif according to Furumark. Reproduced from Furumark, *The Mycenaean Pottery*, p. 289.

The frequency and prevalence of its depiction on LM funerary art supports the hypothesis of the octopus playing an important role in the journey of the deceased across the Minoan underworld. Although there is no common agreement between scholars of the role of the octopus, it was regarded as a guidance entity towards regeneration in the afterlife by Grumach, Laffineur, Doi.[45] Alberti associated it to a principia of life, whereas for Kanta it might have been regarded as merely ornamental, or even a Cretan commercial mark.[46] Uniformly across scholars' opinions, a connection between the octopus and the sea was stressed. It is, indeed, the role of the sea in relation to the idea of regeneration which will be discussed in the next step of this literature review.

[45] Grumach, 'The Minoan Libation Formula', pp. 24-25; Laffineur, 'La mer et l'Au-delà', p. 231; Doi, 'The Octopus Style', p. 244.
[46] Alberti, 'The Funerary Meaning of the Octopus', p. 76; Kanta, *The Late Minoan III*, pp. 157, 296.

The Chthonic Sea and Fertility

The previous discussion highlighted the major presence of sea elements in funerary art and, for this reason, the sea was regarded as a fundamental part of the netherworld by Minoan scholars, or 'meant to receive the death', in the words of Marinatos.[47] Indeed, boats were offered to the deceased in the Minoan world, as Chrysanthi Gallou discussed.[48] However, Ina Berg argued for an ambiguity of perceptions regarding the sea in the Bronze Age, pointing out its strong association not only with the death, as also with fertility, therefore connoting the sea as a 'powerful liminal place'.[49] Indeed, as already examined, the octopus itself embodied the notion of the sea and of fertility, as attested in its hybridisation with a plant. As pointed out by Mee, the material evidence of offerings in tombs, such as vessels containing food and drink, supported the idea of a faith in an afterlife.[50] Moreover, the care performed during funerary rituals seems in contrast with a later disturbance of burials and a scattering of bones, but the phenomenon was explained by Mee with the belief in a liminal phase during which the spirit of the deceased released itself from the body.[51] Adding to this idea, Gallou supposed that, during this transitional time, the deceased moved 'betwixt and between' the realm of the ancestors and the earthly world.[52] Therefore, a liminal state of existence between life and death might have been conceived. Although there is no clarity about the final destination place of departed souls, below the sea, on a far land,

[47] Marinatos, *Minoan Religion and Ritual*, p. 231.
[48] Chrysanthi Gallou, 'The Mycenaean cult of the dead in central Greece' (unpublished doctoral thesis, University of Nottingham, 2002), p. 125.
[49] Ina Berg, 'Marine Creatures and the Sea in Bronze Age Greece: Ambiguities of Meaning', *Journal Maritime Archaeology*, Vol. 8, 1 (2013), 1-27, p. 15.
[50] Christopher Mee, 'Death and Burial', in *The Oxford handbook of the bronze Age Aegean (ca. 3000-1000 BC)*, edited by Eric H. Cline (Oxford: Oxford University Press, 2010), 277-290, pp. 287-289.
[51] Mee, 'Death and Burial', pp. 287-289.
[52] Gallou, 'The Mycenaean cult of the dead', p. 193.

or in the sky, the sea seems to have been regarded as a fundamental liminal passage in the Minoan post-mortem journey.

Intriguingly, according to some scholars such as Bernard C. Dietrich, there is an 'archaeological lacuna' of burial findings during the Late Bronze Age, attested to by later analysis by Sylviane Déderix, which has lead scholars to hypothesise that there was the custom of burial at sea.[53] Nevertheless, research into grave orientation has offered more evidence for interpretations of Minoan eschatology. Goodison based theories for the solar element of regeneration within Bronze Age Aegean after-life beliefs on the prevailing eastern orientation of tombs.[54] In fact, Blomberg and Henriksson surveyed 323 chamber tombs from the Late Bronze Age identifying a clear preference for an eastern orientation, but neither a solar, lunar or stellar character to the alignment was evident, due to the lack of correspondent horizon-altitude measurements.[55] As already mentioned, according to Goodison and Marinatos, the sun had a role as the regenerative aspect of after-life Minoan faith.[56] More evidence of the chthonic presence of the sun can be attested to in the archaeology of funerary offerings. Golden plates with octopuses, as well as other motifs, were common in Mycenaean shaft graves. Gold rings were found in Cretan tombs, such as the one with rosettes worn by a woman from a tomb at Palaikastro. For Laffineur, the golden

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[53] Bernard C. Dietrich, 'Death and Afterlife in Minoan Religion', *Kernos*, Vol. 10 (1997), 19-38, p. 26; Sylviane Déderix, 'Capturing the Dynamics of the Minoan Mortuary Space in South Central Crete', in *Minoan Archaeology: Perspective for the 21st Century*, edited by Sarah Cappel, Ute Günkel-Maschek, and Diamantis Panagiotopoulos (Louvain: Presses universitaires de Louvain, 2015), 61-75, p. 68.
[54] Goodison, *Death, women, and the sun*, pp. 84-85.
[55] Mary Blomberg and Göran Henriksson, 'Differences in Minoan and Mycenaean orientations in Crete' in *Astronomy, Cosmology and Landscape*, Proceedings of the SEAC 98° meeting, edited by Clive Ruggles, Frank Prendergast, and Tom Ray (Bognor Regis, U.K.: Ocarina Books, 2001), 72-91, pp. 77-78.
[56] Goodison, *Death, women, and the sun*, p. 38; Marinatos, *Minoan Kingship*, p. 148.

material in funerary contexts was relative to the durability of the magical virtues embodied by the tokens and guarantee of immortality for the defunct.[57] The funerary role of gold was also discussed by János György Szilágyi, who concluded that it relates to the sun's radiance, since gold 'consecrates the deceased as the inhabitant of the realm of the Sun'.[58] Although Szilágyi considered evidence from different cultural contexts, the fact that tombs have been characterised by gold or bronze objects, such as jewellery, plates, and masks, may be a hint to support a solar element in the Minoan eschatology. The role of the sea in connection with ideas regarding the renewal of life was attested by previous research. To further disclose beliefs regarding the journey to the underworld, the cosmological concept of the axis mundi will now be considered.

Axis Mundi: A Cosmological Concept for the Journey to the Underworld

In Late Minoan cosmology, the idea of the axis mundi was mentioned in Evans's analysis, where the cosmic axis in the form of a tree or a pillar could be seen to be the basis of a Minoan solar religion.[59] Also, Marinatos identified a tree of life in the palm motif depicted on larnakes, considering that it had ultimately a solar character.[60] However, Evans' and Marinatos' arguments were based on a comparative parallel with other Mediterranean and Near East cultures. According to studies in comparative religion, the axis mundi is a cosmological concept whose specific characteristics are

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[57] Robert Laffineur, 'Fécondité et pratiques funéraires en Égée à l'âge du Bronze,' in *Archaeology and Fertility Cult in the Ancient Mediterranean: Papers presented at the first International conference on archaeology of the ancient Mediterranean, Malta 1985*, edited my Anthony Bonanno (Amsterdam: Gruner Publishing, 1986), 79-96, p. 87; Robert Laffineur, 'Iconographie minoenne et iconographie mycénienne à l'époque des tombes à fosse', *Bulletin de Corrispondence Hellenique*, Vol. 11 (1985), 245-266, pp. 258-260.
[58] János György Szilágyi, 'Some problems of Greek Gold Diadems', *Acta Antiqua Academiae Scientiarum Hungaricae*, Vol. 5 (1957), 45-93, p. 74.
[59] Evans, *The Mycenaean Tree and Pillar Cult*, p. 64; Arthur Evans, '"The Ring of Nestor": A Glimpse into the Minoan After-World and A Sepulchral Treasure of Gold Signet-Rings and Bead-Seals from Thisbê, Boeotia', *The Journal of Hellenic Studies*, Vol. 45, 1 (1925), 1-75, pp. 48-52.
[60] Marinatos, *Minoan Kingship*, pp. 61-62, 109,147-148.

here explained as they will become useful in the discussion in chapter IV. A review of comparative-religion sources is justified by the application of Carl Gustav Jung's idea of archetypes, defined as universally present concepts underlying myths and social practices locally constituted.[61] Indeed, the cosmic tree, cosmic axis, axis mundi, or tree of life was often identified as a universally present concept across widely disparate cultures, as highlighted by Jacques Brosse.[62] In particular, Michael A. Rappenglück discussed the concept of the axis mundi cross-culturally, converging different myths into the concept of a stable and constantly rotating axis supporting the whole world, fixed on a pivotal centre of powerful intensity, by times an earthly reflection of the celestial pole or of the zenith.[63] Seeing the axis mundi placed at the centre of the world, Mircea Eliade pointed out that, from the centre, the four cardinal directions diverge, defining in this way an orientation system.[64] Moreover, in the process of spatial orientation, this centre is described by Titus Burckhardt as ubiquitous: the centre is everywhere, since it moves with the observer.[65] Having introduced some characteristic properties of this entity, this investigation will focus on the role of the cosmic axis in the after-death journey.

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[61] Carl Gustav Jung, *Gli archetipi dell'inconscio collettivo* (Torino: Bollati Boringhieri, 1977), p. 9.
[62] Jacques Brosse, *Mitologia degli alberi: dal giardino dell'Eden al legno della croce* (Milano: Biblioteca Universale Rizzoli, 1994), p. 9.
[63] Michael A. Rappenglück, 'The Pivot of the Cosmos: The Concepts of the World Axis across Cultures' in *Cosmic Catastrophes: A Collection of Articles from the Conference SEAC 2002, Tartu, Estonia*, edited by Mare Kõiva, Izold Pustylnik, and Liisa Vesik (Tartu: Center for Cultural History and Folkloristics in Estonia, Tartu Observatory, 2005), 157-165, pp. 158, 161.
[64] Mircea Eliade, *The Sacred and the Profane: The Nature of Religion* (New York: Harcourt and Brace, 1959), p. 45.
[65] Titus Burckhardt, *Arte sacra in Oriente e in Occidente: L'estetica del Sacro* (Milano: Bompiani, 2003 [1974]), np.

Eliade and Laurence E. Sullivan argued that the cosmic axis connects the upper, middle and underworld.[66] Indeed, according to Fritz Graf, in the ancient Mediterranean cosmologies, the world of the dead was conceived as located at a different metaphysical plane with respect to the terrestrial one.[67] Similarly, regarding the spatial organisation of the cosmos between the world of the living and that of the dead, Paolo Xella pointed out how these two worlds are often connected by access ways.[68] In fact, in the journey of the deceased towards the netherworld, Eliade discussed that the cosmic axis represents the symbolic entity by which the dead travel.[69] Being a universal concept present across the world, the axis mundi was reproduced in a variety of images of material objects, and not only as a tree. Among the vehicles used to reach the underworld, Franz Cumont mentioned the foot, the ship, the carriage, horseback, wings, and others.[70] More relevant for the present thesis, Cumont summed up the theory of 'solar attraction' by comparing the afterlife beliefs of the Pythagorean, Hellenistic, Chaldean, Egyptian, and Mithraic traditions. According to these traditions, he stated, 'it is to the power of the Sun…that the ascension of the soul is due'.[71] According to Cumont's analysis, sunlight was believed to transport the dead, the sun being the psychopomp god.[72] This idea of sunlight as a

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[66] Mircea Eliade and Laurence E. Sullivan, 'Center of the World', in *The Encyclopaedia of Religion*, Vol. 3, edited by Mircea Eliade (New York: Macmillan, 1987), pp. 167-171.
[67] Fritz Graf, 'The Bridge and the Ladder: Narrow Passages in Late Antique Visions', in *Heavenly Realms and Earthly Realities in Late Antique Religions*, edited by Ra'anan S. Boustan and Annette Yoshiko Reed (Cambridge: Cambridge University Press, 2004), 19-33, p. 19.
[68] Paolo Xella, 'Prefazione', in *Archeologia dell'Inferno: l'Aldilà nel mondo antico vicino-orientale e classico*, edited by Paolo Xella (Verona: Essedue edizioni, 1987), 7-10.
[69] Mircea Eliade, *Immagini e simboli: saggi sul simbolismo magico-religioso* (Milano: Jaca Book, 1980 [1952]), p. 48.
[70] Franz Cumont, *After Life in Roman Paganism: Lectures Delivered at Yale University on the Silliman Foundation* (New Haven: Yale University Press, 1922), p 153.
[71] Cumont, *After Life in Roman Paganism*, pp. 160-161; Franz Cumont, *Lux perpetua* (Paris: Librairie orientaliste Paul Geuthner, 1949), pp. 301, 364, 379; Franz Cumont, 'La théologie solaire du paganisme romain', *Mémoires présentés par divers savants à l'Académie des inscriptions et belles-lettres de l'Institut de France*, Vol. 12, 2 (1913), 447-479, p. 464.
[72] Cumont, *After Life in Roman Paganism*, pp. 94, 160-161.

vehicle to reaching the afterlife might be reflected also in the traditionally radiant tint of the cosmic tree, since Brosse reported myths in which the tree of life is, by times, adorned with gold.[73] Indeed, a solar character is also present in Rappenglück's investigation: even though its pivotal centre in the sky is fixed in the celestial pole or the zenith, he claimed that the world axis is ultimately a sundial, used to track of the course of the sun by using the pole' shadow.[74] Elemental characterisations of the axis mundi focused on its cosmological role creating a centre and fixing an order for ancient societies across the world, by intersecting different states of existence and allowing the after-death journey. From this understanding of the axis mundi, the research here will next introduce the phenomenon of the elongated reflection of sunlight on the sea.

The Sun's Reflection on the Sea

In islands and peninsulas, it is common to see the sun setting or rising over the sea. The reflection of the sunlight on the sea casts a horizontal path of light: this phenomenon is commonly known as the glitter path or glitter pillar. Glitter paths can also be noticed over other bodies of water, such as lakes and rivers. The same phenomenon can be enacted by the light of the moon, as well as by artificial lights. In general, every circular source of visible light, reflecting on a not completely still water' surface, can appear elongated. As David K. Lynch and William Charles Livingston stated, the sun's reflection 'may extend from the horizon directly below the sun almost to our feet'.[75] They explained that the dimension of the reflection is

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[73] Brosse, *Mitologia degli alberi*, p. 33.
[74] Rappenglück, 'The Pivot of the Cosmos', pp. 159-160.
[75] David K. Lynch and William Charles Livingston, *Color and Light in Natur*e (Cambridge: Cambridge University Press, 2001), p. 83.

dependent on the sun's altitude and the waves' inclination.[76] Indeed, when the sun is near the horizon, the path is thin and defined, as figure 9 illustrates. At high altitudes of the sun, the reflection of sunlight on sea appears as a wide mirror of light in the water, as shown in figure 10. The glitter is formed by the multitude of sun images reflecting on the inclined surfaces of waves that point toward the observer. The classical physics behind the phenomenon is described by the laws of optics. Joachim Schlichting pointed out that the physical explanation behind the phenomenon should not restrict one's appreciation of the aesthetic and enchanting value embodied in it.[77] Indeed, Tristan Gooley, in his work *How to Read Water,* described the band of sunlight as a 'one of the most beautiful effects of light on water'.[78] Apart from its scientific explanation, the glitter path was and is an inspiring subject for painters, poets, and artists. The elongated sunlight reflection on sea is a very attractive manifestation of nature, however, no effort has yet been made to contemplate the glitter path from an archaeological perspective, as this research aims to do by further exploring the sun's reflection on sea from a phenomenological perspective.

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[76] Lynch and Livingston, *Color and Light in Natur*e, p. 83.
[77] H. Joachim Schlichting, 'The Glitter Path: An Everyday Life Phenomenon Relating Physics to Other Disciplines' (paper presented in a poster session in the International Physics Education Conference in Durban, South Africa, 5-8 July 2004), p. 9.
[78] Tristan Gooley, *How to Read Water: Clues, Signs & Patterns from Puddles to the Sea* (London: Hodder & Stoughton, 2016), p. 254.

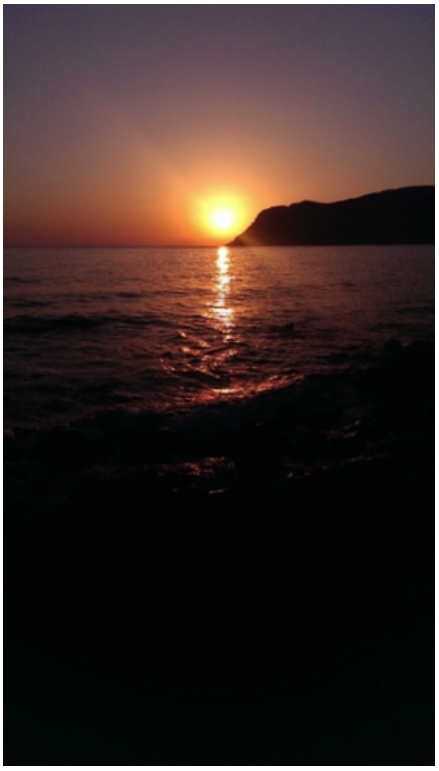


Figure 9. Glitter path over a calm sea formed by the rising sun appearing as an elongated band of light. Photograph taken from seashore at Milatos, Crete. 13th July 2017, h 5.28 (BST+2). GPS Location: N 35° 19' 21.3'' E 25° 33' 24.8''. Elevation: 0 m above sea level. Sun's Azimuth: + 64.5°, Sun's Altitude: + 2°. Photo by I. Cristofaro.



Figure 10. The reflection of the sun appears as a wide light mirror on the sea. Photograph taken from Kalamaki, 12 km from Phaistos, Crete. 10th July 2017, h 16.19 (BST+2). GPS Location: N 35° 01' 05.3'' E 24° 48' 50.1''. Elevation: 0 m above sea level. Sun's Azimuth: + 271.5°, Sun's Altitude: + 38°. Photo by I. Cristofaro.

Conclusion

The intention of this literature review was to investigate what scholars have already stated regarding the fragmentary evidence on the vision of the sun reflected on sea within Minoan archaeology. According to Evans, the sun played a cult role within Minoan religion, relating it to the main worship of sacred trees and pillars. Goodison and Marinatos highlighted the role of the sun in relation to the journey of the deceased, in which it was the soul's final destination for Marinatos, whereas, for Goodison it was the luminary to be followed across the chthonic sea. Discussions of funerary art, such as of larnakes and of Octopus Style stirrup jars, have tended to underline the possible awareness, within Minoan culture, of an afterlife and of a liminal state between life and death, mostly represented by the sea. The motif of the octopus was examined, indicating a diversity of opinions amongst scholars. Its hybrid form confirmed the significant presence of regeneration elements within Minoan eschatology. In turn, the cosmological role of the axis mundi was examined from a comparative perspective, highlighting its relevance in the journey to the afterlife. Finally, the phenomenon of the glitter path was introduced in its physical explanation. This review of secondary sources highlighted the fundamental role of the sun and the sea within Minoan cosmology, such that there are reasons to believe that the glitter path might also have contributed to shape the world view of Bronze Age people living on Crete. The gathering of primary sources from the fieldwork will provide more material for the possible integration of the sun's reflection on sea with the previously discussed solar theories in the context of Minoan eschatological beliefs.

Chapter II. Methodology and Fieldwork

Introduction

The aim of the fieldwork was to explore analogies between the glitter path and material evidence of Minoan culture. This chapter aims to ground the present investigation epistemologically, justifying the choice of the method employed in the context of the discipline of archaeology and related skyscape research. At first, the choice of comparing the phenomenon of the glitter path with the iconographic material will be discussed. Then, details of how the fieldwork was carried out will be presented. Finally, the phenomenological approach adopted will be considered in relation to the practice of bracketing intentionality and reflexivity. This study aims to be an epistemological critique to the anthropocentric and anachronistic way in which some archaeological academic researches frame the discipline, often missing a corporal understanding, symbolic connections, and the deep intimacy between humanity, land, sea, and sky.

The Choice of the Method

The method adopted is based on the qualitative analysis of two types of primary sources: the sun's reflection on the sea and the LM III funerary iconography. By engaging with the Cretan landscape and observing, in first person, the glitter path, my aim was to gather original insights in the understanding of Minoan material evidence by finding correspondences between the natural and the cultural world. This method follows Colin Renfrew's theory based on the idea that the cultural world should be conceived as a symbolic projection of the natural one.[79] I tested hypotheses in the field

[79] Colin Renfrew, *The Emergence of Civilisation: The Cyclades and the Aegean in the Third Millennium BC* (Oxford: Oxbow Books, 2011[1972]), p. 405.

by comparing the sun's elongated reflection on the sea with the Minoan symbols that seemed to resonate and to embody similar qualities. The choice of this method originated from the necessity of investigating the glitter path in its symbolic and cosmological expression within Minoan culture. This approach embraces the epistemology on which the definition of skyscape developed by Fabio Silva, as a cultural space where collective or individual representations are projected, is grounded.[80] The standard method of identifying architectonic alignments, which characterises the discipline of skyscape archaeology, has also been taken in consideration, but a direct correspondence between the sun's reflection on sea and gravesites was not established. Although Minoan cemeteries are generally near the sea, such as the one at Sissi, not often is an open view of it possible. On my visit at the necropolis of Chrysolakkos at Malia on 5th July, I found that the only part of the horizon offering a view of the sea was the north side, where no sunrise or sunset on the sea would have been visible; however, it is possible that, over millennia, strong weather conditions may have modified the costal landscape in this area. Moreover, as Dietrich pointed out, the archaeological lacuna of Minoan sepultures in the Late Bronze Age, which leads to the hypothesis of a preference for burials at sea, suggests that funerary rituals might have performed on the littoral zone.[81] For these reasons, the LM architectural funerary evidence, already surveyed by Blomberg and Henriksson, is here complemented by the wealth of information offered by the funerary imagery.[82] The chosen focus on iconographic material evidence balances with the perspectivism

[80] Fabio Silva, 'The Role and Importance of the Sky in Archaeology: An Introduction', in *Skyscapes: The Role and Importance of the Sky in Archaeology*, edited by Fabio Silva and Nicholas Campion (Oxford: Oxbow Books, 2015), 1-7, p. 2.
[81] Dietrich, 'Death and Afterlife in Minoan Religion', p. 26.
[82] Blomberg and Henriksson, 'Differences in Minoan and Mycenaean orientations', p. 78.

of the phenomenological observations: one approach supports the other, and their interplay aims to give a rich narrative of the Late Bronze Age Minoan cosmology.

The Gathering of Primary Data

Iconographic material was collected by visiting archaeological museums in Crete and Athens, Greece, and from previous academic publications and excavation reports. At the same time, I have gathered primary data on the phenomenology of the glitter path over three months during summer 2017, from the island of Crete. I took around 500 pictures and, every day, I observed a reflection during sunrise or sunset. The impressions acquired during the observations were recorded in written notes, drawings, and paintings, aiming to embrace an in-depth response to the sun's elongated reflection on the sea. During the phenomenological fieldwork, the choice of the locations was, at times, intentionally determined by my will to look for a glitter path and, at times, was a matter of chance: seeing the reflection of the sun on the sea is, indeed, a very common occurrence on the island. I was aiming to look at the phenomenon from various view points, such as near the coast or from a hill, and in varied weather conditions in order to achieve maximum perspective on the different manifestations of the glitter path. I recorded the locations and elevations of my observation points with a Garmin Etrex GPS and later, by using the date and time recorded on the digital photographs, I derived the azimuth and altitude of the sun with the software 'Stellarium', in order to give quantitative details of the pictures presented. The observations were performed in accordance with a specific phenomenological approach, as expanded in the next section.

Phenomenology and Reflexivity

Within the discipline of archaeology, different phenomenological theories and methods are the subject of an unresolved epistemological debate. The phenomenological method I employed stands on a resonance effect, where one's awareness is concentrated on the personal inner somatic reality responding to the outer world. I practised phenomenology by adopting a naïve way of looking at the world, similarly to the perspective of a child, by entering into a state of being characterised by resonance, transparency, primordial receptivity, neutrality, participation, and empathy. Following what Edmond Husserl called 'the phenomenological transcendental reduction' or 'bracketing', I have tried to achieve an elemental inner condition and a powerfully open receptive state.[83] By creating space within my inner reality and setting aside my own preconceptions, I was focusing on my somatic response to the sun's reflection on the sea: in this way, the act of mere observation is transformed into a form of participation with the phenomenon. In order to comprehend my role as researcher within the research process, I engaged with a reflexive approach, as practised and theorised by Ian Hodder within the archaeological discipline. Hodder defined reflexivity as 'the self-critical awareness of one's archaeological truth claims as historical and contingent'.[84] Indeed, as a researcher, I find I have preconceptions and biases, which inevitably add layers of meaning on my reconstruction of the past. Nevertheless, during the whole research process, I strived to keep myself as receptive and intellectually open as possible. The experience acquired from the phenomenological fieldwork is that, by exposing the researcher over a long-lasting

[83] Edmund Husserl, *Ideas: General Introduction to Pure Phenomenology*, translated by W. R. Boyce Gibson (London: George Allen & Unwin, 1962 [1913]), pp. 171-184.
[84] Ian Hodder, 'Archaeological Reflexivity and the "Local" Voice', *Anthropological Quarterly*, Vol. 76, 1 (2003), 55-69, p. 56.

time frame to the observation of a natural event, some sensations would prevail above others and data would reach saturation. In this way, the gathering of several records suggests that the experience of the glitter path can be replicable in the impressions which it elementally evokes.

Conclusion

By comparing two sources of primary data, gathered from observing the sunlight on the sea and from iconographic evidence, the research aims to produce a thick interpretation of the cosmological value of the glitter path. The choice of combining two types of primary sources is based on Renfrew's proposal that the archaeological material culture produced by a society is a symbolic reflection of the local natural world. Phenomenology has been discussed in relation to Husserl's idea of reduction. Having noticed that the passive observations were transformed into participation, reflexivity was consequently considered as an approach valid to acknowledge my biases as a researcher and to evaluate my influence on the results. In trying to glean a cosmological understanding of a society, the local archaeological material culture is interpreted by participating with the land-, sea-, and skyscape. The impressions gathered during the phenomenological fieldwork, coded into themes, will be presented in the next chapter.

Chapter III. Fieldwork Results and Findings

Introduction

The practice of observing the sun's reflection on sea over three months in Crete has produced themes, which will be considered in this chapter. The phenomenological fieldwork notes have been coded highlighting qualities of the glitter path. These will be illustrated in the concepts of sunlight's multiplication, sense of connection, direction, and orientation, ubiquity, axial position, undulatory movement, and liminality. These characteristics, inherent in the phenomenon, will be reported in the form of raw results, with quotes directly from my fieldwork notebook. Selected photographs will be presented as visual documentation. Even if these findings are relative to the island of Crete, they may be valid in other geographical contexts, since, apart from weather conditions, the sun's reflection on sea manifests itself in an almost universal way.

Sunlight Multiplication

When the sun reflects its light on sea, the water surface acts as a multitude of mirrors giving back to the observer a greater amount of light. Indeed, the sun appears as a circular form in the sky, whereas the reflection can be a huge expanse of light, especially on a calm sea, as visible in figure 11. The reflection revealed 'a resplendent sea, vital and ablaze', as my notes reported during the sunrise of 3rd July; this vision provoked in me a response such that 'in my inner landscape, light is multiplied, expanded an infinity of times and in abundance'. The watery reflection of the sun often appears more bright than the sun itself. During daytime, the reflection can be so strong as to cause the eye to blink, which makes it hard to look at. When the sun is getting lower on the horizon and starts to become reddish, it is more pleasant to look directly

at the bronze reflection. However, when the sun is just on the horizon, there is no reflection. Therefore, twilight is the most enjoyable time to look at the glitter path, when it acquires a similar bronze luminescence to that of the sun, as shown in figures 9, 12, and 13. The observations revealed that the sun's reflection on sea has different characteristics depending on the time of day. For this reason, it is necessary to distinguish between the day-time sun's reflection and the glitter path itself, by which is intended to sun's elongated reflection at the times around sunrise and sunset. Water reveals itself as a propagator of the sun's power, by transporting and making visible its light beams: it allows the descent of the solar action. The elongated property of the reflection will be further explored in the next step of this chapter.



Figure 11. The sunlight reflected on a calm sea seems multiplied. 4th August 2017, h 16.41 (BST+2). Photograph taken from Ierapetra, Crete. GPS Location: N 34° 59' 54.0'' E 25° 47' 27.6''. Elevation: 6 m above sea level. Sun's Azimuth: + 270°, Sun's Altitude: + 30°. Photo by I. Cristofaro.

A Sense of Connection, Direction, and Orientation

The glitter path is an elongated reflection and it reaches its maximum extension just after sunrise and before sunset, appearing from the horizon to the seashore, such as in figure 12. During the sunrise of the 12th August, I experienced 'the tension of me to

go towards the sun, the tension of walking on the water', as if the glitter path 'wants to indicate a way, within the oceanic vastness'. At the same time, 'the water transports the light, the sun, towards me', as I wrote on 6th July at sunrise. Similarly, James B. Kaler wrote that this reflection phenomenon gives the impression 'as if you could walk into space'.[85] In my notes, it was described as 'a bridge of light', a 'road', a 'channel' toward the sun. Therefore, the phenomenology of the glitter path suggests a sense of connection, direction, and orientation: by creating an intangible luminescent roadway, the glitter path can unite the seashore with the horizon. From my experience, the observer may feel themself being projected toward the sun by a single band of light, which orients the viewer within the vastness of the sea. This visual connection is the expression of an intimate relationship between the sun and the observer, as it will be unfolded in the next section.

Ubiquity: A Firm Relational Phenomenon

The glitter path seemed to follow me as I was moving along the littoral. The fieldwork notes, recorded on 2nd July, stated that the glitter path 'chases me constantly, as if it would direct itself toward me', so that the sun's elongated reflection would never abandon you, appearing real, firm, and intimate. This property is due to the law of reflection, since, in John B. Naylor's words, the sunlight path 'is not located in any particular place', but its physical position depends on that of the viewer.[86] Therefore, when the sun is visible, its reflection is potentially everywhere on the sea surface, depending where the eyes of the observer look from. This gleaming connection

[85] James B. Kaler, *From the Sun to the Stars* (New Jersey: World Scientific, 2017), p. 11.
[86] John Naylor, *Out of the Blue: A 24-Hour Skywatcher's Guide* (Cambridge: Cambridge University Press, 2002), p. 124.

appears personal, since anyone can look at a different glitter path, even if created by the same source of light. The glitter path is therefore a relational phenomenon, commonly established by the observer and by the sun. It is 'invisible to others, only yours, uniquely, intimately made for you', as the fieldwork notes reported during the sunset of the 24th July. Even if intangible and fluid, the impression is of a deep-rooted and consistent connection with the sun, manifesting itself in a dramatic way, as a shining bronze way crossing the sea. Subsequently, this property of ubiquity leads to another characteristic proper of this phenomenon: its axial position of appearance in respect to the horizon.

Axial Position and Perspective

As discussed above, the glitter path manifests itself as indicating a particular direction, relative to the sun's position. A further detail is that this direction is on the horizontal plane, being distended across the water's surface. Moreover, due to its property of ubiquity, the reflection follows a specific position in respect to the line of the horizon: its axis always appears positioned in front of the observer perpendicularly, and never oblique, to the horizon. Marcel G. J. Minnaert discussed that the perspective effect of painting or drawing the glitter path would cause him to 'project everything onto a vertical plane in front of me, and for this reason every patch of light is bound to run in a vertical direction'.[87] Indeed, although the light path extends across the horizontal plane of the water, in every two-dimensional realistic depiction, it would be represented vertically, from the seashore to the horizon. The glitter path always expands frontward in respect of the observer, and drawn or photographed, the band of

[87] Marcel Gilles Jozef Minnaert, *The Nature of Light & Colour in the Open Air* (New York: Dover Publication, 2013[1954]), p. 21.

light stands upright, as evident in figures 12 and 13. Therefore, the glitter path follows a specific axial position, characterised by a right angle in respect to the line of the horizon. This property explains its name as glitter pillar, in that pillars are vertical features supporting architectural structures. However, another quality, to be discussed, takes it far from being comparable with an architectural pillar.

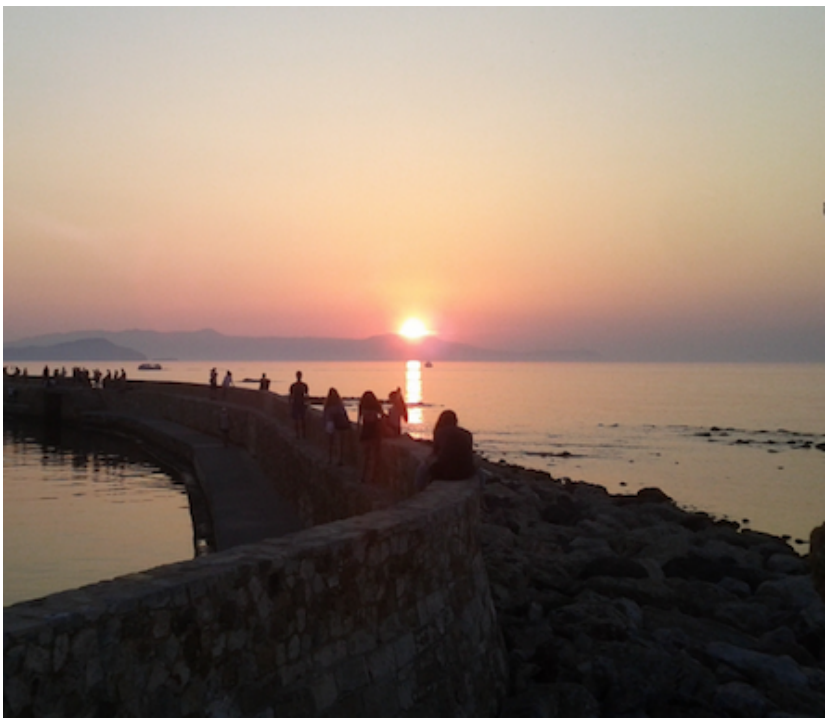


Figure 12. Each person, gazing at the sun, would look to a different glitter path, depending on their location: for this reason, the glitter path always appears perpendicular to the horizon. Photograph taken from Khania, Crete. 26th June 2017. h 19.28 (BST+2). Location: N 35° 31' 11.1'' E 24° 1' 22.9''. Elevation: 1 m above sea level. Sun's Azimuth: + 297.5°, Sun's Altitude: + 2°. Photo by I. Cristofaro.

Undulatory Movement

As the wind moves the waves, the glitter path can follow unexpected movements. By observing the sun's watery reflection in different weather conditions and from different perspectives, it becomes obvious that a calm body of water casts a fixed and

straight path of light, such as in figure 12, while an undulatory sea reflects sunlight in a scattered way depending on the height and direction of the waves, so as to make this path more dynamic or, at times, invisible. The island of Crete can host very powerful winds, as Oliver Rackham and Jennifer Moody recalled.[88] Possibly, in environments characterised by a calm body of water, such as the river Nile in Egypt, the reflection of sunlight might have been associated with a glitter pillar but, in the windy seas off Crete, it seems more appropriate to speak about a glitter path. The sunlight reflection moves as a flexible entity, undulating in respect to the long axis, so that the light appears to have fluidity, such as figure 13 may evoke. This quality, observed by John A. Adam, was described as an effect of 'liquid gold'.[89] The glitter path is recounted in the fieldwork notes as a serpent, due to its undulating dance. Evocative of a fluid movement, the glitter path seems to embody a character of transformation. But, its intangible flexibility appears in contrast to the impression of firmness created by the ubiquity of the connection: the concept of liminality, as developed in the following section, will help to assimilate this contradiction.

[88] Oliver Rackham and Jennifer Moody, *The making of the Cretan Landscape* (Manchester: Manchester University Press, 1996), pp. 36-37.
[89] John A. Adam, *Mathematics in Nature: Modelling Patterns in the Natural World* (Princeton: Princeton University Press, 2003), p. 63.



Figure 13. The ripples of the water make the reflected lines of the boat poles and the glitter path move in an undulatory oscillation. Photograph taken from Heraklion, Crete. 21st August 2017. h 18.42 (BST+2). GPS Location: N 35° 20' 33.5'' E 25° 8' 11.9''. Elevation: 1 m above sea level. Sun's Azimuth: + 282°, Sun's Altitude: + 3°. Photo by I. Cristofaro.

Liminality

An opposition of forces is present in the glitter path: the unsteady band of light flowing with the water is, at the same time, firm as the steadiness of the sun in the sky. The glitter path appears as a combination of the characteristics of the sun, being of the same colour as it and determined in its existence or appearance by the celestial body's position in the sky, and of the water, being influenced by the unstable surface of the sea. Therefore, the reflection can be regarded as an entity between sky and sea. Indeed, the glitter path manifests itself on a liminal space, the sea' surface, a place simultaneously separating and connecting air and water. Moreover, the glitter path reaches its full elongation at the time of twilight, when day and night swap. These are the most liminal times of the day, being transition phases between light and darkness.

The glitter path appears to be a liminal entity, in term of character, space, and time: it holds in itself contradictory qualities, flexibility and firmness; spatially, it is an entity created by and between the sea and the sky and, temporally, it characterises the moments of day when the sky becomes bright from being dark and vice versa.

Conclusion

During the phenomenological fieldwork, some qualities of the glitter path were observed, and these have been presented in this chapter as fieldwork results and findings. The reflection of the sun in water has the potentiality of multiplying sunlight, extending upon the water a luminous cloak. At its full elongation, the glitter path gives the impression of indicating a particular direction, a path to and from the sun, resembling a road or a bridge connecting the celestial body with the viewer on the seashore. Being a relational phenomenon, the reflection is potentially everywhere, expressing an intimate and firm connection moving with the observer. Due to this property, the horizontal reflection is always straight in front of the viewer, therefore appearing vertical if depicted on a two-dimensional plane. This bronze road of light undulates in a fluid manner in relation to its main axis, reminding one of a serpent. Being dependent on the natural characteristics of the sun and the sea, the reflection is a liminal entity between sky and water; indeed, it holds simultaneously contradictory qualities of flexibility and rigidity. It reached its maximum elongation around the times of sunrise and sunset: therefore, it is typical of twilight times near coasts. In the next chapter, these findings will be reconsidered in relation to theories from the literature review and in comparison with Minoan representations of the octopus-plant hybrid, in order to investigate the glitter path's potential symbolic and cosmological role within Minoan culture.

Chapter IV. Discussion

Introduction

In this chapter, the fieldwork results will be discussed in relation to the iconographic evidence from Late Minoan III funerary art, within the theoretical framework presented in the literature review. First, the phenomenology of the glitter path will be examined in term of its similarity to the cosmological concept of the axis mundi. Secondly, by focusing on its hybridisation in plant and water pillar, the motif of the octopus will be analysed in correspondence with the qualities inherent in the sun's reflection on sea. The discussion will then investigate solar symbolism regarding the hybrid octopus, with an emphasis on the floral effervescences of the motif. The analogy between the glitter path and the octopus-plant hybrid will be further amalgamated within the concept of the liminality between death and life. Thirdly, the fragmentary evidence from Late Minoan art will be complemented with later Greek literary sources. Finally, in order to maintain a self-critical reflexive approach, the limitations and difficulties of the research will be highlighted. Having disregarded interpretations which did not fit with the evidence, the following discussion is based upon perceptions of the most sensible correspondence of elements arising from comparing the fieldwork results with the material culture available.

The Glitter Path as Solar Axis Mundi

According to the phenomenological fieldwork, the glitter path can be described according to a set of qualities, which, compared with the academic literature, reflect some of the characteristics proper of the cosmological concept of the axis mundi. For now, this idea will be developed within a theoretical framework, and later applied to

the case study. First, at its maximum elongation, such as in figure 12, the glitter path extends from the seashore to the horizon, therefore visually connecting sky, land, and sea; this characteristic may find analogy with the symbolic intersection of the three cosmological levels - the upper, middle, and lower realms - by the cosmic axis, as Eliade analysed.[90] Furthermore, this watery luminous connection is fluid and flowing, incorporating a character of transformation: as I argued elsewhere, watery reflections may evoke the dissolution of identities in the cycle between life and death.[91] Similarly, the cosmic axis is regarded by Eliade to allow the access to different metaphysical planes of reality.[92] Second, the band of sunlight on sea acts as a means of orientation, by connecting a centre in the sky, the sun, with a terrestrial centre; it visually discloses a preferred direction within the vastness of the sea, as figure 12 conveys. Therefore, the glitter path shares with the axis mundi the role of defining an orientation system, if Eliade's theory is considered.[93] Moreover, Burckhardt explicitly referred to the peculiarity of ubiquity of the glitter path as a metaphorical explanation of the ubiquity of the sacred centre and, therefore, of the axis mundi.[94] This implies a correspondence between the qualities of ubiquity and orientation. Third, although potentially everywhere, the glitter path is also characterised by stability, since the reflection constantly follows the observer, which is also a specific feature of the cosmic axis highlighted by Rappenglück.[95] However, the band of light, being intangible and fluid, does not give the impression of sustaining the cosmos in the way that the axis mundi does. And yet, the fact that the world axis is ultimately a sundial, as Rappenglück

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[90] Eliade, *Immagini e simboli*, p. 43.
[91] Cristofaro, 'Reflecting the sky in water', pp. 121-123.
[92] Eliade, *Immagini e simboli*, p. 48.
[93] Eliade, *The Sacred and the Profane,* p. 45.
[94] Burckhardt, *Arte sacra in Oriente e in Occidente,* np.
[95] Rappenglück, 'The Pivot of the Cosmos', p. 161.

stated, suggests a further parallelism with the sun's reflection on sea.[96] Finally, the glitter path extends itself on the flat surface of the water, but on a vertical level if depicted. By comparing other traditions, there seems to be a symbolic equivalence between the horizontal and the vertical plane in the journey to reach the sky. The metaphor of the bridge has been gathered in the fieldwork observations, which is how the axis mundi was depicted in the Graeco-Roman world, as discussed by Graf.[97] In his investigation, there is a shift in the spatiality of the axis mundi, being seen as horizontally extended within Graeco-Roman culture, but with an emphasis on a vertical ascent in the Christian tradition.[98] Therefore, the strive to reach the sky may also be indicated in the path's extension toward the horizon. In summary, the evidence suggests that the glitter path has the potentiality of being a natural manifestation of the cosmological concept of the cosmic axis. The qualities of connection, transformation, orientation, ubiquity, firmness, axial perspective, and liminality constitute this analogy. Despite this possible identification, it is not obvious that Bronze Age Cretans did actually see in the glitter path of the same significance. For this reason, it is now necessary to proceed with the an analysis of funerary iconography, in order to find some hints to enable a critical evaluation the truth-value of this hypothesis.

The Octopus-Plant Hybrid

Some correspondences between the qualities embodied within the glitter path and the artistic variations relative to the motif of the octopus in LM III iconography will be discussed in this section. At first, as shown in figure 14, the octopus can host

[96] Rappenglück, 'The Pivot of the Cosmos', pp. 159-160.
[97] Graf, 'The Bridge and the Ladder', p. 33.
[98] Graf, 'The Bridge and the Ladder', p. 33.

quadrupeds and birds on its tentacles. Regarding this representation, Alberti mentioned the tree of life, since the other animals present on the scene appear created by the central octopus.[99] The lack of a realistically proportional size between the cephalopod and the other elements suggests a greater cosmological significance granted to the octopus, in which everything else seems to converge. It might have represented an afterlife landscape, or the journey towards it; in this latter case, the tentacles could have acted as a means of transportation across the sea. More examples of this decoration, where the octopus acts as a tree of life, were shown by Doi in her catalogue.[100]



Figure 14. Octopus as tree of life, hosting or carrying land creatures on its tentacles. Decoration from a stirrup jar from Pothia Perakastro, Kalymnos, Aegean Island, Greece. Ht. 25.9 cm. LH III C. British Museum. Reproduced from Forsdyke, *Catalogue,* p. 193.

To better examine this idea of the octopus as the tree of life or axis mundi, the discussion now focuses on the hybridisation of the octopus motif in pillars and floral elements. In the first type of hybridisation, mostly typical of Octopus Style stirrup jars, the octopus and a stylised plant-pillar, at times a palm, although interwoven together, are depicted in two visually distinct elements. According to this formula visible in

[99] Alberti, 'The Funerary Meaning of the Octopus', p. 76.
[100] Doi, 'The Octopus Style', plates 161, 168, 169, 172, 174, 179, 186, 193.

figures 15, 16, and 17, the main body of the octopus is represented in a vertical symmetry on the front of the jar, with waving tentacles embracing the round shape of the vase all the way to the back, where they join together in a stylised plant or palm. By keeping a focus on the stylistic organisation within the Octopus Style stirrup jar syntax, Alberti highlighted that the axial position of the octopus is a constant rule in the depiction of the animal.[101] However, this rule does not always apply in larnax art, where the octopus is sometimes placed in a lying position, such as in the larnax from Episkopi shown in figure 3. Furumark highlighted the evolution of the octopus' decoration, being oblique in the LM IB version, and successively acquiring a vertical symmetry from LM II pottery onwards.[102] This vertical syntax is also reflected in the axial position of the elongated reflection of sunlight on water: if a realistic perspective is adopted, the glitter path would be depicted as symmetrical to a vertical axis, similar to that of the octopus motifs from LM II onwards. However, this would not apply for the earlier LM IB syntax of the decoration, or even in the case of the Episkopi larnax dating LM III A2/B1. Therefore, this symmetrical verticality seems to pertain specifically to Octopus Style stirrup jars. Nevertheless, the identification of the axial position is useful to keep in mind in the next step of the discussion, where the octopus is merging with the stylised plant-pillar into a single element, crystallising its verticality.

[101] Alberti, 'The Funerary Meaning of the Octopus', p. 72.
[102] Furumark, *The Mycenaean Pottery*, pp. 163, 169, 177, 191.



Figure 15. Example of the first type of hybridisation of the octopus-plant: the octopus is depicted on a vertical axis on the front of the jar, and a stylised palm stands on the back, between the coiled end of the tentacles. Decoration from an Octopus Style stirrup jar from a tomb at Ialysos, Rhodes, Greece. LM IIIC. Ht. 20.7 cm. Archaeological Museum of Rhodes. Reproduced and adapted from Doi, 'The Octopus Style', plates 50, C-29.

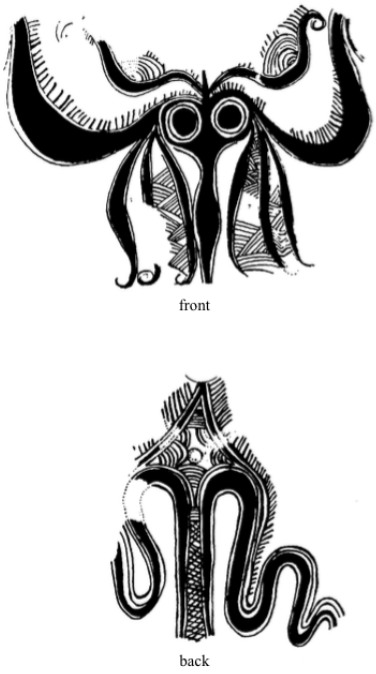


Figure 16. Example of the first type of hybridisation of the octopus-plant, where, on the back of the jar, the tentacles join to form a stylised plant motif. Decoration from an Octopus Style stirrup jar from a tomb at Kritsa, Crete. LM IIIC. Ht. 22.5 cm. Archaeological Museum of Agios Nikolaos. Reproduced and adapted from Doi, 'The Octopus Style', plate 84, C-51.

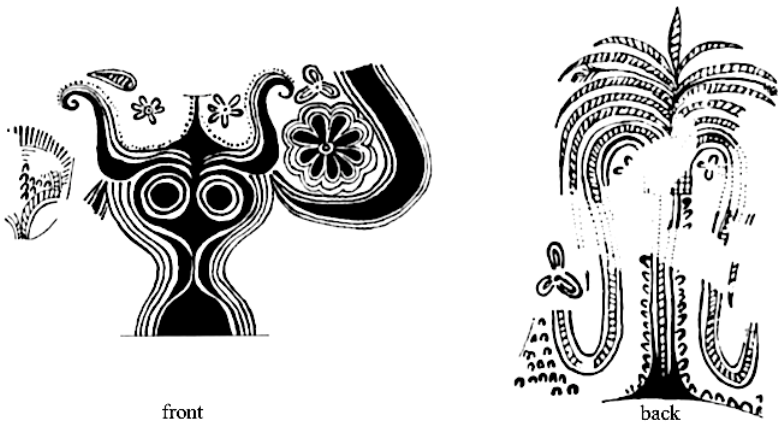


Figure 17. Example of the first type of hybridisation of the octopus-plant, with an octopus on the front and a naturalistic palm standing on the back of the vase. Decoration from an Octopus Style stirrup jar from a tomb at Kritsa, Crete. LM IIIC. Ht. 19.5 cm. Archaeological Museum of Agios Nikolaos. Reproduced and adapted from Doi, 'The Octopus Style', plates 53-54, C-31.

In the second variation, the octopus and the plant-pillar are incorporated into a single element, as shown in the hybrid forms in figures18 and 19. Figure 19 exhibits a set of variations of plant hybrid motifs: for Furumark, octopus-plant hybrids were only the representations numbered 33, 34, 35, 41, 42, 50, and 51, where the plant's volutes resemble eyes, as already evidenced in his scheme in figure 8.[103] Thanks to the second hybridisation, the axial verticality of the octopus is consolidated. Additionally, figure 18 zooms in on three examples: in 'b' wavy lines fill the central pillar, whereas in 'c' interwoven undulating lines run vertically. For Evans, the incorporation between the pillar and the octopus was relative to the main pillar cult, which had ultimately a solar character.[104] However, in this case the pillar depicted seems filled with fluid traits and made of water, but Evans did not give any explanation for this point. In the third hybridisation, the water element is further emphasised.

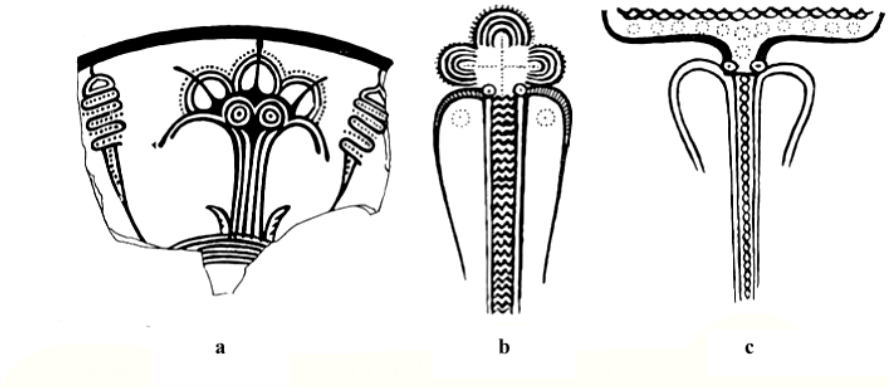


Figure 18. Examples of the second type of hybridisation of octopus-plant from LM III pottery. Note the waving lines filling the pillars of 'b' and 'c'. Decoration 'a' from Mycenae, Greece, 'b' and 'c' from Zygouries, Kleonae, Greece. Reproduced and adapted from Evans, *The Palace of Minos,* Vol. IV, 1, p. 312.

[103] Furumark, *The Mycenaean Pottery*, pp. 288-292.
[104] Arthur Evans, *The Palace of Minos at Knossos: a comparative account of the successive stages of the early Cretan civilization as illustrated by the discoveries at Knossos*, Vol. IV, 1 (London: Macmillan, 1935), p. 312.

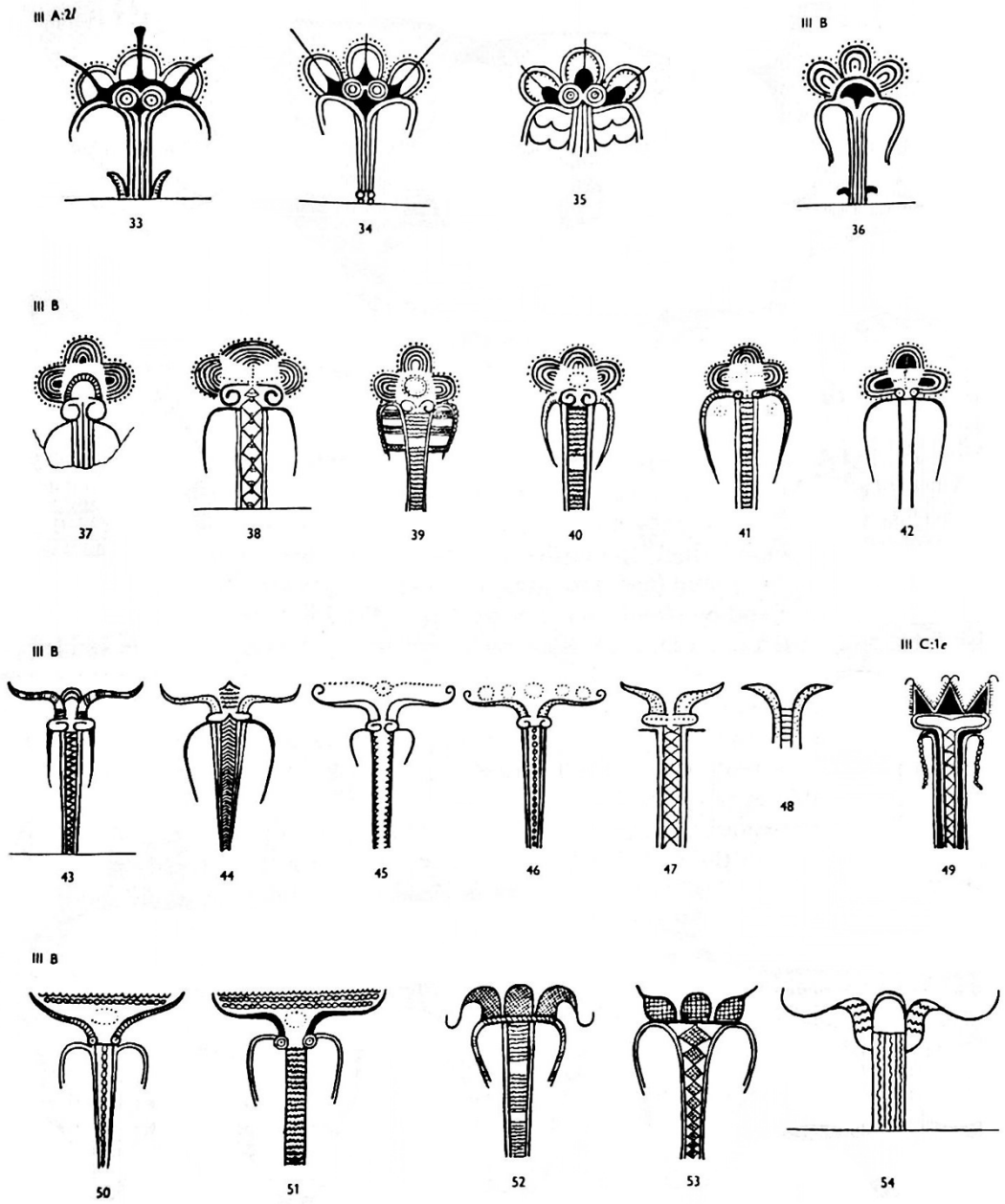


Figure 19. Examples of plant hybrids. For Furumark, octopus-plant hybrids were the representations numbered 33, 34, 35, 41, 42, 50 and 51. Reproduced and adapted from Furumark, *The Mycenaean Pottery*, p. 29.

The third hybridisation is based upon Furumark's consideration that a variation of the octopus was developed in the 'antithetic spiral' pattern.[105] This argument follows the observation of the octopus' tentacles are 'running in the direction of the longitudinal axis of the body…the whole forming an antithetic design'.[106] The antithetic spiral is a very common decoration on LM III larnakes and funerary vessels. In this variation, the central pillar and two volutes acquire a visual dominance over and above that of the octopus' body.[107] The central pillar, similarly to the previous pattern of the second hybridisation, is by times filled with wavy lines such as in figure 20a and, in other cases, with lozenge, chequer, net, chevron, or zigzag motifs. These filling decorations are difficult to categorise as they appear in different contexts, even so, wavy lines have a clear resemblance with water. A similar correlation may be attributed to the zigzag motifs: for Alexander Marshack 'it is, in fact, difficult in any culture to visualise the flow of water by use of line except as a serpentine or zigzag'.[108] Chequers, due to their interchangeability with wavy lines within the pictorial compositions shown in figure 20, may indicate water as well. Lozenges and nets may signify the same: this is evident thanks to a specific pattern, appearing as a luminous rhomboidal net, formed when the sunlight illuminates a body of water and reflects on a surface above, such as a bridge or a boat, as discussed by Minnaert.[109] The evidence suggests that the pillars depicted in the octopus-plant hybrids can be considered water pillars. A first impression of a resemblance between the previously discussed hybrid forms with the glitter path is due to the symmetrical verticality of the depiction of the octopus-plant; its subsequent

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[105] Furumark, *The Mycenaean Pottery*, pp. 289, 362-366.
[106] Furumark, *The Mycenaean Pottery*, p. 192.
[107] Furumark, *The Mycenaean Pottery*, p. 192.
[108] Alexander Marshack, 'On the dangers of serpents in the mind', *Current Anthropology*, Vol. 26 (1985), 139-145, p. 141.
[109] Minnaert, *The Nature of Light and Colour*, p. 33.

metamorphosis in a watery pillar reinforces the analogy with the elongated fluid reflection of sunlight. However, the glitter path appears as a watery pillar tint of bronze or gold, a characteristic impossible to display on single-coloured pottery. Therefore, the discussion will now examine the presence of solar symbolism within these funerary motifs.

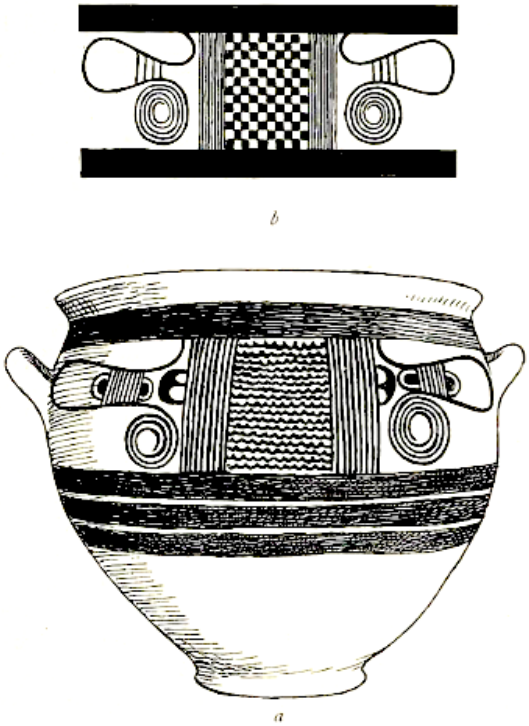


Figure 20. Examples of the third type of hybridisation of octopus-plant: the antithetic spiral pattern is characterised by a central watery pillar. Decoration from Late Mycenaean kraters. No provenance. Reproduced and adapted from Evans, *The Palace of Minos*, Vol. IV, 1, p. 350.



Figure 21. Antithetic spiral pattern on a larnax. No provenance. LM III. Sitia Archaeological Museum. Photo by I. Cristofaro, 2017.

Solar Symbolism in the Octopus-Plant Hybrid

Solar symbols are hard to discern, since they can be embodied in different forms, such as crossed circles, rosettes, wheels, rayed disks, and others. Crossed circles were depicted with octopuses, such as the ones in figure 14, and Forsdyke interpreted them as solar symbols.[110] Of a similar idea is Furumark, who stated 'the wheel was a solar symbol in Crete' due to their significant role within the pictorial compositions, and, indeed, according to Kanta, a cross is often depicted on the top disk of stirrup jars.[111] Also rosettes were interpreted as referring to the sun: Marinatos argued that the rosette motif is a solar symbol, expressing 'the life-giving qualities of the sun'.[112] In relationship to the octopus-plant, rosettes are attested as filling ornaments on the vases

[110] Forsdyke, *Catalogue*, p. 194, 206.
[111] Furumark, *The Mycenaean Pottery*, pp. 460-461; Kanta, *The Late Minoan III,* p. 250.
[112] Marinatos, *Minoan Kingship*, p. 134.

around the octopus, such as in figure 24.[113] Moreover, at times, rosettes occupy a big portion of the decorative space filled with motifs, such as in the vase from Vasiliki published by Popham where the rosette is of the same size as the octopus' body.[114] In figure 22, the decoration on a jar from the Episkopi cemetery is shown and, as Kanta reported, the whole body of the octopus is replaced by a rosette.[115] Similar stirrup jars with decorations of rosettes along with tentacles were recovered at Armenoi cemetery near Rehymnon, and at Sissi, as the pottery in figure 23 illustrates and Charlotte Langohr discussed.[116] According to Kanta, the rosette is 'a diagnostic accessorial motif' of the 'Close Style' Octopus Style stirrup jar typical of LM III C, developed in the western Crete workshop of Khania.[117] Although those presented here are only a limited set of examples, a correlation between solar symbols, in particular the rosette motif, and the octopus has been attested. Moreover, the relative proportions between the cephalopod and the rosette suggests a significant value being embodied by the latter within stirrup-jar decorations, which may indicate a solar character for the octopus. This argument is consistent with Goodison's statement, that boats and marine animals are interchangeable with the sun, being all vehicles used to reach the underworld.[118] Having identified a close relationship between the octopus and the sun, it is now necessary to evaluate if the water pillar of the octopus-plant hybrid was a symbolic representation of the glitter path.

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[113] Kanta, *The Late Minoan III*, pp. 250, 253, 255.
[114] Popham, 'Late Minoan Pottery', plate 89.f.
[115] Kanta, *The Late Minoan III,* pp. 155, 253.
[116] Charlotte Langohr, 'Observations on some Late Minoan Pottery from Sissi', in *Excavations at Sissi III: Preliminary Report on the 2011 Campaign*, edited by Jan Driessen (Louvain-la-Neuve: Presses universitaires de Louvain, 2012), 155-167, p. 159.
[117] Kanta, *The Late Minoan III,* p. 256.
[118] Goodison, *Death, women, and the sun*, pp. 36-39, 144.

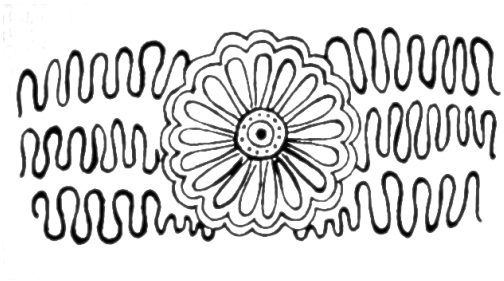


Figure 22. Rosette motif with tentacles, therefore a solar motif is here replacing the octopus' body. Decoration from a stirrup jar from the cemetery at Episkopi, Crete. Adapted and reproduced from Kanta, *The Late Minoan III,* plate 131.2.

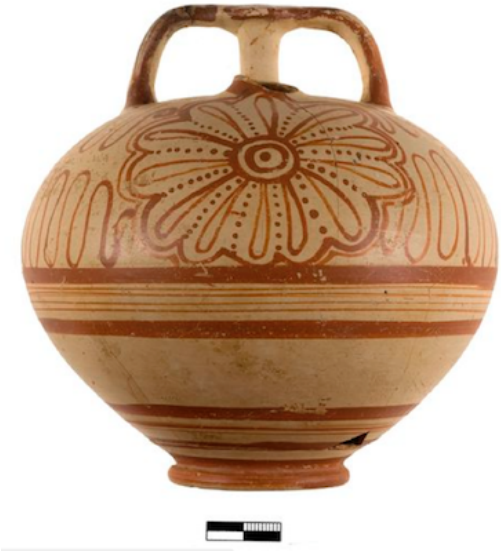


Figure 23. Stirrup jar with rosette and tentacles. From Sissi, Crete. LM IIIB. Reproduced from Sissi Project Website [accessed January 9, 2018]. Photo by Chronis Nikolakopoulos.



Figure 24. Octopus motif with two rosettes on its sides. Decoration from stirrup jar. No provenance. Ht. 26 cm. LH III C. Metropolitan Museum of Art, NY. Reproduced from Metropolitan Museum of Art Website [accessed January 20, 2018].

If a realistic style had been followed, then the motifs above the watery pillars would be a representation of the sun disk. In the first and second hybridisation of the octopus-plant, this idea might be corroborated by the presence of the blossoming effervescence whereas, in the antithetic spiral, these would have been lost. Focusing on the selection of Minoan and Mycenaean flower motifs in figure 25, these are often surrounded by radiating lines and dots, which gives a sense a luminescence, also present in the octopus-plant hybrids of figure 19. Similarly, Evans interpreted radiant lines to indicate the luminosity of light divinities, such as the sun god.[119] Moreover, by comparing the drawing of the glitter path done during the fieldwork, in figure 27, with the stylised flowers of figure 26, an affinity of shape appears evident. This would recall how, in ancient Egypt and India, a symbolic connection between the rising sun and the blossoming lotus flower is notable, as William E. Ward pointed out.[120] If this is also the case in Minoan cosmology, the glitter path would have then been represented by the stalk of the plant, which indeed assumes the form of a water pillar in the octopus-plant hybrid. Therefore, sunlight might have been embodied in the floral element of the octopus-plant hybrid, consolidating in this way the idea of the sun as a regenerative force within Late Minoan eschatological beliefs. This symbolism might have been reinforced by the depictions of rosettes, crossed circles and the presence of gold within the funerary goods provided for the dead, therefore reflecting Szilágyi's idea regarding the use of gold offerings to echo the sun's luminescence.[121] Having revised the solar symbolism, in the next section, evidence of the quality of liminality

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[119] Evans, *The Mycenaean Tree and Pillar Cult*, p. 51.
[120] William E. Ward, 'The Lotus Symbol: Its Meaning in Buddhist Art and Philosophy', *The Journal of Aesthetics and Art Criticism*, Vol. 11, 2 (1952), 135-146, p. 135.
[121] Szilágyi, 'Some problems of Greek Gold Diadems', p. 74.

inherent in the glitter path will be shown to be potentially inherent in the octopus-plant hybrid.

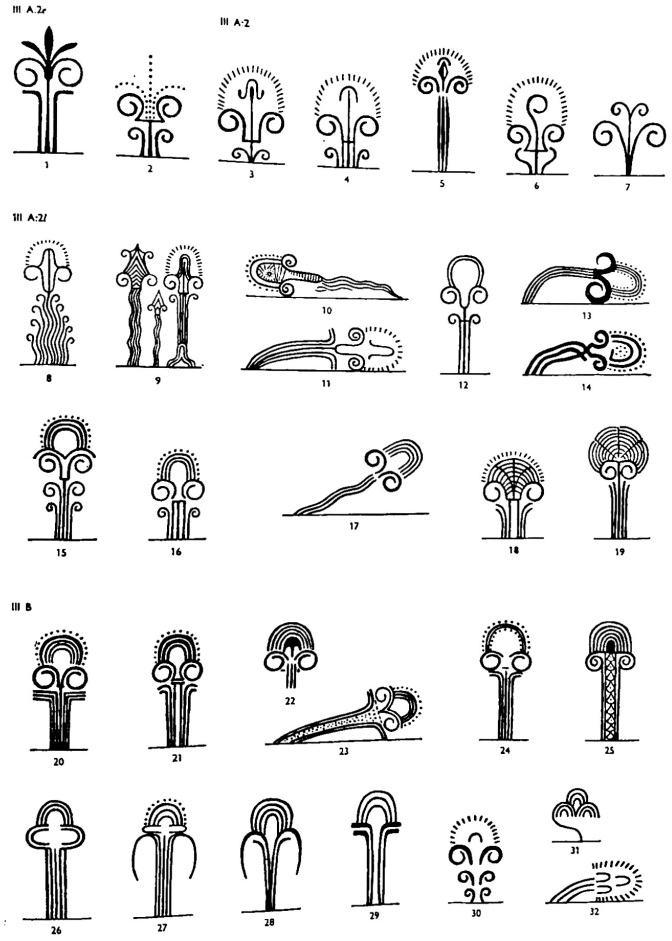


Figure 25. Mycenaean and Minoan flowers, before the hybridisation with the octopus. The top parts are often surrounded by dots, giving them a luminous appearance. Reproduced and adapted from Furumark, *The Mycenaean Pottery*, p. 287.



Figure 26. Stylised flowers resembling a glitter path. Decoration from a stemmed krater from cemetery at Prosymna, Attica, Greece. LH III B. Archaeological Museum of Athens. Photo by I. Cristofaro, 2017.



Figure 27. Drawing of the glitter path during the fieldwork. Note the resemblance with the stylised Mycenaean and Minoan flower motifs. Drawn at Milatos, Crete. 12th July 2017, h 5.47 am (BST+2). Drawing and photo by I. Cristofaro.

Liminality in the Octopus-Plant Hybrid

The fieldwork findings brought to the fore the liminal character of the sun's reflection on the sea, reinforced by its time of manifestation around sunrise and sunset. A similar quality is evinced by the liminal position of a floral motif from the krater decoration of figure 20, found in a tomb at Rhodes by Amedeo Maiuri.[122] The krater, described by Emily Vermeule and Vassos Karageorghis, depicts a narrative where 'the chariot wheel rolls along the rippling stem of an oblique flower caught under it, as along a river bed'.[123] On the reverse side of the krater, a flora landscape is combined with a similar oblique flower, which differs in style from the nearby floral composition and seems floating. Due to this dissimilarity and their position on both sides of the vase, the oblique flower may be interpreted as a liminal cosmological symbol, or a gateway. This argument is supported by the belief that the chariot was considered a possible means to reach the afterlife, which is supported by the custom of depositing models of chariot or boat within tombs, as reported by Gallou.[124] Moreover, the oblique flower seems to be a variation of the decorative motif commonly called 'palmette' or 'anthemion', often depicted on Greek stele graves from the Mycenaean period onward, as Joseph Rykwert discussed.[125] The oblique flower also is also related to the previous discussed Minoan and Mycenaean plant motifs, catalogued as a flower by Furumark and shown in figure 25, number 10, but before the hybridisation with the octopus. Also in this specific case, the oblique flower echoes the shape of a glitter path seascape, due to the wavy lines which fill up the flower, whereas the dots around its top part may

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[122] Amedeo Maiuri, 'Jalisos -Scavi della Missione Archeologica Italiana a Rodi (Parte I e II)', in *Annuario della Scuola Archeologica di Atene e delle Missioni Italiane in Oriente 1923-1924*, Vol. 6-7 (1926), 83-340, pp. 151-152.
[123] Emily Vermeule and Vassos Karageorghis, *Mycenean Pictorial Vase Painting* (Cambridge, MA: Harvard University Press, 1982), p.152.
[124] Gallou, 'The Mycenaean cult of the dead', p. 124.
[125] Joseph Rykwert, 'On the Palmette', *Res: Anthropology and Aesthetics*, Vol. 26 (1994), 10–21.

indicate a luminous glow. Moreover, the double presence of the oblique flower may be indicative of the west and east horizons and of the liminal character of sunset and sunrise, suggesting a circular story of the journey to the afterlife around the vase. This particular krater, although unique in its decoration, provides a further evidence to support the idea of the cosmological liminality of the octopus-plant symbol in analogy with the phenomenology of the glitter path.

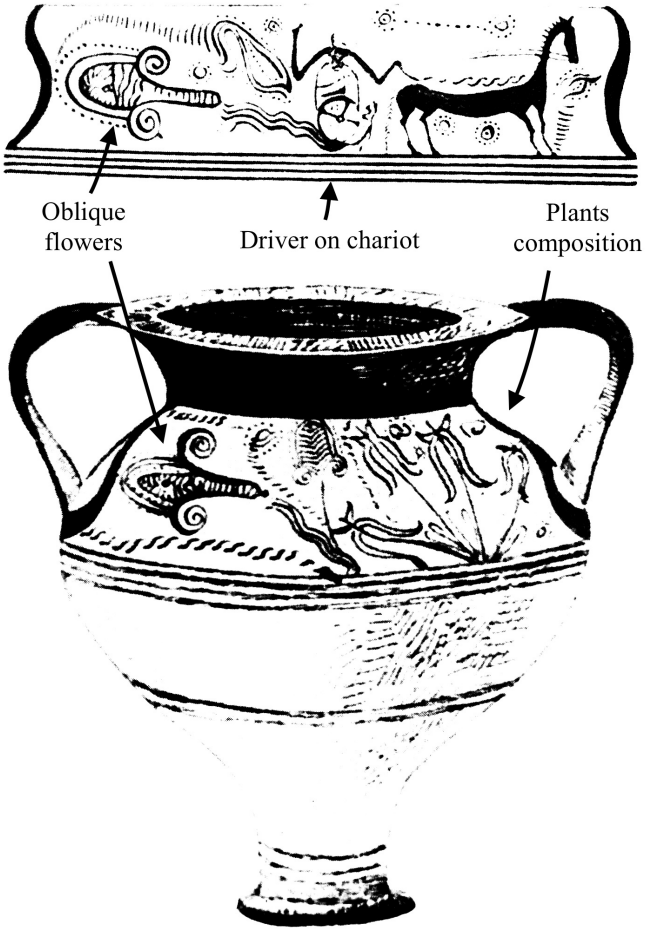


Figure 28. The narrative depicted may be interpreted as the journey towards the afterlife. The two oblique flowers appear as liminal entities and may resemble the glitter path. Krater from cemetery at Ialysos, Rhodes, Greece. LM III. Archaeological Museum of Rhodes. Reproduced and adapted from Vermeule and Karageorghis, *Mycenean Pictorial Vase Painting*, fig. XII.6.

The Glitter path as the Octopus-Plant Hybrid

By discussing the fieldwork's results and the LM III funerary iconographic evidence, there is reason to suspect that the glitter path was considered a liminal entity in the passage between life and death for Late Bronze Age Cretans. Due to the attested cosmological value of the sea as a chthonic world, and the role of the sun as a regenerator of life, the luminous glitter path might have been symbolically represented in the octopus-plant motif. A similarity of shapes and qualities is evident from the previous discussion. In particular, the axial perspective, the presence of water pillars and solar elements, the liminality, and the role of tree of life of the octopus-plant support this analogy. Therefore, the role of directing souls toward the hereafter, represented by the sun and flowers, might have been attributed to the octopus, acting as psychopomp, or as mediator for the passage into the netherworld.

This argument is consistent with ideas put forward by a number of scholars, such as Grumach, Laffineurs, Alberti, and Doi, in regard to the role of the octopus as a guidance entity toward the regeneration possible in the afterlife, although none of them included the solar aspect of the octopus.[126] As previously analysed, in Goodison's and Marinatos' theories, the journey of the deceased followed the sun, therefore reflecting the finding of this thesis of the glitter path as cosmic axis.[127] In particular, the results match with Marinatos' statement that 'the sea surface is also a border between this world and the beyond', since the glitter path appears on the liminal sea surface.[128] However, some contrast of theories is apparent, since for, Marinatos, the octopus

[126] Grumach, 'The Minoan Libation Formula', pp. 24-25; Laffineur, 'La mer et l'Au-delà', p. 231; Alberti, 'The Funerary Meaning of the Octopus', p. 76; Doi, 'The Octopus Style', p. 244.
[127] Goodison, *Death, women, and the sun*, p. 38; Marinatos, *Minoan Kingship*, p. 148.
[128] Marinatos, *Minoan Kingship*, p. 146.

mainly represented the depth of the sea, not the passage to the underworld, whereas the paradisiacal afterlife was embodied by the double axe, the eastern sun emerging from the horizon.[129] Marinatos did not seem to have considered the hybridisation in the plant of the octopus, just as I have disregarded the idea of the double axes acting as representations of the glitter path, because of the lack of a water element in the depiction of the axes. Nevertheless, these two interpretations do not necessarily exclude each other. Goodison's investigation is complemented by the phenomenology of the glitter path, which embodies her combination together of ideas regarding sun, sea, death, and fertility.[130] Therefore, adding to Goodison's and Marinatos' analysis, this research suggests that the vision of the glitter path by the Minoans might have fostered the belief of the solar way through the sea-underworld toward a resurrection of life.

The identification of the natural manifestation of the sunlight band on sea as a solar axis mundi finds also agreement and integration with Evans' solar pillar cult theory, since the interchangeability of the sun with trees or pillars may be explained in a form of worship related to the sun in the form of a glitter path.[131] This research has highlighted the fluidity of the pillar, though a quality not explicitly referred to by Evans, which confirms an association with the sacred-tree worship, due to its organic shape, but not directly with the cult of free-standing square pillars evident in Minoan palaces.[132] Overall, this study supports Evans' paralleling of Egyptian and Minoan religious belief systems, in his association of the cult of the sun disk with that of solar

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[129] Marinatos, *Minoan Kingship*, pp. 129, 146.
[130] Goodison, *Death, women, and the sun*, p. 144.
[131] Evans, *The Mycenaean Tree and Pillar Cult*, p. 64.
[132] Evans, *The Mycenaean Tree and Pillar Cult*, pp. 72-73.

pillars. Moreover, it follows that, according this study, Cumont's theory of solar attraction may be applied to Late Minoan cosmological beliefs, with reflected sunlight being a vehicle for conducting the deceased during the crossing of the chthonic sea. Vice versa, the identification of the glitter path with the axis mundi may expand understandings of Cumont's solar attraction theory, since the water has the potentiality of making the sunbeams visible. There are hints indicating that, beyond this case study, the notion of the glitter path as a gateway to the underworld may be applied to other cosmologies based on a solar eschatology. The next section aims to reinforce the argument, by analysing extracts from the earliest extant Greek literature.

A Complementary Commentary on Later Literary Sources

If the fragmentary evidence from the Late Minoan III (c. 1400-1100 B.C.) material is compared with some of the first Greek literary sources from the 8th century B.C., just after the Greek Iron Age period (c. 1100-800 B.C.), it is possible to see how a similar idea to that of the solar axis mundi is indicated. In Homer's *Odyssey*, the chthonic gateway was represented by water, sun, and mountains, and Hermes, the souls' conductor, guided the dead toward the underworld. The passage states that 'past the streams of Oceanus they went, past the rock Leucas, past the gates of the sun and the land of dreams.'[133] Solar gates are also mentioned in Hesiod's *Theogony*, where it is possible to read that, in the chthonic world of Tartarus, 'Poseidon fixed gates of bronze upon it'.[134] A similar passage asserts that 'there are shining gates and an immoveable threshold of bronze having unending roots and it is grown of itself': a correspondence

[133] Homer, *The Odyssey*, xxiv, 11-13.
[134] Hesiod, *Hesiod, The Homeric Hymns, and Homerica*, translation by Hugh G. Evelyn-White (Cambridge, MA: Loeb Classics, 1914), 732.

between the liminal crossing and plant elements is here evident, as noticed in the octopus hybrid.[135] The same luminous entrance is also referred to when 'Night and Day draw near and greet one another as they pass the great threshold of bronze', so that also a temporal indication for the transitional states of sunrise and sunset appears alluded to in this passage.[136] Moreover, according to Vermeule, in the myth of Herakles, he crossed the chthonic ocean in the sun's bowl, since the sun was believed the only entity able to pass safely through the darkness of the underworld and to rescue a lost soul by bringing it to the light.[137] The sun seems to have had a fundamental role, within the funerary beliefs in existence in Greece in the 8th century B.C., as a liminal and safe passageway to the underworld. Sunrises and sunsets are again mentioned as liminal times of opening of the chthonic gateway. Solar gates and bronze thresholds may, in fact, be an imagistic system used to refer to the phenomenon of the glitter path.

Limitations of this Research

Direct evidence on afterlife beliefs from prehistory is not available, but the gathering and critical analysis of indirect evidence can contribute to a logical interpretation. Indeed, within Christopher Hawkes' ladder of inference, the spiritual and metaphysical belief system of a prehistoric society is the most difficult side to unlock.[138] Regarding this effort, much of the 19th century academic interpretation of Minoan and Mycenaean material seems, overtly or unconsciously, influenced by the then understanding of Iron Age Greece or geographically nearby and relatively

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[135] Hesiod, *Hesiod, The Homeric Hymns, and Homerica*, 811.
[136] Hesiod, *Hesiod, The Homeric Hymns, and Homerica*, 749-750.
[137] Emily Vermeule, *Aspects of Death in early Greek Art and Poetry* (Berkeley: University of California Press, 1981), pp. 28, 136-137.
[138] Christopher Hawkes, 'Archaeological Theory and Method: Some Suggestions from the Old World', *American Anthropologist*, Vol. 56 (1954), 155–168, p. 162.

synchronous cultures, such as the Babylonian and Egyptian. Although these parallel references are important to consider, to prove or disprove corollaries, it is intellectually honest to treat them as complementary sources, not as primary ones. For example, Evans, who significantly contributed to the understanding of Minoan Crete, believed in a sizeable Egyptian influence on Crete, as Marinatos reminded.[139] The views that scholars hold may be perpetuated across the academic literature and create circular lines of argument, self-generating and self-assertive. To avoid this stagnant reasoning, I made an effort to engage directly with primary sources and the Cretan landscape. Even despite these efforts, the thrust of the interpretation will never be proved by direct evidence, at least not until Minoan scripts in Linear A are finally decoded.

Conclusion

In this chapter, the fieldwork results and their implications for the investigation into Bronze Age Cretan culture have been discussed. Visually connecting the land with the sky through the water, it was argued that the glitter path embodies the characteristics of an axis mundi. The discussion then examined whether this idea of the reflection of sunlight in water as axis mundi was incorporated into Minoan culture through the iconography. The motif of the octopus, incorporating the idea of the tree of life, was analysed in its hybrid forms. Converging its tentacles into a stylised plant on the back of stirrup jars, the octopus' and the plant's vertical axial symmetry was highlighted as a quality similar to that of the glitter path. The presence of watery pillars in the octopus-plant motif also suggests a correspondence with the sun's elongated reflection on the sea. To elaborate this interpretation, there followed a discussion of solar

[139] Nanno Marinatos, 'The Indebtedness of Minoan Religion to Egyptian Solar Religion: Was Sir Arthur Evans Right?', *Journal of Ancient Egyptian Interconnections*, Vol. 1, 1 (2009), 22–28, p. 22.

elements as part of the octopus-plant motif, as evident in the exchange from an octopus's body to a rosette. Moreover, the presence of flowering effervescences on the top of the octopus-plant-water pillar, decorated with dots and rayed lines, was argued to possibly resemble the sun disk above the glitter path. A symbolic correspondence of shape and qualities between the octopus-plant and the natural liminal entity of the glitter path evoked a Minoan world where the vision of sunlight on the sea might have regarded as the path toward post-mortem resurrection of life. Although the fragmentary evidence available leads to a potentially questionable interpretation, the hypothesis emerging from the discussion is built on the mutual support of the combination of arguments presented and the frequency of certain contexts and associations.

Summary and Conclusion

The aim of the research was to investigate the phenomenon of the sun's elongated reflection on sea in its symbolic and cosmological significance within the context of Late Bronze Age III Minoan afterlife beliefs. In littoral areas, around the time of sunrise and sunset, the sun can cast a band of light on sea, from the horizon to the seashore. This phenomenon is visually very dramatic and ordinary common event in coastal areas or near a large body of water. Before this research, this phenomenon, commonly called the glitter path or glitter pillar, has never been explored from an archaeological perspective. The analysis of secondary literature sources, in Chapter I, suggested the potential that exploring this topic may have to enhance the comprehension of Minoan cosmology. Indeed, the religious role of the sun was emphasised by Evans, Goodison, and Marinatos, although other scholars, such as Nilsson, argued that the solar symbols were of a decorative nature.[140] The view that the sea was regarded as a chthonic realm is commonly agreed among scholars, and evidenced by the frequent presence of marine motifs in Late Minoan III funerary art. The scholarly interpretation of the imagery depicted on larnakes, or coffins, was examined focusing on the relevant theories regarding Minoan eschatological beliefs. Watrous and Marinatos claimed that the larnakes' stylised decorations might have conveyed messages regarding the post-mortem fate of the soul and the journey to the underworld.[141] Among these funerary motifs, the octopus predominates, being also the main decorative subject of a whole pottery style spread across the Aegean world, the

[140] Evans, *The Mycenaean Tree and Pillar Cult*, p. 64; Goodison, *Death, women, and the sun*, p. 15; Marinatos, *Minoan Kingship*, pp. 114-130; Nilsson, *The Minoan-Mycenaean Religion*, p. 413.
[141] Watrous, 'The Origin and Iconography', p. 302; Marinatos, *Minoan Kingship*, pp. 141, 150.

so-called Octopus Style stirrup jars. Although this type of vase was also found in settlements, a significant role of the octopus in the journey between life and death was highlighted by several scholars, such as Grumach, Laffineur, Alberti, and Doi.[142] Subsequently, the review analysed Furumark's argument regarding the hybridisation of the octopus' motif into a plant; this combination of marine and floral elements ultimately supports those theories, such as the one by Laffineur, which emphasise the meaningful presence of the sea and of fertility elements in Minoan beliefs regarding death.[143] The idea of regeneration is underlined by Goodison and Marinatos, who indicate that the journey of dead souls follows the sun's movement, in a hypothesis which is supported by the gold offerings recovered in tombs and the eastern orientation of LM Cretan graves.[144] Then, the cosmological concept of the axis mundi was explained within theories derived from comparative-religion secondary sources, focusing on the 'solar attraction theory', first proposed by Cumont and based upon beliefs that sunlight could transport souls to the afterlife.[145] A section on the phenomenon of the glitter path, presented with the help of pictures, finalised the literature review.

To gain an understanding of a possible significance attributed by the Minoans to the sun's reflection on sea, I conducted fieldwork in Crete for three months, by gathering my perceptions of the different qualities of manifestation of the glitter path. Chapter II recounted the methodological process: the local archaeological material culture was interpreted by engaging within the Cretan landscape. In these ways, the method

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[142] Grumach, 'The Minoan Libation Formula', pp. 24-25; Laffineur, 'La mer et l'Au-delà', p. 231; Alberti, 'The Funerary Meaning of the Octopus', p. 76; Doi, 'The Octopus Style', p. 244.
[143] Furumark, *The Mycenaean Pottery*, pp. 288-292; Laffineur, 'La mer et l'Au-delà', p. 237.
[144] Goodison, *Death, women, and the sun*, p. 38; Marinatos, *Minoan Kingship*, p. 148.
[145] Cumont, *After Life in Roman Paganism*, pp. 94, 160-161.

adopted compared two sources of primary data, the phenomenology of the glitter path and the LM III funerary iconography. This strategy follows Renfrew's theory that cultural symbols arise from what is experienced by dwelling within the natural world.[146] The aim of the phenomenological fieldwork was to develop a rich narrative on the elongated reflection of sunlight on the sea, by gathering written notes, photographs, and drawings. The discussion of the practice of phenomenology focused on Husserl's concept of reducing intentionality, which was adopted in order to achieve an inner condition of empathic receptivity.[147] I also engaged with a reflexive approach, acknowledging my influence on the reconstruction of the past, as practised and theorised by Hodder.[148] After the three months of fieldwork, the phenomenological experience of the glitter path reached saturation, since the path's inherent qualities of manifestation seemed to replicate themselves significantly over the course of my observations.

The fieldwork notes were coded and presented into themes in Chapter III. The glitter path appears as a fluid mirror of sunlight, expanding the sun's luminosity upon the water. The sun's reflection can appear blinding during the day whereas, at twilight, it is easier to observe being much less intense and tinted in bronze. Moreover, just after sunrise and before sunset, the glitter path can reach its maximum elongation from the seashore to the horizon. For this reason, it seems to offer an orientation within the vastness of the sea, by defining a particular direction with a band of light. This luminous path creates an intimate and firm connection between observer and the sun, since the reflection follows the viewer in his or her movement along the littoral.

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[146] Renfrew, *The Emergence of Civilisation*, p. 405.
[147] Husserl, *Ideas*, pp. 171-184.
[148] Hodder, 'Archaeological Reflexivity', p. 56.

Indeed, since the position of the glitter path is established both by gazer and the celestial source of light, the elongated reflection on sea is not located in a particular place, but is potentially everywhere. This characteristic causes that the axial position of the glitter path always appears perpendicular to the horizon, so that in two-dimensional realistic depictions, it is represented on a vertical line, as figures 12 and 27 show. This quality of the reflection may explain its naming as a glitter pillar. However, in the windy seas of Crete, this bronze or gold band of light may follow a fluid undulating movement in respect to the main axis, resembling a serpent more than a straight pillar. Consequently, consideration was given to the impression that the glitter path appears to embody contradictory qualities: firmness, since the band of light seems fastened between the sun and watcher, and flexibility, due to the fluid undulation created by waves. Indeed, the glitter path can be regarded as a liminal entity between sky and water, visually combining the action of the sun and sea. Manifesting itself at twilights, it also incorporates the temporal liminality of these transitional phases between day and night.

Described as a luminous bridge, or a road, the glitter path has the phenomenal characteristics to be a vision of a cosmic axis, as discussed in Chapter IV. The sun's reflection on the sea connects the horizon with the seashore through a band of light, therefore potentially converging together the three cosmological realms of land, sea, and sky. The reflection is ubiquitous, as well as the centre from where the axis mundi arises, and it creates an orientation system relative to the sun's movement, similarly to the scope of an axis mundi acting as a sundial. The band of light on sea appears as fluid light, evoking a sense of transformation and, as a result, suggesting the passage between different states of existence. Having identified the glitter path as a physical

manifestation of the concept of the axis mundi, the analysis then considered what is the potential relevance of this finding in relation to Late Minoan afterlife beliefs. In order to consider this hypothesis, the funerary iconographic sources were analysed. The octopus was discussed, in its depiction in figure 14, as resembling a tree of life, with other creatures lying on its tentacles, as previously noted by Alberti.[149] In the first hybridisation between the octopus and the plant typical of stirrup jar designs, the octopus converges its tentacles into a stylised plant on the back of the stirrup jar, as shown in figures 15, 16, and 17. The syntax of the octopus motif adheres to a vertical axial symmetry, a quality similar to that evidenced in the phenomenology of the glitter path. In the second hybridisation, the octopus crystallises its vertical position into a single element, which assimilates pillar and plant elements, as figures 18 and 19 show. In particular, the inclusion of wavy lines within pillars suggests the intention of representing water. Indeed, the depiction of watery columns in the antithetical spiral motif, presented in figures 20 and 21, evokes a further analogy with the elongated sunlight reflection. To better unfold this interpretation, there followed a discussion about the solar elements forming part of the octopus motif, as evident in the interchangeability between the octopus's body and a rosette, such as in figures 22 and 23, or in the integration of other solar motifs, such as crossed circles, within the pictorial composition of the Octopus Style stirrup jars. Moreover, the presence of flowering effervescences on the top of the octopus-plant-water pillar, decorated with dots and rayed lines, was argued to possibly resemble the sun disk above the glitter path. Furthermore, the comparison between my drawing and Minoan-Mycenaean stylised flowers, evident from figures 26 and 27, suggests a visual affinity between the

[149] Alberti, 'The Funerary Meaning of the Octopus', p. 76.

stalk of a plant, in the form of a water pillar, and the glitter path. Finally, the decoration of the krater shown in figure 28 highlights a liminal semantic position for the octopus-plant, in a possible representation of the after-death journey of the soul. A polarity of forces appears manifested in the metamorphosis of the octopus, which seems to embody a complementarity of opposite meanings, at the same moment representing death and renewal. It followed that, within the Minoan cosmology, death and life might have been considered interconnected, since the distinction between the two states of existence seems to have been somewhat blurred. Emblematic of the liminal passage in the cycle of life and death, the luminous glitter path manifests itself on sea during the transition times of sunset and sunrise. Due to the attested cosmological significance of the sea as a chthonic world in funerary material evidence, and the role of the sun as the primary regenerator of life after death, the luminous glitter path might have been symbolically represented in the watery pillar held within the octopus-plant motif. Within Minoan eschatological beliefs, the sun's reflection on the sea might have been believed to help the dead to find a way through the underworld towards life's renewal.

The identification of the natural manifestation of the glitter path as solar axis mundi finds harmony with Evans' solar-pillar cult theory: the elongated sunlight reflection resembles the organic shape of a tree trunk, but not the rigid form of architectonic pillars. The vision of a solar axis mundi on sea might have acquired a cult role related to sun worship, which explains the interchangeability of the sun with trees and pillars in Minoan-Egyptian religious syncretism, as discussed by Evans.[150] This research

[150] Evans, *The Mycenaean Tree and Pillar Cult*, pp. 161-162.

supports Goodison's and Marinatos' theories regarding the Minoan eschatological beliefs, since the sun, by reflecting on sea, might have been believed to indicate the direction to be followed to cross the chthonic sea. Moreover, Cumont's theory of solar attraction may be applied to Late Minoan cosmology, sunlight being a vehicle for transporting the deceased; vice versa, the experience of the sun's reflection on the sea as being like a gold bridge to the afterlife may enlarge the understanding of Cumont's theory to other cosmologies. Indeed, there are reasons to believe that the idea of the glitter path as axis mundi may be applied in future research in other cultural contexts where mythologies tell about a tree of life made of gold to access other states of existence. Similarly, cults employing an iconography of sacred pillars surmounted by a winged disk, obelisks, and solar columns, might have been fostered by the vision of the glitter path, especially if it is considered that a calm body of water would cast a straight reflection, a glitter pillar, such as that in figure 12. This study opens intriguing questions on the possible significance of the vision of the sun's elongated reflection on sea or water for other ancient cultures. The correlation between the axis mundi as sundial and as glitter path seems also a valuable topic for further investigation. Moreover, future research may examine a possible resemblance between the glitter path and the caduceus, or the gold wand of the Greek god and psychopomp Hermes.

The research's objective was fully met, but only within the incomplete reconstruction of the metaphysical belief system relative to the Minoan prehistoric culture. The phenomenological approach opened up a new way for looking at the cultural complexity of the eschatology of the Minoan world. Natural liminal entities, such as reflections, can incorporate contradictory qualities, which may be discovered through an in-depth participatory investigation. In the present research, an opposition or a complementarity of forces was revealed, so that it is necessary to avoid anachronistic

single interpretations, instead allowing a stratification of meanings within a single element, such as the one embodied within the octopus-plant. Therefore, as landscapes and skyscapes can give rise to a complexity of perceptions, the cultural imagery was interpreted acknowledging the scope for a wealth and overlapping of significances. A single correspondence between two elements would not be enough to describe the richness of symbolism in the transference between the vision of nature and the cultural sophistication of the human mind. In conclusion, in a Minoan world where life and death seem to generate each other, the vision of the glitter path embraces the polarity between sunlight and water, echoing the liminal convergence of opposing realities.

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Appendix A: Dissertation Proposal

Student Name	Ilaria Cristofaro
Degree Scheme	MA CULTURAL ASTRONOMY AND ASTROLOGY
Module code	AHAN 7042
Start date (This will be after you have completed your 6th module)	31.1.2017
Completion Date (The date when your MA registration ends)	31.1.2018

Word count: 1516

Title of Dissertation:

A somatic exploration of the reflection of the sun in water and its broader implication for Minoan Bronze Age culture.

Aims

The aim of this project is to investigate the somatic experience of the sun reflecting in water and its possible narrative within Minoan cosmology. This research aims to explore possible meanings on how the sun's reflections in the water was perceived and used by the Minoans; it will build on my previous research undertaken during the 'Heavenly Discourses' module, which will be published in the *Journal of Skyscape Archaeology* 3.1 (2017), in order to investigate more fully the meanings related to the experience of the sun-in-the-water. To achieve this aim, I will explore qualities and proprieties of the sun-in-water reflection through a reflexive auto-ethnographic enquiry: I will carry out a phenomenological fieldwork by looking at sun's reflections in water over 5 months at Minoan archaeological sites. Combined with archaeological material evidence, the investigation of my somatic reality in relation with the experience of the sun-in-the-water seeks to understand how reflections of the sun in water may have been incorporated into Minoan religion and cosmology.

Academic Rational

There is a fragmentary evidence in the academic literature regarding the understanding of the meanings associated with the practice of reflecting the sun in water within the ceremonial context of Bronze Age Minoans. Laura Houseman offered an overview of the water management system of Minoan Crete, including

cisterns, wells, spring chambers, water basins/sunken baths, and others; her analysis stressed the political and religious importance of fresh water in relation to the characteristics and locations of these Minoan water spaces; however the role of the sun is not included.[151] In 1927 scholar Martin Nilsson claimed that the sun did not play a cult role within Minoan religion and he interpreted the sun's depictions as merely decorative motifs.[152] In 1989 Lucy Goodison argued for a primacy of a goddess solar worship within Minoan cosmology.[153] Following the assumption of the solar religion, Nanno Marinatos recently argued that the Minoan symbolism of the double axe might had represented the rising of the sun at the horizon; this argument will be tested in the context of a watery reflection.[154] A combination of sun and water reflection is made by Goodison, who suggested that a watery sun is often depicted in Minoan artefacts, such as the so-called 'frying-pans' vessels found in tombs: according to her interpretation, Minoan hydromancy practices might have included the sun's reflection for divinatory purpose.[155] Although attractive, Goodison's argument is supported by little evidence and it is highly speculative, as she admitted. Moreover, Goodison did not integrate in her analysis other Minoan symbols, such as the double axis and the horn of consecration, which for Marinatos had a solar character.[156] By situating Minoan water bodies within a skyscape and by referring to the imagery of Minoan artefacts, I will gather evidence

[151] Laura Houseman, 'Fluid Metaphors: Exploring the Management, meaning and perception of Fresh water in Minoan Crete' (unpublished doctoral thesis, University of Manchester, 2013).
[152] Martin Persson Nilsson, *The Minoan-Mycenaean Religion and Its Survival in Greek Religion* (Lund: C. W. K. Gleerup, 1927), pp. 355-363.
[153] Lucy Goodison, *Death, women and the sun: symbolism of regeneration in early Aegean religion* (London: Institute of Classical Studies, 1989).
[154] Nanno Marinatos, *Minoan Kingship and the Solar Goddess: A Near Eastern "Koine"* (Urbana, Chicago, and Springfield: University Of Illinois Press, 2010), pp. 129-134.
[155] Lucy Goodison, "Divination with Water: A Diachronic Perspective", Πεπραγμένα Θ' Διεθνούς Κρητολογικού Συνεδρίου, Ελούντα 1 - 6 Οκτωβρίου 2001, Τόμος Α3 (2006), pp. 369-383, p. 377.
[156] Lucy Goodison, *Death, women and the sun: symbolism of regeneration in early Aegean religion* (London: Institute of Classical Studies, 1989), p. xiii.

to bring forward Goodison's argument that there may have been intentionality of the use of sun's reflection in water. Although sun and water are primary factors of life, their symbolic interaction through reflection is an almost unexplored topic within skyscape archaeology and the anthropology of ritual and religions. Regarding the Inca culture, John McKim Malville argued that the combination of sunlight and water flowing was believed to have capacity of animating shrines called huacas.[157] In Alan Gardiner's account of the baptism of the pharaoh in the New Kingdom of Egypt, there are hints that suggest that the king was initiated through a ritual of washing in a pool where the sun had previously been shining.[158] My research can add to the field of cultural astronomy by expanding the little-explored perspective on how the liquid watery world can act as a medium to reflect the sky within the context of Minoan cosmology.

To which module/s of the MA does your topic related?

Heavenly Discourses

Skyscape Archaeology

Sacred Geography

[157]John McKim Malville, "Cosmology in the Inca Empire: Huaca Sanctuaries, State-Supported Pilgrimage, and Astronomy", *Journal of Cosmology*, vol. 9 (2010), pp. 2106-2120.
[158] Alan Gardiner, 'The Baptism of the Pharaoh', *The Journal of Egyptian Archaeology*, vol. 36 (1950), pp. 3-12.

What papers have you completed in the MA which are relevant to this dissertation topic? List the module and the title of the paper/s.

Heavenly Discourses - AHAN7024 - 2nd essay – 'Reflecting the sky in the water: a phenomenological exploration'

Skyscapes, Cosmology, and Archaeology Module – AHAN7043 – 2nd essay- 'Skyscape archaeology at Wayland's Smithy long barrow: is there evidence for any celestial alignment?'

Methodology

The methodology will be based on a literary review combined with fieldwork. First, I will explore the literature review of anything connected with how the sun reflected in water might have been meaningful within the Minoan culture. Second, I am planning to conduct fieldwork by periodically visiting 3 Minoan archaeological sites (Kato Zakros Palace, Kato Syme sanctuary, and Psychro Cave) which are chosen because of the presence of water on site (a full cistern at Kato Zakros, and natural springs at Kato Syme and Psychro Cave). These site are open to the public, therefore no permission will be needed. At these 3 sites I will observe and interact with the sun reflected in the water within their relevant water spaces by adopting an auto-ethnographic phenomenological method. My observations will be recorded in

a reflexive journal, made up of notes, pictures, paintings, and poems, which will constitute my fieldwork somatic journal and one of my primary sources.

In parallel I will compare and contrast my fieldwork findings with primary source archaeological material culture from museums (Heraklion Archaeological Museum, Archanes Archaeological Museum, Sitia Archaeological Museum, Archaeological Museum of Agios Nikolaos), such as artefacts, imagery, bowls, pools, frying-pan vessels that suggest a symbolism of the combination of sun and water. For completeness of my research, I am planning also to visit other Minoan Archaeological sites in Crete, such as Knossos, Phaistos Palace, Aghia Trias, Malia Palace, Petras Palace, Myrto Pyrgos, Palaikastro and look for the possible presence of water at these sites and/or visibility of a seascape.

Regarding the phenomenological method, I will adopt what Edmond Husserl called 'the phenomenological transcendental reduction', in order to achieve an elemental inner condition and a more open receptive perspective.[159] By creating space within my inner reality and setting side my own preconceptions, I will try to allow an authentic dialogue with the sun-in-the-water to happen; in order to achieve some knowledge I will focus on my somatic reaction to it. I will include reflexive considerations by following Charlotte Aull Davies' reflexive method: I will constantly examine my conditioning cultural lens during the whole research process in order to acknowledge, and possibly to discern, the subjective point of view of this

[159] Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology* (Evanston: Northwestern University Press, 1970).

research.[160] The rationale underlying this methodological choice is to test and validate a phenomenological epistemology as reliable way of doing research and to place this epistemology into the wider literature on somatic experiences.

Short Introductory Bibliography: 1. Secondary Sources (Scholarly Works)

Methodology and Phenomenology

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Sun-In-Water Reflections

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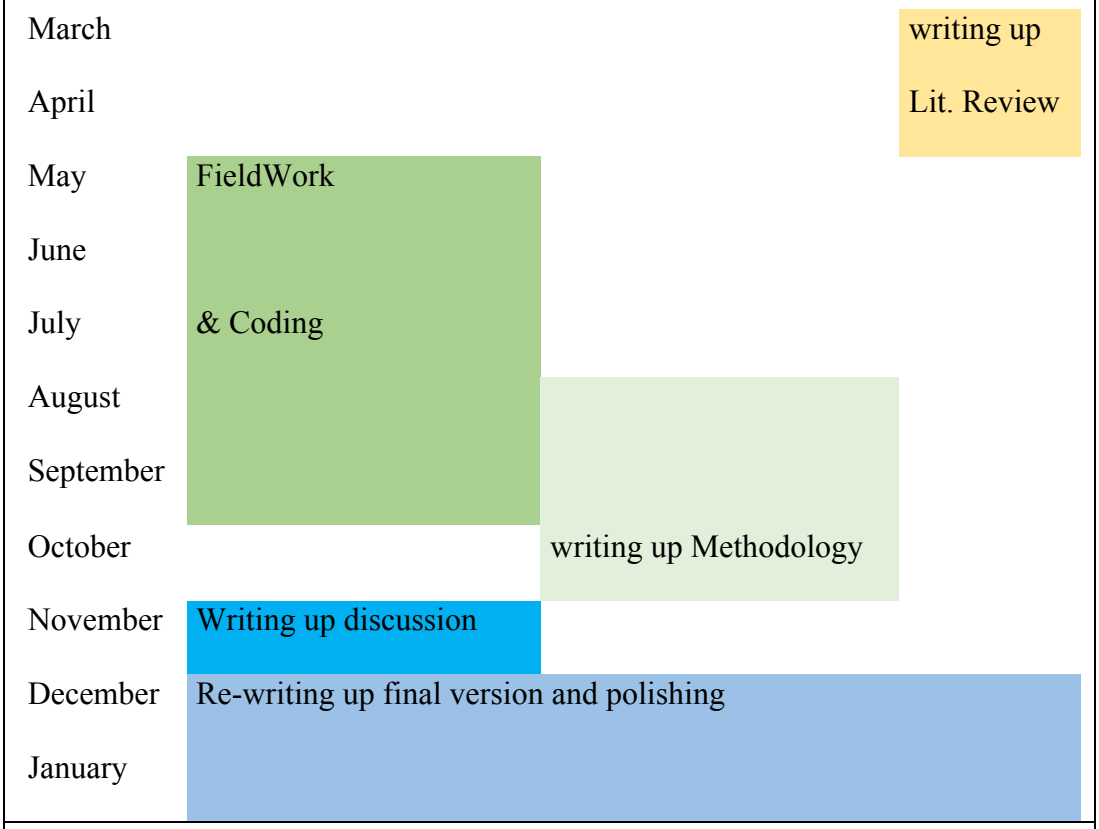
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Short Introductory Bibliography: 2 Primary Sources (Original Works/ Documents)

The primary sources of this research are of two types. The first is my fieldwork somatic journal in which I will note my responses to the reflection of sun in water at Minoan architectures and landscapes. The second is the gathering of archaeological material culture evidence from museums, such as artefacts, imagery, bowls, and vessels that embed a symbolism of the combination of sun and water. These two types of primary sources will be compared and contrasted in the discussion of my findings.

Time Schedule:

An outline of a likely timetable to completion.



Proposed Supervisor:

Darrelyn Gunzburg