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# Different Approaches to Cosmology in Archaeology and Their Application to Maltese Prehistory

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**Abstract:** This paper outlines different ways archaeologists have engaged with notions of cosmology and worldview. It begins by highlighting the confusion over definitions of cosmology, particularly within archaeology and archaeoastronomy, and proposes a working definition that tries to be all-encompassing. This definition is then used to illustrate how different bodies of archaeological theory have touched upon the topic of cosmology either explicitly or implicitly. The list provided is not exhaustive but provides an overview of the range of scales (from artefact to landscape) as well as a level of engagement with cosmology (from implicit to explicit). Each of these instances is firstly described in general, followed by a more specific application to Maltese prehistory and its Temple Period. The paper, therefore, highlights the ways in which archaeologists have engaged with cosmology that can complement work done by archaeoastronomers and cultural astronomers. By drawing attention to the holistic and all-encompassing nature of cosmology it is hoped that further steps towards bridging the gaps between archaeology and archaeoastronomy can be taken.

## 1. Introduction

This paper outlines different ways archaeologists have engaged with notions of cosmology and worldview or, at least, some of its elements. Archaeology has moved on from the view that subjects such as prehistoric ritual, belief and worldviews, being further up Hawkes' 'ladder of inference', are inaccessible to us and, therefore that it is imprudent for archaeology to speculate on these areas.<sup>1</sup> More recently, thanks to the advent of post-processualism spearheaded by Hodder, followed by Shanks and Tilley, archaeology seeks to 'transcend the tired divide between subjective and objective approaches'.<sup>2</sup> Topics such as ritual, belief and

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<sup>1</sup> Christopher Hawkes, 'Archeological Theory and Method: Some Suggestions from the Old World', *American Anthropologist* 56, no. 2 (1954): pp. 155–68.

<sup>2</sup> Ian Hodder, ed., *Symbolic and Structural Archaeology*, New Directions in Archaeology (Cambridge: Cambridge University Press, 1982); Michael Shanks

worldviews, are now routinely studied by archaeologists, such as Parker Pearson and Insoll.<sup>3</sup> Today archaeology departments feature scholars and research projects dealing with topics as varied as experimental archaeology, cult and religion, anthropology, phenomenology, monumentality, perception of the environment and taskscape, archaeology of the senses, cosmology, land and seascape as well as skyscape archaeology. However, not all scholars explicitly engage with the concept of cosmology.

One possible reason is that the term ‘cosmology’ takes many definitions, the understanding of which changes from scholar to scholar. It is used scientifically in the fields of astronomy and astrophysics to relate to how the universe functions; it has religious connotations in theology; it relates to belief and worldview in anthropology; to the creation of cosmic order in Classical Greek philosophy; to the spiritual and supernatural in secular or ‘new’ religions; and often to a three-tiered worldview composed of humans, earth and cosmos. There is often a confusion or, at least, a lack of clarification when using the term ‘cosmology’ even within the same field and especially in archaeology. According to Silva and Brown the sky is half the cosmos/world of any culture and yet it is rarely mentioned in archaeology.<sup>4</sup> It is therefore necessary firstly to establish a working definition of cosmology, based on both previous literature and the author’s own thoughts, which is done in section 2. Section 3 will give a brief and overall overview of Maltese Prehistory, mainly concentrating on the Temple Period. In section 4, some areas of archaeological theory are introduced and discussed in the ambit of cosmology. It will explore how, and to what extent, the term cosmology is being employed and approached within areas of such bodies of theory as site catchment analysis, fragmentation, access analysis, external symbolic storage, archaeology of death, landscape archaeology. More recent holistic approaches that bring

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and Christopher Tilley, *Re-Constructing Archaeology: Theory and Practice*, Second edition (London: Routledge, 1992).

<sup>3</sup> Mike Parker Pearson, ‘Death, Being, and Time: The Historical Context of World Religions’, in Timothy Insoll, ed., *Archaeology and World Religion* (New York: Routledge, 2001), p. 204; Timothy Insoll, ‘Introduction: The Archaeology of World Religion’, in Insoll, *Archaeology and World Religion*, p. 3.

<sup>4</sup> Fabio Silva, ‘Cosmology in Transition’, (paper presented at TAG Manchester, UK, 16 December 2014); Daniel Brown, ‘The Experience of Watching: Place Defined by the Trinity of Land-, Sea-, and Skyscape’, *Culture and Cosmos* 17, no. 2 (2013): p. 22.

together land-, sea-, island-, task- and skyscape within a cosmological apprehension will be discussed in section 5.

## 2. Cosmology

The concept of cosmology can be approached from the perspective of its use in archaeology; however its use is not always consistent. Darvill defines cosmology as ‘The world view and belief system of a community based upon their understanding of order in the universe’.<sup>5</sup> Parker Pearson and Richards go one step further by specifying an order of morality, social relations, space, time and the cosmos, that may also be reflected, expressed, and mediated in architectural space, which they document with a wide array of ethnographic examples.<sup>6</sup> Grima, Malone and Stoddart bring the perception of worldview, belief system, temporality and ancestral correlation related to monumentality into the notion of cosmology.<sup>7</sup> Champion states that cosmology recognises that we as human beings, our behaviour, our belief systems and our environments are as much a part of the cosmos, as the sky and stars.<sup>8</sup> The word ‘cosmology’ as used above implies that it can be studied anthropologically, and may bring in a religious perspective through the total human experience, action and thought in time and space towards maintaining harmony between the way the universe is, and the way human beings behave as suggested by Andrén, Bourdieu and Sims.<sup>9</sup> Mathews claims cosmology is the real world, but also

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<sup>5</sup> Timothy Darvill, *Oxford Concise Dictionary of Archaeology* (Oxford: Oxford University Press, 2008), p. 111.

<sup>6</sup> Michael Parker Pearson and Colin Richards, eds., *Architecture & Order: Approaches to Social Space* (London: Routledge, 1994), pp. 10–15.

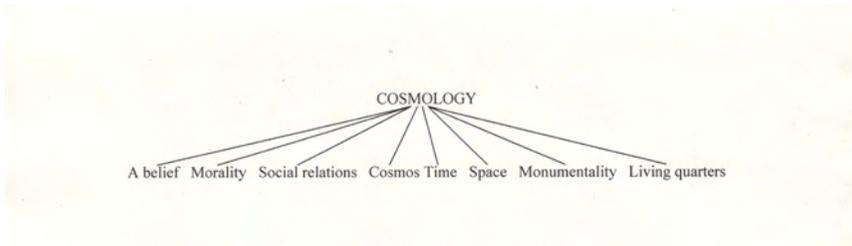
<sup>7</sup> Reuben Grima, ‘An Iconography of Insularity: A Cosmological Interpretation of Some Images and Spaces in the Late Neolithic Temples of Malta’, *Institute of Archeology* 12 (2001): pp. 55–56; Caroline Malone and Simon Stoddart, ‘Conclusions’, in *Mortuary Customs in Prehistoric Malta: Excavations at the Brochtorff Cicle at Xaghra (1987–94)*, ed. Simon Stoddart, Caroline Malone, Anthony Bonanno and David Trump, with Tancred Gouder and Anthony Pace (Cambridge: McDonald Institute Monographs, 2009), p. 376.

<sup>8</sup> Nicholas Champion, *A History of Western Astrology: The Medieval and Modern Worlds*, Vol. II (New York: Continuum, 2009), p. 1.

<sup>9</sup> Anders Andrén, *Tracing Old Norse Cosmology: The World Tree, Middle Earth, and the Sun from Archaeological Perspectives* (Lund, Sweden: Nordic Academic Press, 2014), p. 12; Pierre Bourdieu, ‘The Berber House or the World Reversed’, *Social Science Information* 9 (1970); Lionel Sims, ‘Coves, Cosmology and Cultural Astronomy’, in Nicholas Champion, ed., *Cosmologies* (Ceredigion, Wales: Sophia Centre Press, 2009), p. 4.

forces, fields, minds, spirits, even deities, as these bodies are capable of being actual, of constituting an actual world.<sup>10</sup>

All scholars mentioned above have addressed what cosmology encompasses, quite independently of each other. However, each one offers a slightly different perspective on the significance and nuances of the term. Nevertheless, it can be argued that one common characteristic all these definitions have, is encapsulated by Darvill's succinct definition, that cosmology is related to how humans or societies create order in the world they live. Consequently, cosmology may be understood as a holistic worldview, a belief system that encompasses all aspects of human society, their environments and the observable, but intangible sky. This is the definition of cosmology that will be applied throughout this paper (see Fig. 1).



**Fig. 1** Various elements that form part of a society's cosmology.

### 3. A Brief Overview of Maltese Prehistory

The earliest evidence of human presence on the Maltese islands goes back to the early Neolithic (late sixth century BCE), and the archaeological record indicates the population arrived from Sicily.<sup>11</sup> Around a thousand years later, according to Mayrhofer, 'these religious people started with the erection of megalithic temples which at that time were as unique as they are today'.<sup>12</sup> Originally there may have been approximately forty temples on the islands of which about twenty remain today in various conditions.<sup>13</sup> Some excavations were undertaken in the late nineteenth century, but most

<sup>10</sup> Freya Mathews, *The Ecological Self* (London: Routledge, 1991), pp. 3–4.

<sup>11</sup> David H. Trump, *Malta: Prehistory and Temples*, with photography by Daniel Cilia (Malta: Midsea Books, 2002), p. 23.

<sup>12</sup> Karl Ing. Mayrhofer, *The Prehistoric Temples of Malta and Gozo: A Description by Prof. Sir Themistocles Zammit* (Ing. Karl Mayrhofer, 1995), p. 5.

<sup>13</sup> Rowland Parker and Michael Rubinstein, *Malta's Ancient Temples and Ruts* (London: The Institute for Cultural Research, 1988), p. 2.

archaeological work was conducted in the twentieth century, with some buildings being reconstructed or rebuilt.<sup>14</sup>

The Maltese temples do not appear as isolated monuments but are frequently found in groups, often paired or even clumped together.<sup>15</sup> What is generally known as the Maltese Temple Period ranges from 4,100 to 2,500 BCE, though the core Temple Period is divided into the Ggantija Period (3,600–3,000 BCE) and the Tarxien Period (3,000–2,500 BCE).<sup>16</sup> However Trump theorised that indications of temple and religious rituals may go back some centuries to the Red Skorba Phase (4,400–4,100 BCE) that precedes the Temple Period.<sup>17</sup> The period that immediately follows the Temple Period is known as the Bronze Age Period and is chronologically divided into three periods; Tarxien Cemetery (2,400–1,500 BCE) and Borg in-Nadur (1,400–800 BCE) intervened by a short Bahrija Period (900–800 BCE).<sup>18</sup> From then on Malta goes into its historical periods starting with the Phoenician (700–500 BCE), then the Punic (500–300 BCE) and finally the Roman (200 BCE–1 CE).<sup>19</sup> According to Malone and Stoddart the monuments were constructed and maintained primarily for ritual purposes modelled on a corresponding three-level cosmology consisting of the worlds of the dead (hypogea below the ground), the living (the temples above the ground) and the ancestors (the sky and stars).<sup>20</sup> As temple construction reached its highest flourishing, it went into a sudden and unexplainable decline around 2,500 BCE.<sup>21</sup> Both the sudden start and the mysterious end of the complex giant megalith construction period raises many questions. After the Temple Period, Malta seems to have been

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<sup>14</sup> John Cox, 'Observations of Far-Southerly Moonrise from Hagar Qim, Ta' Hagra and Ggantija Temples from May 2005 to June 2007', *Cosmology Across Cultures, ASP Conference Series* 409 (2009), p. 344.

<sup>15</sup> A. Bonanno *et al.*, 'Monuments in an Island Society: The Maltese Context', *World Archaeology* 22, no. 2 (1990): p. 193.

<sup>16</sup> David H. Trump, 'Dating Malta's Prehistory', in Daniel Cilia, ed., *Malta before History* (Malta: Miranda Publishers, 2004), p. 230.

<sup>17</sup> David H. Trump, *Skorba: Excavations Carried out on Behalf of the National Museum of Malta 1961–1963* (Oxford: Oxford University Press, 1966), p. 10.

<sup>18</sup> Trump, 'Dating Malta's Prehistory', p. 230.

<sup>19</sup> Trump, 'Dating Malta's Prehistory', p. 230.

<sup>20</sup> Caroline Malone and Simon Stoddart, 'Maltese Prehistoric Religion', in Tim Insoll, ed., *The Oxford Handbook of the Archaeology of Ritual and Religion* (Oxford: Oxford University Press, 2011).

<sup>21</sup> Caroline Malone and Simon Stoddart, 'Ritual Failure and the Temple Collapse of Prehistoric Malta', in Vasiliki G. Koutratouri and Jeff Sanders, eds., *Ritual Failure: Archaeological Perspectives* (Leiden: Sidestone Press, 2013).

colonised by a new Bronze Age civilisation which possessed none of the skills in masonry or the architectural ability of their predecessors.<sup>22</sup> This was also presumably the period the less elaborate megalithic structures named ‘dolmens’ were erected; however the usage and actual construction periods of the Maltese dolmens remain, according to Sciberras, unidentified.<sup>23</sup>

#### **4. Some Approaches to Cosmology in Archaeology**

This section introduces types of archaeological theory which touch upon cosmology either explicitly or implicitly. These range from the purely economic view of cosmology, through various aspects of religion, ritual and symbolism, to more holistic approaches that look at landscapes, waterscapes and skyscapes. The ones presented here were chosen as they provide a good overview of the range of scales (from artefact to landscape) as well as the range of relation to cosmology (from purely implicit to fully explicit). Each of these instances is firstly described in general, followed by a more specific application to Maltese prehistory and its Temple Period.

##### *4.1 Site Catchment Analysis*

Vita-Finzi and Higgs define Site Catchment Analysis (SCA) as ‘the study of the relationships between technology and those natural resources lying within economic range of individual sites’.<sup>24</sup> According to Chisholm the original ideas of SCA developed and were spelled out by von Thünen in his major work, *The Isolated State*, with the theory that on any specified piece of land, the enterprise that yields the highest net return will be conducted and competing enterprises will be regulated to other land plots.<sup>25</sup>

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<sup>22</sup> Giulio Magli, *Mysteries and Discoveries of Archaeoastronomy from Giza to Easter Island* (New York: Copernicus, 2009), pp. 48–49.

<sup>23</sup> Danil Sciberras, ‘The Maltese Dolmens’, in Anton Mifsud and Charles Savona-Ventura, eds., *Facets of Maltese Prehistory* (Malta: The Prehistoric Society of Malta, 1999), p. 106.

<sup>24</sup> C Vita-Finzi and E. S. Higgs, ‘Prehistoric Economy in the Mount Carmel Area of Palestine: Site Catchment Analysis’, *Proceedings of the Prehistoric Society* 36 (1970): p. 5.

<sup>25</sup> Michael Chisholm, *Rural Settlement and Land Use: An Essay in Location*, 2nd ed. (London: Hutchinson University Library, 1968), pp. 20–21; J. H. von Thunen, *Der Isolierte Staat in Beziehung auf Landwirtschaft und Natinalökonomi* (Rostock: Perthes, 1826). English translation by C. M. Wartenberg: von Thünen’s *Isolated State* (Oxford: Pergammon Press, 1966).

In archaeology, SCA has been used to predict site locations, analyse the environmental context of sites and to determine their function, size and distribution in order to suggest the finite distance a group would be willing to go to obtain resources; an inference about a site both economically and culturally as suggested by Tiffany and Abbott, Hodder and Barker.<sup>26</sup> SCA does not explicitly engage with cosmology but with economy. However, it can be argued that the reasoning that underpins SCA is in itself a way to view and approach the world and hence is a worldview or cosmology, albeit one that focuses on economy. Furthermore, the application of SCA may also allow some insight into a society's attitudes to its landscape, which in turn relates to its cosmology.

**Malta:** Von Thünen's general ideas of site catchment analysis may be applied to an island such as Malta in the Neolithic. Regarding the socio-economic capacity of a Maltese prehistoric village, Bonanno suggests that trade between one local village community and another would have had much less scope in the limited area of Malta and that each village community would mainly be self-sufficient.<sup>27</sup> Grima also argues in site catchment analytical terms, that the size of a Maltese prehistoric megalithic complex may be directly correlated to the opportunities offered by its local environment.<sup>28</sup> Another more complex element related to a wider perspective of a site catchment analysis, is the question why, in the first place, colonise the Maltese Archipelago when it according to Stoddart *et al.* had little to offer but isolation and poverty of resources compared to the bigger and more prosperous island of Sicily from where the first settlers emigrated.<sup>29</sup> As reported by Fenech, it is debatable how forested, if at all, Malta was during the Neolithic and there are indications of a steppe

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<sup>26</sup> Joseph A. Tiffany and Larry R. Abbott, 'Site-Catchment Analysis: Applications to Iowa Archaeology', *Journal of Field Archaeology* 9, no. 3 (1982): p. 313; Ian Hodder, 'The Interpretation of Spatial Patterns in Archaeology: Two Examples', *The Royal Geographical Society (with the Institute of British Geographers)* 4, no. 4 (1972): p. 224; Graeme Barker, 'Cultural and Economic Change in the Prehistory of Central Italy', in C. Renfrew, ed., *The Explanation of Culture Change: Models in Prehistory* (Pittsburg: University of Pittsburg Press, 1973), pp. 359–60.

<sup>27</sup> Anthony Bonanno, 'A Socio-Economic Approache to Maltese Prehistory: The Temple Builders', *Malta Studies of its Heritage and History* (1986): pp. 20, 37.

<sup>28</sup> Reuben Grima, 'Landscape, Territories, and the Life-Histories of Monuments in Temple Period Malta', *Journal of Mediterranean Archeology* 21, no. 1 (2008): p. 54.

<sup>29</sup> Simon Stoddart *et al.*, 'Cult in an Island Society: Prehistoric Malta in the Tarxien Period', *Cambridge Archaeological Journal* 3, no. 1 (1993): p. 5.

environment.<sup>30</sup> Further, the geological formation of the Archipelago lacks sufficient hard and precious cutting instruments such as flint and obsidian which all had to be imported.<sup>31</sup> Robb suggests that islands are more than physical land surrounded by water, but ‘Islands are Ideas’.<sup>32</sup> Without debating this issue at any length, a plausible cause could be that the first settlers searched for a new island identity different from whence they came, more than exploring for an economic expansion. However, once established and settled, the concept of site catchment may have been an underlying factor for selecting dedicated land plots on the Archipelago.

#### 4.2 Fragmentation

Fragmentation is a widely used concept in archaeology, anthropology and material culture to study how objects may be deliberately or accidentally broken and then re-used. Depending on the desired outcome of the user, Chapman suggests that the fragments affect theories of enchainment – the linking of person to person through object exchange.<sup>33</sup> Grinsell widens up the concept of fragmentation to ceremonial ‘killing’ of objects at funerals, but also introduces the killing of human beings and animals to accompany the dead and concludes, ‘that there can be no doubt that in most of these instances the reason was to assist the deceased in his journey to the other world or when he reached the after-life’, and ‘to release the spirit in the object to accompany the dead to the after-life’. However, he admits it is difficult to get reliable information on the purposes behind a ceremonial ‘killing’.<sup>34</sup> As such, the concept of ‘fragmentation’ as just outlined does

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<sup>30</sup> Katrin Fenech, *Human-Induced Changes in the Environment and Landscape of the Maltese Islands from the Neolithic to the 15th Century AD* (Oxford: BAR, 2007), pp. 113–14.

<sup>31</sup> Anthony Bonanno, ‘The Lure of the Islands: Malta’s First Neolithic Solonisers’, in Nellie Phoca-Cosmetatou, ed., *The First Mediterranean Islanders: Initial Occupation and Survival Strategies* (Oxford: University of Oxford School of Archaeology, 2011), p. 151.

<sup>32</sup> John Robb, ‘Island Identities: Ritual, Travel and the Creation of Difference in Neolithic Malta’, *European Journal of Archaeology* 4, no. 2 (2001): p. 177.

<sup>33</sup> John Chapman, *Fragmentation in Archaeology: People, Places and Broken Objects in the Prehistory of South-Eastern Europe* (London: Routledge, 2000), pp. 4–5, 77–78.

<sup>34</sup> L. V. Grinsell, ‘The Breaking of Objects as a Funerary Rite’, *Folklore* 72, no. 3 (1961): pp. 475–76.

seem to relate to manifestations of a religious belief system or a cosmology.

**Malta:** As mentioned by Zammit, Bonanno and Malone *et al.*, the archaeological record of the Maltese Temple Period indicates a use of ‘fragmentation’ through possible intentional destructions of artefacts both from the temples above the ground and from burial practices.<sup>35</sup> Barrowclough mentions ‘fragmentation’ directly in the archaeological record, illustrating how imported greenstone axe pendants at the Tarxien Temples (Tarxien and Tarxien Cemetery Periods) were deliberately broken into two pieces as a token of an enchainned social relationship through a cult membership, and that these precious objects could be further broken up and passed on to third parties.<sup>36</sup> That these fragmented objects were found in a cache in and around an area which Zammit originally named as the ‘Oracle Room, emphasises the possibility that the fragmentation process may have been an integrated part of religious or cult ceremony.<sup>37</sup>

Malone and Stoddart refer to the destruction of about two metre standing and skirted figures from Tarxien as evidence of possible vandalism, however they point out that a finely carved stone figure retrieved at the hypogea of the Xaghra Circle (mainly Tarxien and Tarxien Cemetery Periods) on Gozo was smashed into fragments and crushed into burials in a pattern that could not have occurred naturally, with its location far away from the point of its breakage.<sup>38</sup> Xaghra Circle burials show the possible removal of selected body parts and the redistribution of long bones and skulls into secondary locations and also fragments of some 6841 animal bones, according to Stoddart *et al.*<sup>39</sup> The Hal Saflieni Hypogeum (mainly Tarxien Period), though lacking original excavation reports from

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<sup>35</sup> T. Zammit, ‘The Hal-Tarxien Neolithic Temple, Malta. *Archaeologia*’, *Archaeologia* 67 (1916): p. 133; Anthony Bonanno, ‘In Search of an Identity: The Anthropomorphic Representations of Megalithic Malta’, in D. Fenech, V. Fenech, and J.R. Grima, eds., *Lino: A Tribute (Festschrift in Honour of Lino Spitieri)* (Malta: PEG, 2008), p. 63; Caroline Malone *et al.*, *Mortuary Customs*, pp. 289–98.

<sup>36</sup> David A. Barrowclough, ‘Putting Cult in Context: Ritual, Religion and Cult in Temple Period Malta’, in D. A. Barrowclough and Caroline Malone, eds., *Cult in Context: Reconsidering Ritual in Archaeology* (Oxford: Oxbow, 2007), pp. 52–53.

<sup>37</sup> T. Zammit, ‘Third Report on the Hal-Tarxien Excavations, Malta’, *Archaeologia* 70 (1920): p. 182.

<sup>38</sup> Malone and Stoddart, ‘Ritual Failure’, pp. 77–79.

<sup>39</sup> Simon Stoddart *et al.*, ‘The Human and Animal Remains’, *Mortuary Customs*, pp. 329–30.

the lower levels, also indicates redistribution of human bones and skeletons.<sup>40</sup> As suggested by Malone and Stoddart, the mortuary practices at the Xagħra Circle embed a three level cosmology of the living, the dead and their ancestors of the earth and the sky.<sup>41</sup> Vella interlaces a possible intentional mutilation of a prehistoric statue at the Tas-Silg Temple (this temple had a continuous use and reuse from Tarxien Period all the way up to and including the Roman Period) as a process of iconoclasm and discontinuity, however concludes, ‘the suggestion is attractive but inconclusive’.<sup>42</sup> During my visit to the Temple Period section of the Tas-Silg site with Prof. Bonanno in April 2016, a discussion about whether an area close to an about four metre long apparent altar formation showed indications of deliberate breakage. Metal tools had seemingly been applied to destroy or modify some boulders. Metal first arrived on Malta after the Temple Period in the Bronze Age, commencing at about 2,500 BCE. A section of the so-called ‘Oracle hole’ in the same area also seemed to have been smashed or reshaped on purpose. Some parts of this space showed visible signs of burn marks, difficult however to assess as to purpose or chronology (see Fig. 2). That these alterations or modifications are related to a cosmological change in belief or social system is debatable. Nevertheless, Malone and Stoddart suggest that there are indications of cultural changes and a possible breakdown at the end of the Temple Period at about 2,500 BCE and into the following Bronze Age Period.<sup>43</sup>

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<sup>40</sup> Anthony Pace, ed., *The Hal Saflieni Hypogeum: 4000 BC–2000 AD* (Malta: National Museum of Archaeology, Museums Department, Malta, 2000).

<sup>41</sup> Malone and Stoddart, ‘Conclusion’.

<sup>42</sup> Nicholas Vella, ‘Trunkless Legs of Stone: Debating Ritual Continuity at Tas-Silg, Malta’, in Mifsud and Savona-Ventura, *Facets of Maltese Prehistory*, p. 230.

<sup>43</sup> Malone and Stoddart, ‘Ritual Failure’.



**Fig. 2** The alterations made to the so-called ‘oracle hole’; the metal tool and the burned marks on some of the boulders. In the background the four-metre altar formation is also visible. Photo by T. Lomsdalen.

#### 4.3 Access Analysis

The concept of Access Analysis is, according to Foster, based on morphological relations and considers the arrangement of different spaces as a pattern of accessibility in terms of the interconnections between spaces.<sup>44</sup> The theories and techniques for analysing spatial configurations conceived by Hillier and Hanson in their publication *The Social Logic of Space*, go one step further to being a manual for city, architectural or environmental planning, as they argue that space is the function of form of social solidarity, a product of the structural society, and that space has a certain social logic to it, raising the question; ‘is there any sense in which space also determines society?’<sup>45</sup> Stöger proposes that Space Syntax in its theoretical form is partly rooted within structuralism and is based on two formal ideas reflecting both the objectivity of space and our intuitive

<sup>44</sup> Sally M. Foster, ‘Analysis of Spatial Patterns in Buildings (Access Analysis) as an Insight into Social Structure: Examples from the Scottish Atlantic Iron Age’, *Antiquity* 63, no. 238 (1989): p. 41.

<sup>45</sup> Bill Hillier and Julienne Hanson, *The Social Logic of Space* (Cambridge: Cambridge University Press, 1984), p. 22.

involvement with it; that space is an inherent facet of all human activity, and human space is not about properties of space; however the ‘configuration of space’ is the process through which space gains social significance with social consequences.<sup>46</sup>

The word ‘cosmology’ seems not to be explicitly mentioned, or even considered, in works that focus on Access Analysis, Space Syntax or in the syntactic analysis of structures. However, if patterns of space can be expected to reproduce social relations and transmission of ideas within social, cultural or religious and sacred boundaries, it can equally be argued that space and spatial order may be the fount of both creating and exchanging worldviews and belief systems. This is further underlined when applying Hillier’s statement; ‘the view of space is as true practically as it is philosophically’.<sup>47</sup>

**Malta:** In the study of spatial order and access patterns of the Maltese prehistoric temples, only Bonanno, Anderson and Stoddart have addressed the issue of access analysis.<sup>48</sup> Bonanno analysed the physical access analysis of areas within the temples. Anderson and Stoddart on the other hand went one step further by analysing the spatial temple areas with high and low visibility considering closed off areas for ritual performances; thus implying a concept of ‘cosmology’ based on a system of belief and an hierarchical social structure.

#### 4.4 External Symbolic Storage

When Merlin Donald launched the concept of External Symbolic Storage (ESS), he did not relate it necessarily to archaeology as such, but to the

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<sup>46</sup> Hanna Stöger, *Rethinking Ostia: A Spatial Enquiry into the Urban Society of Rome’s Imperial Port-Town* (Amsterdam: Amsterdam University Press, 2011), pp. 41–42.

<sup>47</sup> Bill Hillier, *Space in the Machine: A Configuration Theory of Architecture* (Cambridge: Cambridge University Press, 1996), p. 345; Bill Hillier, ed. *Between Social Physics and Phenomenology*, Proceedings of the 5th International Space Syntax Symposium (Amsterdam: Techne Press, 2005).

<sup>48</sup> Bonanno *et al.*, ‘Monuments’, pp. 195–98; Anthony Bonanno, ‘The Rise and Fall of Megalithism in Malta’, in Karl W. Beinhauer, *et al.*, eds., *Studien Zur Megalithik. The Megalithic Phenomenon: Recent Research and Ethnoarchaeological Approaches* (Weissbach, Germany: Verlag Beier & Beran, 1999), pp. 105–6; Michael Anderson and Simon Stoddart, ‘Mapping Cult Context: GIS Applications in Maltese Temples’, in Barrowclough and Malone, *Cult in Context*.

cultural evolution of how the gradual process of human consciousness and cognition shifted from an internal to an external memory storage device. This started with the early Hominin species about two million years ago, and culminated about forty thousand years ago (Upper Palaeolithic) with a revolution in technology, symbols and material culture with a main cognitive driving force of externalisation of memory.<sup>49</sup> Donald, being a psychologist and neuroanthropologist, has nevertheless been accredited for his innovative work by Renfrew and also favourable referred to in the archaeological record by Zubrow and Daly, and d'Errico.<sup>50</sup> Donald further refers to the fact that about 100,000 years ago there appear, in the archaeological record, ritual artefacts of a quasi-symbolic nature, as well as adornments and costumes, which took a particular and vital symbolic function in ritual and religion.<sup>51</sup> Donald does not explicitly mention cosmology, but he relates mythology, ritual and symbolism – all of which are significant elements of a society's cosmology – to the evolution of cognition.

Rawson, an art historian, applying the concept of ESS, proposes that the idea of symbolic storage implies that ideas, beliefs and intentions exist prior to the artefacts that act as external storage.<sup>52</sup> However, the artefacts are not simply storage but are fully integrated into the process of constituting beliefs and bring them into being. Yet another example comes from Delano Smith, who interprets the Bulgarian Magoura prehistoric cave painting as a cosmological map, and therefore external storage of a symbolic nature.<sup>53</sup> She suggests that the study of maps from prehistoric

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<sup>49</sup> Merlin Donald, *Origins of Modern Mind: Three Stages in the Evolution of Culture and Cognition*. (Cambridge, MA: Harvard University Press, 1991), p. 275.

<sup>50</sup> Colin Renfrew, 'Mind and Matter: Cognitive Archaeology and External Symbolic Storage', in Colin Renfrew and Chris Scarre, eds., *Cognition and Material Culture: The Archaeology of Symbolic Storage* (Cambridge: McDonald Institute Monographs, 1998), p. 1; Ezra B.W. Zubrow and Patrick T. Daly, 'Symbolic Behaviour: The Origin of a Spatial Perspective', in Renfrew and Scarre *Cognition and Material Culture*, pp. 157–59; Francesco d'Errico, 'Palaeolithic Origins of Artificial Memory Systems: An Evolutionary Perspective', in Renfrew and Scarre, *Cognition and Material Culture*, pp. 22–43.

<sup>51</sup> Donald, *Origins*, p. 277; Merlin Donald, *A Mind So Rare: The Evolution of Human Consciousness* (London: W.W. Norton, 2001), p. 262.

<sup>52</sup> Jessica Rawson, 'Chinese Burial Patterns: Sources of Information on Thought and Belief', in Renfrew and Scarre, *Cognition and Material Culture*, p. 107.

<sup>53</sup> Catherine Delano Smith, 'Imago Mundi's Logo the Babylonian Map of the World', *Imago Mundi* 48 (1996): pp. 45–49; Catherine Delano Smith, 'The Emergence of 'Maps' in European Rock Art: A Prehistoric Preoccupatoin with

periods reveals the breadth of human interest in all forms of space, not only the terrestrial, but also celestial and cosmological.<sup>54</sup>

**Malta:** In the Maltese context the only indications of tally-marks in prehistoric Malta is proposed by Ventura *et al.* on two vertical pillars at the temple at Mnajdra (Ġgantija and Tarxien Periods) which imply a sequence of heliacal risings which include, the Pleiades, Aldebaran, the Hyades (all in Taurus), Orion, Sirius and Murzim (in Canis Major), Arcturus, and Crux-Centaurus of the Pleiades.<sup>55</sup> Grima proposes the architectural and spatial layout of the Hal Saflieni Hypogeum can be interpreted as a cosmological pilgrimage between the realm of the living and the dead, marked by its boundaries and transitional spaces.<sup>56</sup> The symbolic storage of ‘The Tree of Life’ which is related to the cosmic life force is a common motif on Mesopotamian and Egyptian pottery; and in Malta, where a similar design in red ochre covers part of the ceiling in the Neolithic hypogeum of Hal Saflieni, it may also visualise another form of iconographic representation.<sup>57</sup> The archaeological record shows prehistoric plans and models of the temples as suggested by Trump, Ugolini and Pace.<sup>58</sup> However an open question is whether these plans were used as models before constructing the temples or afterwards (see Fig. 3). Examples of ESS that may be related to astronomy and cosmology are the

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Place’, *Imago Mundi* 34 (1982): p. 9; Catherine Delano Smith, ‘Cartography in the Prehistoric Period in the Old World: Europe, the Middle East, and North America’, in J.B. Harley David Woodward, ed., *The History of Cartography: Volume One, Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean* (Chicago: The University of Chicago Press, 1987), p. 92.

<sup>54</sup> Delano Smith, ‘Emergence’, p. 9.

<sup>55</sup> Frank Ventura, Georgio Fodera Serio and Michael Hoskin, ‘Possible Tally Stones at Mnajdra, Malta’, *Journal for the History of Astronomy* 24 (1993): pp. 171–83, p. 179.

<sup>56</sup> Reuben Grima, ‘Journeys through the Underworld in Late Neolithic Malta’, in George Nash and Andrew Townsend, eds., *Decoding Neolithic Atlantic & Mediterranean Island Ritual* (Oxford: Oxbow, 2016).

<sup>57</sup> Catherine Delano Smith, ‘Prehistoric Maps and History of Cartography: An Introduction’, in Woodward, *The History of Cartography*, p. 87.

<sup>58</sup> Luigi M. Ugolini, ed., *Origini Della Civiltà Mediterranea Malta: Origins of Mediterranean Civilization* (Malta: Midesea Books, 2012), pp. 176–77; David Trump, ‘Megalithic Architecture in Malta’, in *Antiquity and Man: Essays in Honour of Glyn Daniel* (London: Thams and Hudson, 1981), p. 132; Anthony Pace, ‘The Sites’, in Cilia, *Malta before History*, p. 152.

so-called ‘Solar Wheel’ from the temple of Hagar Qim (classified as Ġgantija Period) and the ‘Star Stone’ from the Tal-Qadi Temple (Tarxien Period) that may represent a lunar calendar or a star map as suggested by Ventura and Micallef (see Fig. 4).<sup>59</sup> Delano Smith rejects this interpretation without giving any specific explanation.<sup>60</sup>



**Fig. 3** Possible models and graffiti of Maltese prehistoric temple design retrieved from the following sites; top left from Ta’Hagratt, top right from Hagar Qim, bottom left from Tarxien and bottom right from Skorba. All items displayed at the Archaeological Museum, Valletta, Malta. Photo: T. Lomsdalen.

<sup>59</sup> Frank Ventura, ‘Temple Orientations’, in Cilia, *Malta before History*, p. 312; Chris Micallef, ‘The Tal-Qadi Stone: A Moon Calendar or Star Map’, *The Oracle, The Journal of the Grupp Arkeologija Malti*, no. 2 (2001).

<sup>60</sup> Delano Smith, ‘Cartography’, p. 84.



**Fig. 4** On the left side, the graffiti in the ceiling of the hypogea Hal Saflieni. Top right, the so-called ‘Star Stone’ from Tal-Qadi and bottom right the ‘Solar Wheel’. Centre bottom, a rim sherd of a bowl with a 5 pointed star decoration, provenance Tarxien. The last three artefacts mentioned are all displayed at the Archaeological Museum, Valletta, Malta. All photos by T. Lomsdalen.

#### 4.5 Archaeology of Death

According to Boyer, death is the origin of religious concepts and all religions seem to have something to say about death; ‘burying the dead in a ritual way is evidence for supernatural concepts – ancestors, spirits, gods – because we find a connection between these two phenomena in most human societies’.<sup>61</sup> In the study of death, Parker Pearson highlights the strange paradox that the physical remains of the dead are more likely to reveal more information about the life of individuals than about their death.<sup>62</sup> Indeed, funerary archaeology tends to focus on tangible quantities, such as the identification of age, gender, status and ethnicity from the contents of a burial, while a more innovative approach by Baker focuses on

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<sup>61</sup> Pascal Boyer, *Religion Explained: The Human Instincts That Fashion Gods, Spirits and Ancestors* (London: Random House, 2001), p. 233.

<sup>62</sup> Michael Parker Pearson, *The Archaeology of Death and Burial* (Stroud, UK: The History Press, 2009), p. 3.

how the commodities of a culture, including worldview and religious belief system, can be recognised from its mortuary practices.<sup>63</sup>

Tilley suggested that death, body symbolism and rituals accompanying inhumations generally play an important role in that they both imitate and mould social values where ‘good death’ and the proper healing and preservation of the ancestral remains has the same value as ‘good marriage’; namely an act to secure the reproduction of society and social order.<sup>64</sup>

**Malta:** The Maltese archaeological record on mortuary and burial practices contains a considerable amount of documentation relating to the entire Temple period which often linked cult, rituals, religion, belief and worldview (cosmology) to an ancestral connotation through shrines, depicted grave goods, various types of figurines and spatial order of skeletons and reorganised human bones.<sup>65</sup> Baldacchino and Evans systematically excavated five rock-cut tombs from the Żebbuġ Phase (4,100–3,700 BCE) in 1947, but did not infer symbolic interpretations from their findings.<sup>66</sup> The Xaġhra Circle excavation in 1987–1994, provides material from the Pre-Temple Period Żebbuġ Phase, suggestive of it having been the origin of the long-term mortuary rituals that feature later in the Temple Period.<sup>67</sup> Another Maltese hypogea, Hal Saflieni, was discovered in 1902 and was excavated by Magri who unexpectedly died and left no draft of his report, so Themistocles Zammit, the father of Maltese archaeology, concluded the excavation in 1910 and noted that intact deposits of human remains survived only on the Upper Level.<sup>68</sup> This extraordinary hypogea was once a burial temple of an estimated 6,000 to 7,000 people.<sup>69</sup>

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<sup>63</sup> Jill L. Baker, *The Funeral Kit: Mortuary Practices in the Archaeological Record* (Walnut Creek, CA: Left Coast Press, 2012), pp. 11–19.

<sup>64</sup> Christopher Tilley, *An Ethnography of the Neolithic: Early Prehistoric Societies in Southern Scandinavia* (Cambridge: Cambridge University Press, 1996), p. 246.

<sup>65</sup> Trump, *Skorba.*; Malone *et al.*, eds., *Mortuary*; Stoddart *et al.*, ‘Cult’.

<sup>66</sup> J.G. Baldacchino and J.D. Evans, ‘Prehistoric Tombs near Żebbuġ, Malta’, *Papers of the British School at Rome* 22 (1954).

<sup>67</sup> Malone and Stoddart, ‘Conclusion’, pp. 362–63.

<sup>68</sup> Anthony Pace, *The Hal Saflieni Hypogeaum: Paola* (Malta: Heritage Malta, 2004), pp. 5–8.

<sup>69</sup> David H. Trump *et al.*, ‘New Light on Death in Prehistoric Malta: The Brochtorff Circle’, *The Megalithic Builders of Western Europe* (Harper: San Francisco, 1993), p. 100.

The Maltese Temple Period, where the temples above the ground were for the living and the ones under the ground were for the dead, suggests a dichotomy between life and death, combined with a metaphoric passage on a cosmological scale of time and space, not only by the alteration of fragmented body parts over time within burial sites, but also by a possible processual procedure between temples within the wider geographical landscape including the Mediterranean connection to ancestral Sicily, as suggested by Stoddart and Malone, and Grima.<sup>70</sup>

The Maltese archaeological record on mortuary practice does indicate cult, rituals, shrines and ‘oracle holes’, implying a profound system of beliefs and worldviews all embedded into a cosmology of the values of life, death and ancestral afterlife. Besides, in Malta, where the approach to cosmology in the archaeological record became more and more emphasised from around 2000 onwards, it still seems that the wider archaeological literature does not easily interrelate mortuary practices with cosmology as a holistic belief system or worldview, and in many cases, excepting the Xaġhra Circle, excludes a sky involvement.

#### 4.6 Landscape archaeology

The geographers and part-time archaeological enthusiasts Aston and Rowley initially launched the concept of landscape archaeology in 1974.<sup>71</sup> However, it was not until the 1980s that landscape archaeology was widely cited in the archaeological literature, and its focus was mainly on human impact on the landscape.<sup>72</sup> From then on landscape archaeology emerged in its own right, parallel with the post-processual evolution in archaeology, embedded in the idea that human activity, societies and culture have a

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<sup>70</sup> Simon Stoddart and Caroline Malone, ‘Changing Beliefs in the Human Body in Prehistoric Malta 5000–1500 BC’, in Dusan Boric and John Robb, eds., *Past Bodies: Body Centred Reserch in Archaeology* (Oxford: Oxbow, 2008); Reuben Grima, ‘The Landscape Context of Megalithic Architecture’, in Cilia, *Malta before History*.

<sup>71</sup> Michael Aston and Trevor Rowley, *Landscape Archaeology: An Introduction to Fieldwork Techniques on Post-Roman Landscapes* (Newton Abbot: David & Charles, 1974).

<sup>72</sup> Bruno David and Julian Thomas, ‘Landscape Archaeology: Introduction’, in Bruno David and Julian Thomas, eds., *Handbook of Landscape Archaeology* (Walnut Creek, CA: Left Coast Press, 2008), p. 27.

spatial dimension.<sup>73</sup> Landscape archaeology can have many facets. As suggested by David and Thomas, it is not only defining a physical place in the environment, but all its lived dimensions, how people visualise their world and how they engage with one another across space and time.<sup>74</sup> According to Layton and Ucko landscapes are particular ways of expressing conceptions of the world and they are also a means of referring to physical entities; the same physical landscape can be seen in many different ways by different people, often at the same time.<sup>75</sup> Casey brings in the notion ‘placescape’ relating to ‘place-world’, reflecting an historic or prehistoric world that is anchored in a given unique place.<sup>76</sup> Tilley’s 1994 publication, *A Phenomenology of Landscape*, laid the foundation for a new approach to archaeological, anthropological and philosophical perception of landscape.<sup>77</sup> In a more recent publication Tilley advocates, ‘The materiality of landscape always outruns us; the real turns into the surreal’, implying that we understand landscapes through modes of embodied engagement.<sup>78</sup> Bradley, Richards and Thomas, and Harding further suggest that modern landscape archaeology encompasses areas like monumentality in landscape connected to political acts and concepts of unification, social transformation, and the landscape’s spiritual, religious, cult, pilgrimage and holy significance influencing location and orientation of prehistoric monuments.<sup>79</sup> Crumley brings in the assumption of a cosmic frame in the

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<sup>73</sup> Timothy Darvill, ‘Pathways to Panoramic Past: A Brief History of Landscape Archaeology in Europe’, in David and Thomas, *Handbook of Landscape Archaeology*, p. 60.

<sup>74</sup> David and Thomas, ‘Philosophical’, in David and Thomas, *Handbook of Landscape Archaeology*, p. 38.

<sup>75</sup> Robert Layton and Peter J. Ucko, ‘Introduction: Gazing on the Landscape and Encountering the Environment’, in Peter J. Ucko and Robert Layton, eds., *The Archaeology and Anthropology of Landscape: Shaping Your Landscape* (London: Routledge, 1999), p. 1.

<sup>76</sup> Edward S. Casey, ‘Place in Landscape Archaeology: A Western Philosophical Prelude’, in David and Thomas, *Handbook of Landscape Archaeology*.

<sup>77</sup> Christopher Tilley, *A Phenomenology of Landscape* (Oxford: Berg, 1994).

<sup>78</sup> Christopher Tilley and Kate Cameron-Daum, *An Anthropology of Landscape: The Extraordinary in the Ordinary* (London: UCL Press, 2017), p. 20.

<sup>79</sup> R. J. Bradley, ‘Ritual, Time and History’, *World Archaeology* 23 (1991); Colin Richards and Julian Thomas, ‘The Stonehenge Landscape before Stonehenge’, in Joshua Pollard, Andrew Meirion Jones, Michael J. Allan and Julie Gardiner, eds., *Image, Memory and Monumentality: Archaeological Engagements with the Material World: A Celebration of the Academic Achievements for Professor Richard Bradley* (Oxford: Oxbow, 2012); Jan Harding, ‘Henges, Rivers and

perception of a sacred landscape as it gives life a meaning.<sup>80</sup> The concept of sacred geography can also be applied in the context of spatiality of religion and a spiritual dimension in natural or constructed environments.<sup>81</sup> The thirty to forty temples in prehistoric Malta do bring in an association of sacredness to the landscape in which they were built. This description of the Maltese prehistoric sacred landscape is further validated by Snead and Preucel's more general statement that 'Landscape cannot be fully understood without reference to a world view (*cosmology*, added by this author) which integrates place and space in the production of meaning'.<sup>82</sup>

**Malta:** When it comes to landscape archaeology and prehistoric Malta, Grima seems to be the first to disclose not only a land- and seascape connotation to cosmology, but also the use of GIS and multivariate analysis on how priorities may have been chosen by the temple builders to select a specific site or location in the landscape.<sup>83</sup> Vassallo uses archaeoastronomy when investigating the Maltese prehistoric temples' positions in the landscape based on cardinal directions, alignments to rising and setting of the sun at the equinox and the solstices including demarcated points or features on the apparent horizon which may have been markers

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Exchange in Neolithic Yorkshire' in Pollard *et al.*, *Image, Memory and Monumentality*.

<sup>80</sup> Carole L. Crumley, 'Sacred Landscapes: Constructed and Conceptualized', in Wendy Ashmore and A. Bernard Knapp, eds., *Archaeology of Landscape: Contemporary Perspectives* (Oxford: Blackwell, 1999), p. 270.

<sup>81</sup> Ellen Churchill Semple, 'The Templed Promontories of the Ancient Mediterranean', *Geographical Review, American Geographical Society* 17, no. 3 (1927); Nicholas C. Vella, 'The Lie of the Land: Ptolemy's Temple of Hercules in Malta', *ANES* 39 (2002); Bob Trubshaw, *Sacred Places: Prehistory and Popular Imagination* (Loughborough, UK: Heart of Albion Press, 2005).

<sup>82</sup> James E. Snead and Robert W. Preucel, 'The Ideology of Settlement: Ancestral Keres Landscapes in the Northern Rio Grande', in Ashmore and Knapp, *Archaeology of Landscape*.

<sup>83</sup> Reuben Grima, 'Monuments in Search of a Landscape: The Landscape Context of Monumentality in Late Neolithic Malta' (PhD Thesis, University College London, 2005); Reuben Grima, 'Landscape and Ritual in Late Neolithic Malta', in Barrowclough and Malone, *Cult in Context*; Reuben Grima, 'The Prehistoric Islandscape', in Charles Cini and Jonathan Borg, eds., *The Maritime History of Malta: The First Millennia* (Malta: Salesians of Don Bosco and Heritage Malta, 2011).

influencing the site location in the landscape.<sup>84</sup> Bonanno *et al.* associate Maltese prehistoric monuments with the island's topology and seem not to include explicitly the position of the monuments in a human/landscape relation.<sup>85</sup>

## 5. Other 'Scape' concepts

This section will briefly describe some other 'scape' perceptions relevant to this paper as; 'seascape', 'islandscape', 'taskscape' and 'skyscape' reflected in a holistic cosmological worldview.

### 5.1 Seascape

In 1978 Westerdahl was the first to launch the notion that 'the maritime cultural landscape' relates to the whole network of sailing routes, with ports and harbours along the coast relating to human activity.<sup>86</sup> Another Scandinavian, Wehlin, introduced the word 'seascape' breaking down the boundaries between landscape and the sea, as people living by water were very likely to create beliefs, myths and gods inspired by this element.<sup>87</sup> In prehistory, trade and exchange of goods and commodities was to fulfil needs, but also to create new or to maintain existing social relationships, constituting a maritime cultural landscape with exchanges of ideas, beliefs and culture, often with a sacred response, according to Farr.<sup>88</sup> The religious element to a maritime environment crosses wide gaps of time and space, and is a theme that is explored by Vella and Cassar who suggest that seafaring and seascape may have a religious element in a maritime environment.<sup>89</sup>

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<sup>84</sup> Mario Vassallo, 'The Location of the Maltese Neolithic Temple Sites', *Sunday Times*, 26 August 2007.

<sup>85</sup> Bonanno *et al.*, 'Monuments'.

<sup>86</sup> Christer Westerdahl, 'The Maritime Cultural Landscape', *International Journal of Nautical Archaeology* 21, no. 1 (1992): p. 6.

<sup>87</sup> Joakim Wehlin, 'Approaching the Gotlandic Bronze Age from Sea. Future Possibilities from a Maritime Perspective', *Gotland University Press* 5 (2010): p. 89.

<sup>88</sup> Helen R. Farr, 'Seafaring as Social Action', *Journal of Maritime Archaeology* 1, no. 1 (2006): p. 86.

<sup>89</sup> Nicholas C. Vella, 'A Maritime Perspective: Looking for Hermes in an Ancient Seascape', *International Colloquium (Ist: University of London)* (2001); Grace Cassar, 'Is the Seashore an Opening into the Sacred? Exploring Liminality of the Littoral', *Spica: Postgraduate Journal for Cosmology in Culture* 3, no. 1 (2015).

### 5.2 *Islandscape*

Vogiatzakis *et al.* suggest that islands around the world have matured by integrating land and sea, forming the concept of land- and seascape combined with cultural implications and ecological patterns created by humans, which merit the term 'islandscape', as it encompasses all these aspects in a holistic manner.<sup>90</sup> In this context, the concept of islandscape is the particular integration of landscape and seascape that occurs only in an island environment. This does not mean it is an entirely separate entity, but that it is an example of an incremented combined level of two 'scapes'. In other words, land- and seascape can be present without islandscape, but islandscape cannot exist without land- and seascape. Due to the terrestrial limitations of an island and its relative isolation, a new and unique cultural integrity (islandscape) could develop in its totality as an integrated element of land- and seascape. The succeeding example from the Maltese Temple Period may be such a case.

The Maltese Archipelago is situated some 80 km south of Sicily. Subject to atmospheric conditions both islands are intervisible, however in prehistoric terms the archipelago could be considered remote from insular and mainland Italy.<sup>91</sup> During the Maltese Temple Period, the archipelago went through a deep unique cultural process unparalleled to any other areas in the Mediterranean.<sup>92</sup> These cultural and cosmological changes in context with 'islandscape' are outside the remit of this paper, however the question whether the archipelago's relative isolation had an impact on its cultural expression throughout its history has been subject to considerable scholarly debate, see for example Robb, Stoddart *et al.* and Trump.<sup>93</sup>

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<sup>90</sup> Ioannis N. Vogiatzakis *et al.*, 'Characterizing Islands: Conceptual and Methodological Challenges Exemplified in the Mediterranean', *Land* 6, no. 14 (2017).

<sup>91</sup> Grima, 'Prehistoric Islandscape'.

<sup>92</sup> Andrew Townsend, 'Searching Beyond the Artefact for Ritual Practices: Evidence for Ritual Surrounding the Unclothed Human Body on Prehistoric Malta During the Temple Period', in Nash and Townsend, *Decoding Neolithic Atlantic & Mediterranean Island Ritual*.

<sup>93</sup> Robb, 'Identities'; Stoddart *et al.*, 'Cult'; David H. Trump, 'The Insularity of Malta: A Matter of Geography and of Conscious Choice', *Treasures of Malta* 8, no. 2 (2002).

### 5.3 *Taskscape*

Ingold, who introduced the word ‘taskscape’ in 1993, defines it as an array of related features or activities with every task taking its position within an ensemble of tasks.<sup>94</sup> Activities and taskscape are to labour what landscape is to land, a concept of temporality and moving through a task or an environment, being land, sea or the sky.<sup>95</sup> Thomas suggests that the concept of taskscape may have its drawbacks as in some cases it may be extended or superseded and that; ‘people are not always engaged in activities that have a clear objective’.<sup>96</sup> Nevertheless, both the term and the concept of taskscape could be adopted more frequently in both archaeology, archaeoastronomy and skyscape literature, as taskscape cannot be understood without a cognitive human contribution.

### 5.4 *Skyscape*

As Campion states, ‘the sky is all around us. We would not be alive without it’, and he continues by saying that it is widely assumed that the perception of the sky ‘played an essential role’ in ancient societies.<sup>97</sup> Harding *et al.* seem to be the first to use the term ‘skyscape’ within the ambit of archaeoastronomy relating the observation of the sky to life cycles, as an integral part of beliefs and local cult practices.<sup>98</sup> The concept of skyscape was further established by Campion and Silva for the Theoretical Archaeology Group conference (TAG) 2012.<sup>99</sup> For a contemporary observer of an ancient monument, skyscape may give a meaning and an indication of what the builders intended. As Silva put it, the skyscape plays an active role in structuring and being structured by

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<sup>94</sup> Tim Ingold, ‘The Temporality of the Landscape’, *World Archaeology* 25, no. 2, Conceptions of Time and Ancient Society (1993); Tim Ingold, *The Perception of the Environment* (Oxon, Canada: Routledge, 2000).

<sup>95</sup> Tim Ingold, ‘Taking Taskscape to Task’, in Ulla Rajala and Philip Mills, eds., *Forms of Dwelling: 20 Years of Taskscapes in Archaeology* (Oxford: Oxbow Books, 2017).

<sup>96</sup> Julian Thomas, ‘Concluding Remarks: Landscape, Taskscape, Life’, in Rajala and Mills, *Forms of Dwelling*, p. 277.

<sup>97</sup> Nick Campion, ‘Skyscapes: Locating Archaeoastronomy within Academia’, in F. Silva and N. Campion, eds., *Skyscapes: The Role and Importance of the Sky in Archaeology* (Oxford: Oxbow, 2015), p. 8.

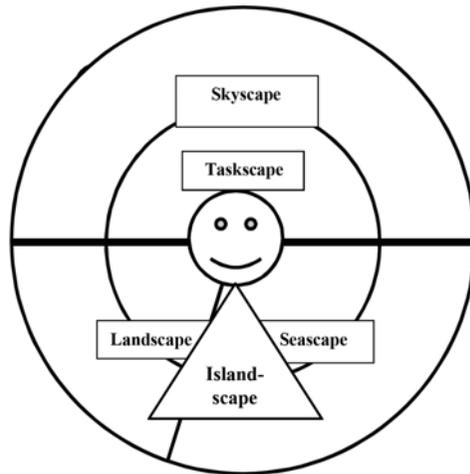
<sup>98</sup> Jan Harding *et al.*, ‘Neolithic Cosmology and Monument Complex of Thornborough, North Yorkshire’, *Archaeoastronomy* 20 (2006): p. 48.

<sup>99</sup> Fabio Silva, ‘The Role and Importance of the Sky in Archaeology: An Introduction’, in Silva and Campion *Skyscapes*, p. 4.

humans; myths may shape and be shaped by the sky and skyscape is an ideal depiction for metaphors, people's ideologies, beliefs and worldviews as they are open to control and thus tied to political strategy, as well as structuring time.<sup>100</sup>

### 5.5 Holistic Views

Brown suggests that the trinity of land, sea and sky cannot materialise through a scientific approach, but that it is a person's emotional experience materialised through observation and participation where place, time and space are all elements of a holistic awareness to the world one lives.<sup>101</sup> Silva adds the taskscape as a fourth element, bringing in notions of time, and argues that the union of this quadruple constitutes a holistic worldview or cosmology.<sup>102</sup> In affinity with the Maltese Archipelago, a fifth notion can be added, that of 'Islandscape for the ensemble of a holistic worldview, or in other words – a *cosmology* (see Fig. 5).



**Fig.5** This figure, adapted from Brown and Silva, illustrates the human element's ensemble of the quintuple scape-concept consisting of land, sea, island, task and sky as proposed here.<sup>103</sup>

<sup>100</sup> Silva, 'Introduction', p. 3.

<sup>101</sup> Brown, 'Watching', pp. 22–23.

<sup>102</sup> Silva, 'Transition', p. 3.

<sup>103</sup> Daniel Brown, 'Skyscapes: Present and Past – From Sustainability to Interpreting Ancient Remains', in Silva and Campion, *Skyscapes*; Silva, 'Transition'.

Studies of alignments, orientations and the relationships between the sky, ancient monuments and landscape are carried out mainly within the purview of cultural astronomy, archaeoastronomy and ethnoastronomy where a considerable number of publications are, to a large extent, generated in the ambit of two academic organisations, the European Society of Cultural Astronomy (SEAC) and the International Society for Archaeoastronomy and Astronomy in Culture (ISAAC). According to Silva, both archaeoastronomers and landscape archaeologists have studied the orientation of European prehistoric structures, largely in isolation, and despite their similar interests, the two academic fields have failed to converge primarily due to differences of epistemology.<sup>104</sup> Belmonte on the other hand claims there is a conflict of interest as archaeoastronomy and cultural astronomy in its wider context abide in a ‘no-man’s land’, and is neither endorsed by archaeology nor astronomy.<sup>105</sup> Both Henty and Silva have suggested ways to bridge this gap, mostly based on a holistic approach that combines archaeology and astronomy through a skyscape and cosmological concept.<sup>106</sup>

## 6. Conclusion

As referred to in Section 4.4, it is well documented in the archaeological record that the human mind, at least since the Upper Palaeolithic, possessed a cognitive ability to process complex spatial and temporal knowledge. Consequently, it is not inconceivable that some of that cognitive ability was directed not just at the landscapes below and around them but also to the skylscapes above them. This interconnection between the sky, humans and material culture – the very foundation of cosmology – is rarely explicitly explored in archaeology.

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<sup>104</sup> Fabio Silva, ‘A Tomb with a View: New Methods for Bridging the Gap between Land and Sky in Megalithic Archaeology’, *Advances in Archaeological Practice: A Journal of the Society for American Archaeology* (2014): p. 24.

<sup>105</sup> Juan Antonio Belmonte, ‘Is There a Conflict between Archaeology and Archaeoastronomy? An Astronomer’s View’, *Journal of Skyscape Archaeology* 2, no. 2 (2016): p. 259.

<sup>106</sup> Liz Henty, ‘An Examination of the Divide between Archaeoastronomy and Archaeology’, in Silva and Campion, *Skyscapes*, p. 30; Liz Henty, ‘Skyscape Archaeology: An Emerging Interdiscipline for Archaeoastronomers and Archaeologists’, *Journal of Physics: Conference Series* 685, no. 01200 (2016); Fabio Silva and Liz Henty, ‘Editorial’, *Journal of Skyscape Archaeology* 1, no. 1 (2015): p. 1.

In Section 4, a number of theoretical concepts and analytical tools, developed and applied by archaeologists, have been presented. Each in its own way, engage with cosmology as a whole or, at least, with important elements of it, either explicitly or implicitly. Even processual concepts such as site catchment analysis, can be said to implicitly relate to cosmology in the sense that researchers try to uncover economic relationships between human societies and their landscape and therefore recover an important part of a society's cosmology. Such elements might find correlates and relationships among other elements such as the skyline.

This work highlights the variety of ways in which archaeology engages with cosmological elements, some of which might prove useful to both archaeologists and archaeoastronomers in bridging the gap between their different but complementary epistemologies. Furthermore, the archaeological record of Malta's Temple Period and its general absence of cosmological considerations has been a primary concern of this research.

The preliminary results from this analysis seem to suggest a lack of involvement with the sky or cosmological considerations (with a few exceptions as already mentioned) within the general field of archaeological research and studies. However, further investigations ought to be conducted to reach a more consolidated conclusion.

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# CULTURE AND COSMOS

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