Astromorphism and the Influence of Prehistoric Astronomy on the Origin of Religion

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Celestial bodies have long been a source of religious objectification and this article aims to convey the origin of the relationship between human religious belief and observations of the night sky. The academic search for the origin of religion commenced in the early nineteenth century and since then the debate of whether animism or pre-animism is the original religion has dominated this field. Until now, no unified theory has acknowledged the influence of primitive astronomy on the origin of religion. However, the theory of Astronicism supports the pre-animist hypothesis by proposing that early modern humans of the Upper Palaeolithic made simple associations between celestial bodies and their apparent capacity to determine human survival. This article asserts that these associations led to celestial deification long

before humans animated astronomical phenomena with spirits. Archaeological specimens from Europe and beyond including astral rock art, cup marks and engravings are used in this article to assert that astrolatry and astromancy were crucial to the development of religion.

Keywords: astrolatry, astromancy, astromorphism, astronomical religion, origin of religion, pre-animism, Upper Palaeolithic

Introduction

In 1714, English clergyman William Derham published the thesis *Astro-theology* in which he made an initial attempt to link human "observations of the heavens" to the origin of religion.[1] From the beginning of the nineteenth century, the search for the Urreligion—humanity's original religion—became a popular academic pursuit, especially among continental scholars.[2] Being able to link contemporary beliefs with the oldest forms of religion seemed to elicit a prestige that was used as a tool of legitimisation. Theories of the Urreligion have since bore a new field within religious studies that uses prehistoric specimens and evolutionary psychology to trace how the first forms of religious behaviour emerged.[3]

This area of inquiry remains contentious due in part to the lack of definition of what constitutes a religion while origin theories remain

largely speculative and have been used by some to imply the superiority of certain religions over others.[4] When faced with evidence of the prehistoric origin of polytheism, for instance, late nineteenth century scholars who were monotheists developed the *Urmonotheismus* theory to reconcile this evidence with the primacy of Christianity.[5] The theory condescended that polytheistic religions had degenerated from primitive monotheism to avoid the implication that monotheistic beliefs had originated from the heresy of polytheism.[6]

Overshadowed by this wave of scholarly debate, Derham's link between astronomy and religion went unnoticed in terms of its relevance to the search for the origin of religion. However, a body of archaeological specimens combined with palaeoanthropological knowledge[7] is used in this article to establish a unified theory for the role of astronomy in Palaeolithic religion. This theory is named Astronicism or Astronic theory and it postulates that primitive human astronomy from the Upper Palaeolithic was a major factor in the development of religious beliefs and practices. In this theory, astronomy and religion converge to form the category of astronomical religion, a branch of nature religion characterised by the deification of the Sun, Moon and stars and their use as objects of divination. Palaeolithic astronomical religion included astrolatry (including

heliolatry, selenolatry and all other specific forms of celestial worship), and astromancy.

This article aims to test the 'astronomical hypothesis' for the origin of religion to determine whether or not and to what degree primitive observations of celestial phenomena were integral to the development of human religious activity. Paleoanthropologists tend to designate the Upper Palaeolithic between 50,000 and 12,000 years ago as the period in which the most reliable evidence for the earliest religious activity can be found.[8] To prove the significant role of astronomy in the origin of religion, this research surveyed productions from the Creative Explosion period[9] to determine whether this prehistoric artistry featuring celestial bodies may have had religious motivations.[10] Although the association of Palaeolithic religion with astronomy is not a new proposition[11], the unified theory this article presents will stand alongside other origin theories to draw a clearer understanding of why the close-knit relationship between astronomy and religion continues in the contemporary.[12]

Inherent to the study of any prehistoric human activity is some degree of speculation and this needs to be addressed.[13] Issues specific to this research centre on the fact that while the specimens collected may indicate some type of religious association with celestial phenomena, these specimens alone do not explicitly demonstrate

religious impetus.[14] This research adopted an attitude of evenhandedness towards these specimens by estimating whether the Palaeolithic artists might have based their creations on religious belief in light of what is known of broader Palaeolithic culture.[15] Furthermore, in determining Palaeolithic religious behaviour, the article uses a two-pronged framework of logical sequence and primitive simplicity: the former emphasises what practice or belief necessitates a precedent belief while the latter focuses on the incremental complexity of religious belief over time.

Key to explaining the Astronic theory also involves identifying a variety of motifs evident in the Palaeolithic and Neolithic specimens, the principal among which are 'astromorphism' and 'astronality.' These motifs lay the foundations for how the various practical utilities of astronomy were part of the impetus for Palaeolithic astronomical religion. Before this, however, some context needs to be established regarding what theories the scholarly pursuit for the origin of religion produced to understand how they compare to Astronicism itself.

Searching for the origin of religion

In 1810, German philologist Friedrich Creuzer proposed the existence of a primeval human religion: it was monotheistic and it is from this religion that all others descend, but with many straying into heresy.

This proposition ignited the scholarly debate over how and in what form religion first emerged. Eleven days before he died in 1832, for instance, while in conversation with Johann Eckermann, German poet Johann Wolfgang von Goethe discussed the human Urreligion which he characterised as "pure nature and pure reason, of divine origin."[16] Concurrent with the development of religious studies as an academic discipline, scholars searching for the Urreligion tended to focus on shamanism, animism and ancestor worship as the antecedents of the Abrahamic religions.

By 1871, the work of Edward Burnett Tylor and Herbert Spencer had come to pinpoint animism as the origin of religion. That is, the attribution of a soul to natural phenomena and inanimate objects was viewed especially by Tylor to be the underlying characteristic of all pre-Christian religions.[17] Similarly, one of the founders of modern religious studies, Max Müller, saw the origin of religion in nature worship due to animism's close association with the personification of inanimate phenomena. However, this animistic hypothesis was challenged by Tylor's student Andrew Lang who questioned that if indeed there was a belief in spirits among these prehistoric peoples, then this would necessitate belief in an omnipotent God which seemed less likely at this primitive stage.[18]

The second challenge to Tylor's animistic theory emerged at the turn of the twentieth century with British ethnologist Robert Marett's assertion that animism was too sophisticated a belief for it to have been the earliest form of religion. Instead, Marett proposed the existence of pre-animistic religious behaviour among Palaeolithic peoples.[19] Pre-animism points to the existence of a concept of the supernatural before the animation of natural phenomena.[20] The underlying belief here is 'animatism': that all objects, whether animate or inanimate, are imbued with an impersonal supernatural life force that gives them the ability to function and influence events in the lives of human beings. Thereby, a sequence of religious behaviour emerged from Marett's theory that began in pre-animism, then developed into animism itself, then totemism, polytheism and later monotheism.

Palaeolithic religion must have reflected the essence of the Palaeolithic life which was centred on survival. Religion at this time, unorganised and unsystematic, was more likely a tool for survival than holding an independent purpose. Marett's suspicion that animism was too sophisticated a belief to constitute the origin of religion may be correct in that animism necessitates belief both in the concept of spirit and its pervasion in the world.[21] Palaeolithic religion was likely far less sophisticated than this and so animism does not reflect a logical sequence of beliefs as it requires too many precedent beliefs for it to

have been the origin of religion. A similar issue arises whenever burial rites from as early as the Middle Palaeolithic are interpreted to indicate belief in the afterlife.[22] The afterlife, much like animism, is a complex belief that would necessitate other pre-existing beliefs for it to correspond to any concept of an afterlife professed by later organised religious systems.[23]

More likely is that the origin of religion was deification without animation; in essence, a material god devoid of immaterial dimensions. This deification was for the sole purpose of survival and it is from this that worship, placation and later divination logically proceeded. Altogether, these practices constitute pre-animism. This theory emphasises the difference between the Urreligion and the origin of religious behaviour as two distinct pursuits. The Urreligion concept implies the existence of a coherent religious system corresponding somewhat to the structure of religions today. Although religions eventually developed into organised systems, this would have been quite some time after the origin of religious behaviour and thereby not equivalent to the origin of religion. This returns us to the issue of what constitutes a religion, namely, how organised does religious behaviour needs to be for it to be considered a religion. Whatever the case, if pre-animistic religion centred on the practice of deification, one question important remains: what was deified first?

In answering this question, there will be competing natural phenomena but there are some more probable than others. To determine what was deified first, one must return to what Palaeolithic peoples were most concerned about their survival. As this article contends that deification and subsequent practices of worship and placation emerged from concerns over survival, attention must turn to what would have posed the greatest threat to survival. This approach may give some credence to ursine worship in the Lower Palaeolithic as bears roaming the forests would have been a significant threat. Some evidence, though conjectural, indicates Neanderthals might have worshipped the cave bear *Ursus spelaeus*.[24] The primitivity of the belief that if bears are worshipped then they would no longer harm the tribe is emblematic of the type of simplistic deification that was more likely to have taken place in the Palaeolithic than other more complex religious concepts.[25] The archaeological evidence for ursine worship, however, remains limited which weakens this theory.[26] Celestial worship as a means of survival based on the various utilities of astronomy is just as plausible yet more physical evidence exists to support this theory.[27]

A theory of the origin of religion attempts to trace religious history and practice to a certain type, and then to estimate in what form religious activity might have first emerged.[28] Scholars have approached this subject by selecting a fundamental concept in religion and

attaching to it an origin theory. However, such theories might project a bias onto possible evidence to form an oversimplified conception of the origin of religion. A feminist perspective for instance might see matriarchal religion in the form of goddess worship as the origin of religion while advocates of inhaling psychedelic substances to attain higher spiritual states have recently proposed the theory of an entheogenic origin of religious experience.[29]

Returning to the search for the Urreligion in the nineteenth century, many origin theories resembled Tylor and Spencer's animistic hypothesis but with different emphases. For example, English scientist John Lubbock focused on the concept of fetishism as the worship of an inanimate object for its magical powers or because of the spirit inhabiting it. Closely connected is Wilhelm Mannhardt's assertion that religious belief began from mythological explanations of natural events, a practice to which he ascribed the term 'naturalism.' More recent evolutionary approaches have emphasised individual belief and practice distinct from the collective. This approach presupposes that the human brain has first to explain a phenomenon to comprehend and relate to it before such beliefs are transmitted collectively.

Themes common to each of these origin theories are animism, cultism, naturalism and symbolism. To clarify, cultism constitutes a fixation on one particular object whether animate or inanimate while

naturalism in this context refers to incorporating the natural environment into a religious system either by deification, placation, association or divination. One will also find these four common themes in the origin theory of Astronicism in the context of astronomical religion. Now having clarified the timeline of the scholarly pursuit for the Urreligion, the article will explain the hypothesis that what Palaeolithic humans observed in the night sky influenced what they believed to form the Astronic theory of the origin of religion.

Astronic theory of the origin of religion

In 1795, French savant Charles-François Dupuis published his magnum opus *Origine de tous les Cultes, ou la Réligion Universelle*, the core thesis of which was that underpinning every religion is a universal celestial mythology based on ancient astronomical observation which influenced agriculture and civilisation.[30] Though controversial for his proposition that Christianity is merely an amalgamation of various ancient celestial mythologies and that Jesus Christ was a mythical character, the underlying message of Dupuis' work holds relevance to Astronicism for his association of human religious belief and practice with early observations of the night sky.

Three topics support the theory of Astronicism: the prehistoric manifestations of astronomical religion, key astral motifs across several

Palaeolithic specimens and how the secular utilities of astronomy transferred into religious practice. The Astronic theory of the origin of religion maintains at its core that naked-eye observations of the night sky as early as the Aurignacian culture about 35,000 years ago were key to the development of primitive worship practices. Precedent to worship, however, must have been the deification of various phenomena including the stars, Sun and Moon as a means of survival. Necessitating this celestial deification was an underlying religious feeling that prompted the resultant behaviour of deification and worship of night sky objects.[31] This feeling is referred to in the Astronic theory as 'astronality' and is analysed later in this article as a prominent motif.

Following celestial deification were the practices of placation, association and divination, all of which imply a connection between the various ways astronomy was used for survival and thereafter influenced religious belief and practice.[32] Key to the pre-animistic nature of the Astronic theory and supporting its claim to the origin of religion is that the earliest forms of astrolatry might have been based on deification without animation for survival with animation of celestial objects developing later as more organised and complex religious systems emerged. Retrospectively, these activities are grouped to form the category of astronomical religion. Upholding the 'astronomical religion' category is both the quantity and variety of Palaeolithic,

Mesolithic and Neolithic specimens including rock art, carvings and engravings that demonstrate astronomical utility and justify astrolatry and astromancy as some of the first coherent religious systems.[33] Of significance is how the specimen indicates the presence of astromorphism as well as other key motifs and how these expressions might indicate religious devotion to celestial bodies.

Although the Astronic theory focuses on Palaeolithic astrolatry and astromancy, it remains cognisant of earlier origin theories and embraces the pre-animistic hypothesis.[34] For example, from survivalist astrolatry developed complex animistic beliefs centring on celestial objects, in turn forming celestial animism (i.e., the ascription of a spiritual dimension to celestial bodies).[35] In this sense, Astronicism seeps into every other origin theory by highlighting the important role of astronomical phenomena in Mannhardt's theory of naturalism. Secondly, worship of celestial bodies, such as the Sun, Moon and the star Polaris constitute examples of astral cultism[36] while the incorporation of the extraterrestrial environment into a religious system is also an example of naturalism.[37] Finally, the representation of ideas about celestial bodies through the creation of symbols is evident in later Neolithic and ancient forms of astronomical religion but could be argued to have a Palaeolithic origin with the depiction of constellations

and Moon phases a very early phenomenon based on the specimen surveyed.[38]

Religions of the Palaeolithic night sky

The body of archaeological specimens relevant to the Astronic theory of the origin of religion can be split according to period, type, theme and attributes. The later Mesolithic and Neolithic periods boast a much greater variety of sophisticated specimens that draw clearer associations between astronomy and religion. While these specimens provide an opportunity for future research, this article limits its survey to Upper Palaeolithic specimens. There are also key types of specimens that support the astronomical hypothesis: cave and rock paintings found across sites in Europe, carvings featuring astromorphic figures and cup marks as well as geometric and constellational stone engravings. The themes of meticulousness, accuracy and curiosity are deciphered in the specimens. There are also four attributes of religious significance: deification, placation, association and divination. These four attributes act as the basis of the analysis of Upper Palaeolithic astronomical religion.

Celestial bodies were deified as gods, divined or placated on the basis that they were viewed to be controlling the terrestrial world and thereby became associated with the survival of the tribe and various

aspects of human life such as fertility, or the hunt. These associations often emerged from natural correlations such as the phases of the Moon corresponding with the menstrual cycle.[39] Beginning with the first of these themes, the deification of astronomical phenomena is the basis of celestial worship but in the Palaeolithic—sticking with the pre-animistic hypothesis—it is more likely that deification was akin to the belief that celestial bodies like the Sun and Moon controlled the world rather than their animation. The Sun and Moon were deified not because these Palaeolithic peoples had developed a coherent theological rationale, but simply because of the natural correlations and mightiness of these objects in the sky became associated with terrestrial survival.

This notion of association as the precursor to deification supports the pre-animistic hypothesis and lends to the pursuit of uncovering the origin of religion by using evolutionary psychology. In studies conducted on non-human religious behaviour, association is the underlying function of primate actions of symbolic communication and the realisation of the self as distinguished from others and the environment.[40] The evidence for simple associations in primate learning[41] and responses to conditioning in other species[42] may correspond to the associations among early human beings between material objects and their apparent control of the world, including

matters then crucial to survival like the hunt.[43] In this simplistic understanding of the dominance of objects in the sky, early humans deified these celestial bodies for the sole purpose of their survival rather than due to a connected belief in animism which was introduced later. In this regard, celestial deification is the result of early humans surveying their environment and coming to terms with the dominance hierarchy of the natural world.[44] This lends greater credence to Palaeolithic ursine worship or other forms of zoolatry due to such animals being more physically capable than humans and thereby threatening human survival.[45]

Hence, the origin of religion is perhaps the realisation of human inferiority to objects that seemingly control the world. Astrolatry, heliolatry and selenolatry were products of this awareness for instance. Astrolatry may have emerged in various forms, either as one's worship of the stars of the night sky in general or with specification as to the star or stars worshipped, typically those of greater prominence in the sky like Polaris.[46] Palaeolithic and Neolithic depictions of stars may indicate their worship. The specimen Northern Crown of El Castillo in Figure 1 dates to 11,000 BCE, yet further research is needed to determine with greater certainty the religious significance of such depictions. For the Astronic theory, astrolatry naturally invokes polytheism as there are multiple celestial bodies in the nighttime and

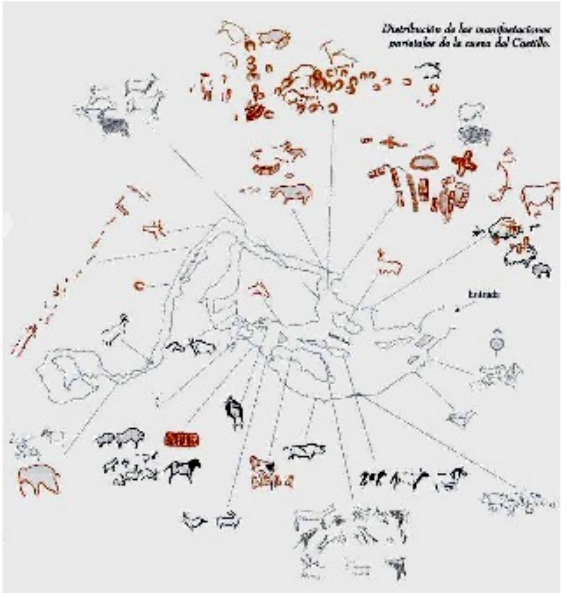

Figure 1: Northern Crown of El Castillo; El Castillo, Spain; 11,000 BCE.

daytime skies that seemingly control the world, thereby warranting their deification.[47]

Astrolatry during the Palaeolithic and Neolithic would not have been as complex or elaborate as when recorded history began.[48] By ancient times, the pantheon of sky gods had significantly expanded with many having been anthropomorphised by this period and so astrolatry remained in close association with polytheism. This article introduces the principle of 'pre-existent indication' to make a case for the

prehistoricity of star worship.[49] 'Pre-existent indication' asserts that a religious belief or practice existed during the Neolithic and possibly as far back as the Palaeolithic based on its pervasion in the world in early recorded history.[50] Adherence to star worship among the early civilisations of the Sumerians and Babylonians would indicate that it is a far older tradition stretching back into prehistory with only mere remnants remaining by the time historical records began.[51] By this time, more complex systems of astrotheology were beginning to emerge in Ancient Egypt where it was believed celestial bodies acted as the gatekeepers of the afterlife.[52]

The prehistoricity of astrolatry, however, was likely not confined to the European continent as astrolatry as a religious phenomenon can be found elsewhere. In the Sinosphere for instance, populations in China, Mongolia, Korea and Japan practised star worship during antiquity alongside shamanism, primitive medical practice and early forms of Taoism.[53] In the Middle East, the Harranian Sabians were descendants of star worshippers who had maintained their practices in northern Iraq. Other peoples such as the Mandaeans lived in the marshlands of southern Iraq and had also maintained the practice of star worship as passed down by their ancestors.[54] Over in South America, the Inca were known to engage in star worship and were perhaps one of the last

civilisations to widely practise astrolatry before they were conquered and Christianised by the Spanish in the sixteenth century.[55]

The second form of celestial worship observed in Neolithic times and possibly as far back as the Upper Palaeolithic is heliolatry. The Sun, especially when understood as a disc, was well-established as an object of worship by the period of dynastic Egypt and again the principle of 'pre-existent indication' may be applied here. If sun worship and solar deities had risen to be such integral parts of religious practice in these early periods of recorded history, then their origin may well far predate this time.

The third type of celestial worship with prehistoric origin is selenolatry. Moon worship likely stems from the association of the Moon with fertility due to the phases of the Moon corresponding to the cycle of the female menstrual period.[56] Due to this association, it was not unreasonable for the Palaeolithic and Neolithic peoples to worship the Moon in placation for the safe birth of healthy offspring.[57] Figure 2, the Magdalenian Moon-tracking Bone, and Figure 3, the Taï Lunisolar Rib, are examples of the Palaeolithic human fascination for the Moon and its relationship to the Sun. The Aurignacian Lunar Calendar, a further specimen from the Upper Palaeolithic, was discovered and interpreted by American archaeologist Alexander Marshack to be a bone fragment roughly depicting the phases of the Moon.[58] The

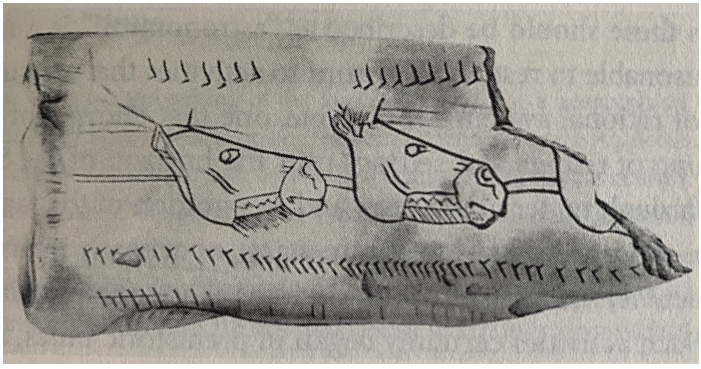

Figure 2: Magdalenian Moon-tracking Bone; Le Mas-d'Azil, France; 15,000 BCE.

Figure 3: Taï Lunisolar Rib; Drôme, France; 10,000 BCE.

meticulousness of the carver of the Moon phases again suggests a degree of dedication that could have amounted to or resulted from worshipping the Moon in fascination with its changing phases.

The second manifestation of astronomical religion from the Upper Palaeolithic is astromancy which is distinguished from its successor

astrology as the practice of divining by the stars but devoid of the cultural infusions and advanced astronomical knowledge evident in later, more sophisticated astrological systems. In essence, astromancy is more primitive and simplistic than astrology. Astromancy is devoid of any elaborate zodiacal or horoscopic systems that not only rely on knowing a person's date of birth but also on the development of constellations. In the Palaeolithic, these constellations would have been in their infancy if the evidence of astromorphism in Palaeolithic rock art is to be believed.[59] These zodiacal and horoscopic elements of astral divination likely emerged far later during the cradle of astrology among the Chaldeans some 2,500 years ago.

Key to astromancy is divination but underlying it is an association between the stars and the affairs of humankind. This belief attributes to the stars the power of holding either partial or total influence not only on the enjoyment but also the survival of life. In the Aurignacian Lunar Calendar in Figure 4, there is perhaps an even greater indication in the specimen of selenomancy than astromancy.[60] For instance, the carver meticulously marks the phases of the Moon perhaps in anticipation of childbirth based on the belief that the Moon holds some influence over successful fertility.

From this analysis, the close relation between astromancy and astrolatry in the Palaeolithic and Neolithic is revealed, namely, how the

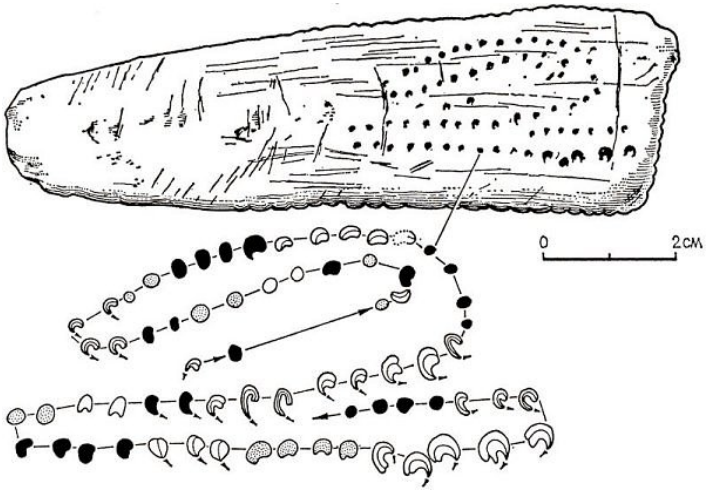

Figure 4: Aurignacian Lunar Calendar; Abri Blanchard, France; 30,000 BCE.

simple association between celestial control over human affairs would justify worshipping the celestial body in the hope of receiving favourable treatment.[61] It is therefore very possible that the astromantic belief that celestial bodies hold some degree of influence over human affairs possibly preceded celestial deification and subsequent acts of worship. These primitive interactions between astromancy and astrolatry constitute the main form of astronomical religion from the Palaeolithic onwards, thus supporting the Astronic theory of the origin of religion.

Astromorphism and astronality

The Upper Palaeolithic specimens analysed in this research are in essence pieces of art, whether in the form of cave paintings[62] or engraved amulets and like in any modern artwork, they include recurring themes that come to form motifs that may indicate the beliefs or ideas the Palaeolithic artist held when they created them.[63] The first motif to explore and key to supporting Astronicism is astromorphism. Astromorphisation is the attribution of terrestrial objects like people, animals or inanimate objects to celestial phenomena for instance the zodiac associates various animals, objects and ideas with constellations.

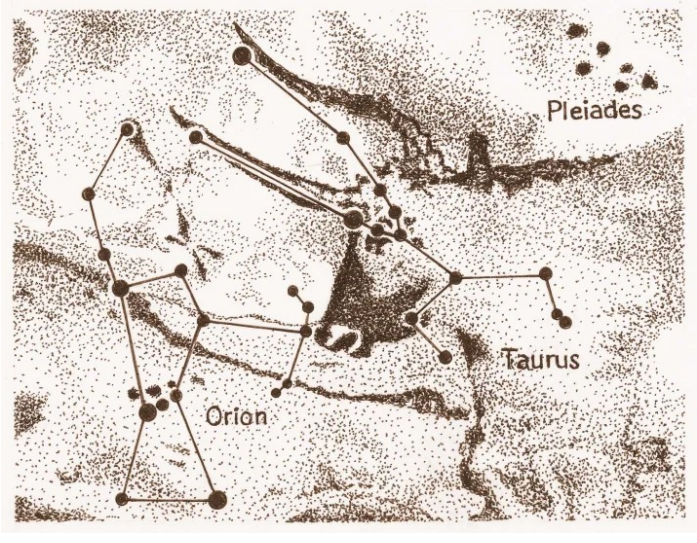

Figure 5: Great Star Bull; Lascaux, France; 15,000 BCE.

Figure 5 of the Great Star Bull specimen is a Palaeolithic example of astromorphism. Discovered in the Lascaux Caves in France in the Hall of Bulls[64], this painting which is dated to 15,000 BCE depicts a bull overlaid with a pattern of stars forming the constellation Taurus. Beside the bull is a depiction of the constellation Orion as a representation of the hunter while the Pleiades cluster is depicted above the scene.[65] The belief possibly underlying this astromorphic motif is that the terrestrial and extraterrestrial are in some way connected; what happens on the grounds is reflected in the night sky or what stars and celestial phenomena appear in the night sky indicate what will take place on the terrestrial plane. This is not too far removed from the

Figure 6: Pleiades Aurochs; La-Tête-du-Lion, France; 19,730 BCE.

belief at the basis of the practice of astromancy that the stars and celestial bodies hold some degree of influence over human affairs.

The work of Dr Michael Rappenglück has typically emphasised where dots overlaying a terrestrial object form a constellation recognisable today and some criticise him for this. However, the focus of astromorphism is that stars are associated with terrestrial objects at all. For the presence of astromorphism to be confirmed, the constellation need not be recognisable to today's standards as instead there need only be a connection drawn between terrestrial and extraterrestrial phenomena. Another example of astromorphism is Figure 6, the Pleiades Aurochs specimen dated to 19,730 BCE and found at La-Tête-du-Lion in Ardèche, France.[66] This specimen of Upper Palaeolithic rock art is astromorphic because there is an association made between the animal as the terrestrial object and the Pleiades cluster depicted above, a theme also demonstrated in Figure 1. Figure 7, the Malïta Bone Plate, is an example of spiral cup mark engravings depicted in stelliform style while Figure 8, the Lascaux Comet Strike, has been interpreted by some as an attempt to depict a devastating cometary strike.[67]

Figure 7, the Orion Stone Age Star Chart, is a further example of astromorphism. Etched into an ivory tablet from a mammoth tusk dated to at least 30,500 BCE is the figure of a man that possibly corresponds

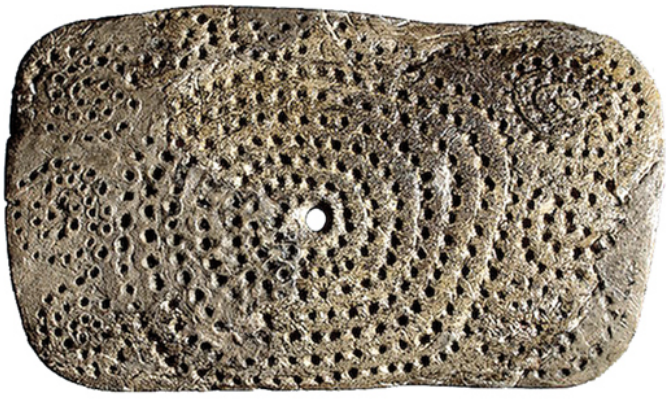

Figure 7: Malïta Bone Plate; Irkutskaya Oblast, Russia; 12,800 BCE.

Figure 8: Lascaux Comet Strike; Lascaux, France; 15,200 BCE.

Figure 9: Orion Stone Age Star Chart; Ach Valley, Germany; 30,500 BCE.

with the constellation Orion and on both its side and reverse a series of carved notches resembling stars.[68] Rappenglück's interpretation is that this piece of carved ivory is a prehistoric star chart and possibly a pregnancy calendar designed to estimate the birth of a child. If correct, this is an example of astromorphism because the Palaeolithic carver has attributed the human figure to the constellation Orion and demonstrates an astromantic belief that by observing the stars, one can predict terrestrial matters. Returning to the category of specimen of Palaeolithic rock art, Figure 10 titled the Palaeolithic Milky Way, a

Figure 10: Palaeolithic Milky Way; El Castillo, Spain; 38,000 BCE.

piece of cave art made of red ochre, may be an example of the depiction of stars from 40,000 years ago. Concerns over rock paintings are that they rely heavily on a contemporary interpretation to constitute any significance as they cannot speak for themselves; while these astronomical interpretations are not illogical neither are they definite.[69]

The second major motif is that the sizeable collection of Upper Palaeolithic and Neolithic specimens indicates the creators must have experienced some kind of emotion to commit to making these kinds of creative expressions.[70] In other words, it would be logical to assume that the Palaeolithic artists, upon making their observations of the night sky, felt an emotional attachment to the celestial bodies they saw. This article refers to this emotion as astronality and by looking into modern

psychology, one may find William E. Kelly's psychological construct noctcaelador as a contemporary equivalent.[71] Astronality may have been the underlying cause of the emergence and proliferation of human religious activity based on observation of celestial phenomena.

The astronality possibly felt among the Aurignacians and other Palaeolithic people groups was expressed through the stelliform arrangement of cup marks and engravings. Moreover, there is an evident connection between the terrestrial world and the extraterrestrial with the astromorphic depiction of constellations overlaying terrestrial objects, animals and human figures. In this sense, astromorphism becomes a product of astronality since the range of specimens of a stelliform style from the Upper Palaeolithic necessitates some underlying emotion as the impetus.

Moreover, these stelliform and astromorphic cave paintings, engravings and carvings reflect a Palaeolithic cosmovision, a particular sense of how the Aurignacians for instance perceived the night sky and its relation to the terrestrial world. The various specimens are attempts at understanding and expressing this cosmovision just like artists today reflect their emotions and perceptions of the world through their creations. When looking at the specimens, one must consider why they were created: deification, placation or as an attempt to understand the

world and the place of human beings in it based on the physical hierarchy of species.

At the basis of each specimen likely exists a common attempt to understand, to survive as well as to express the emotion felt when gazing upon the magnificent objects in the sky. Indeed, over time these artists and their perceptions of the day and night skies developed and their artistry became more sophisticated. These astroglyphs (i.e., prehistoric and ancient depictions of astronomical objects, symbols or events) became more elaborate as religious and astrological systems developed and coherent cultural traditions formed. This came to produce the countless astroglyphs of the ancient world but the tradition

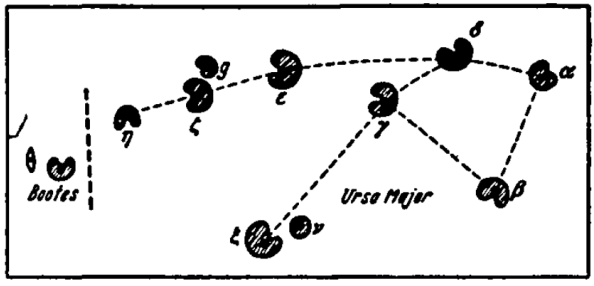

Fig. a. Representation of stars in Ursa Major and Bootes on an amulet from the stone-age. The different size of Mizar and Alcor is noteworthy. The form of the Big Dipper suggests a rather high age for the amulet.

Figure 11: Great Star Amulet; Northern Europe; 38,000 BCE; annotation by Makemson.

of astroglyphs began much earlier, reaching back into prehistory as demonstrated by the body of specimens presented in this article.

Some may raise concerns over how one could accurately decipher the periods in which the various specimens were created. The answer is astronomical dating. In her 1954 work *Astronomy in Primitive Religion*, American astronomer Maud Makemson used astronomical dating to establish the age of a fossilised and silicified sea-urchin used as an

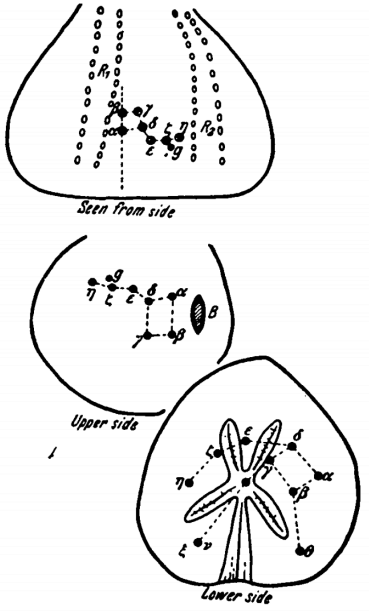

Fig. b. Representation of the Big Dipper on a fossil and silicified sea-urchin (Echinus) from the stone-age (Baudouin).

Figure 12: Echinus Big Dipper; Europe; Upper Palaeolithic.

amulet with the Big Dipper asterism engraved onto it (see Figures 11 and 12).[72] With how the Big Dipper was depicted on the amulet, Makemson could say the amulet was between 30,000 to 40,000 years old. Makemson used astronomical dating as a reliable method for confirming the high age of specimens.[73] However, what makes this amulet indicate a degree of religious devotion to the asterism is the way the stars were meticulously engraved meaning that the deeper or wider the circle, the brighter the star.[74] It must be considered what this Palaeolithic engraver was trying to achieve by engraving the asterism they saw and what underlying emotion might have motivated their actions.

Secular utility of astronomy

In this final section of the article, the third branch of Astronicism will be explored, namely, how early humans in the Palaeolithic, Mesolithic and Neolithic used astronomy for secular purposes and how this transferred to religious belief and practice. These secular uses of astronomy are proposed in Astronic theory to have played a key role in the origin and development of religion. They were not merely conducted for leisure but were essential to survival despite having later been replaced by advancing technologies. There were seven main

prehistoric secular uses for astronomy: hunting, timekeeping, navigation, storytelling, divination, harvesting and construction.[75]

Before exploring each of these, it is essential to understand how they may have been transmitted to religious belief and practice. The role of astronomical observation in these activities would have necessitated some level of association between the celestial bodies and divinity, most likely the deification of the celestial bodies themselves.[76] This 'utilitarian astronomical religion' involves the dual use of celestial bodies for secular and religious purposes as well as pre-animistic celestial deification for means of survival.[77]

It is appropriate to begin with the central practice of Palaeolithic tribal culture: the hunt. Being key to survival, the success of the hunt would have had significance attributed to it including where, when and how it should take place. The first secular use of astronomy is indicated by the artistic expressions that emerged in the Upper Palaeolithic which suggest that by depicting astronomical objects, the hunter-gatherers felt the celestial bodies held some influence over the success of the hunt.[78] The stars may have been worshipped and placated among certain tribes on the basis that they were viewed either as gods or as having some control over the hunt.

As the second utility of astronomy, the sequential appearances of the Sun and Moon were aptly used for timekeeping purposes.[79] The

movement of celestial bodies hence became central to timing primitive activities which meant that closely observing these celestial movements was essential. From the perspective of Palaeolithic peoples, these objects above were not only moving autonomously but may have been viewed as overseeing matters taking place on the ground from their elevated positions.[80] Likely a product of the reliance on the movements of celestial bodies for timekeeping came the later use of the positions of the stars to determine the seasons as humans moved away from hunter-gatherer societies and into the age of agriculture. Having to use celestial observations for these agricultural purposes would have cemented the role of astronomy in the survival of tribes. This special role of celestial bodies in apparently controlling when crops are to be harvested suggests why various forms of astral worship remained central practices throughout the Neolithic period and into early recorded history.

Just as the celestial bodies were used for purposes of timekeeping as early as the Palaeolithic period, they were also key to the development of navigation. Homo sapiens have long wandered the Earth, using celestial bodies as guides in the night sky to do so since they act as useful reference points for travellers.[81] Not only were the stars used for travelling across vast stretches of land, but also later by the Polynesians and other seafaring peoples as an essential tool for navigating the

seas.[82] It is not surprising that astrolatry became widespread across different people groups since there was an association of the stars as guides while their navigational use may have prompted their placation and worship to survive the long and perilous journeys.[83]

The fourth example of astronomical utility is the use of celestial phenomena in storytelling from the Upper Palaeolithic onwards. Forms of storytelling involving celestial bodies can be found as omens of astronomical events such as lunar or solar eclipses which might have been associated with bad fortune as seen in the storytelling traditions of the Aboriginal Australians.[84] However, the most prominent example of the role of astronomy in Palaeolithic storytelling is the family of myths now referred to as the Cosmic Hunt. The general outline of the myth is that a hunter or group of hunters chase after some type of animal, the animal dies and its spirit is described as ascending to the stars to form a constellation in the sky.[85] There is a wide variance of the Cosmic Hunt myth across five key variables: how many hunters there are, how they kill the animal, what animal is killed, what constellation the dead animal ascends to form and what stars are associated with the hunters.

This variance is due to the dispersion of the Cosmic Hunt myth across cultures and continents throughout its long history. The assertion that the Cosmic Hunt is Palaeolithic in origin is based on the notion that because varieties of the myth can be found in North and South

America, the storytellers must have made their way into the Americas via the Bering land bridge for the myth to have dispersed there (see Figure 13 for a map showing this dispersion).[86] However, due to rising sea levels as Earth was emerging out of the last ice age, the bridge was covered by the Bering Sea around 9,000 BCE.[87] Scholars have tended to place the origin of the prototype of the Cosmic Hunt at 12,000 BCE, but its relevance to this debate can be determined by its three core themes: how the story involves the transformation of terrestrial objects into constellations (transtellation), the myth's association of death with

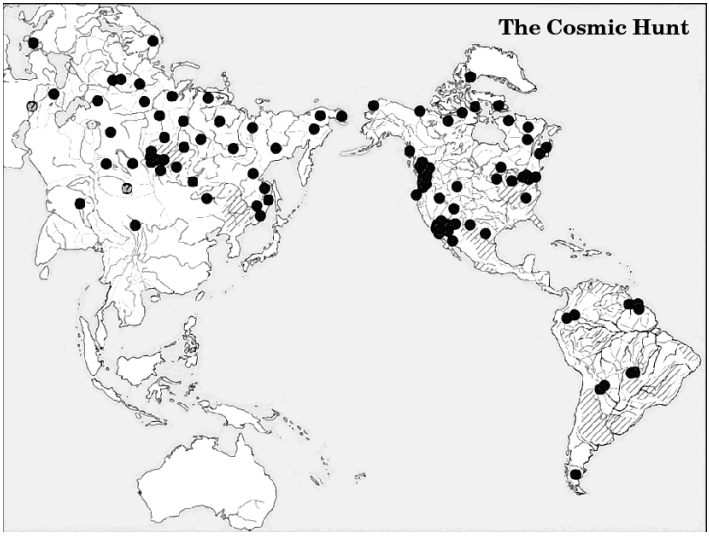

Figure 13: Area distribution of the Cosmic Hunt myths in the Old and New Worlds. For shaded areas data is not available or unprocessed.

ascending to the stars (astranthropy), and its attribution of animals, humans and inanimate objects to constellations (astromorphism).[88]

What perhaps emerged as a result of the tradition of storytelling by way of the stars stretching back into Palaeolithic times is the practice of astronomical symbolism which saw growth with the rise of astrology.[89] Symbolism of this kind includes solar symbols mostly centring on the representation of the solar disk and solar rays, the lunar symbol of the crescent Moon, astral symbols and planetary symbols.[90] Finally, the later use of astronomy in the construction of buildings and monuments from the Neolithic period is evident in how these structures are aligned astronomically like Stonehenge for instance.[91] This use of astronomy indicates a degree of belief in deified celestial bodies holding influence over terrestrial life and so deserve to have buildings and monuments erected in their direction.[92]

This section has considered the different ways that astronomy was used in secular wats from the Palaeolithic period onwards with influence on the origin and development of religion but still in need of addressing is why celestial bodies were chosen as objects of religious fervour. Just as the terrestrial natural environment has played a crucial role in human religious activity so has the extraterrestrial natural environment because the night sky is visible to all people. There is a universal quality about the night sky as all people can see it no matter

their location on the planet, their wealth or social status or the culture or religion into which they were born. This quality constitutes a major factor in why the night sky and celestial bodies might have become subjects of religious devotion.

The Cosmic Hunt myth is an example of how beliefs and motifs concerning celestial bodies have been tailored to different regions and cultures over millennia. The constellations described in the myth for instance differ depending on where the myth had been transmitted to and what stars were visible in the night sky at that location. The physically higher position of the Sun, Moon and stars has always meant that these celestial bodies have occupied a superior position to human beings which is likely to have played a role in their deification. Moreover, Palaeolithic and Neolithic times would have seen no light pollution which, in combination with humans living among the natural world rather than removed from it in our synthetic civilisations, might also have played a part in igniting a religious fervour for celestial bodies.

Conclusion: an anthropology of astronomy

To propose that astrolatry played a major role in the origin of religion is to make a broader anthropological statement about how the practical uses of astronomy translated into religious activity and thereby

influenced the course of human civilisation. At its core, this article has presented the Astronic theory for the origin of religion based on a range of archaeological specimens from the Upper Palaeolithic. This origin theory joins several others but contributes a unique view: that the deification and subsequent placation, animation and divination activities of the Aurignacians onwards were not confined to terrestrial nature but included the extraterrestrial environment and its celestial occupants.

While other origin theories have tended to focus on the source of religion as the deification of terrestrial phenomena or belief in an afterlife indicated by apparent burial ceremonies[93], the Astronic theory views the origin of religion as based on human observations of the night-time and daytime skies. These celestial observations and the natural awe they produced warranted their deification which developed into primitive astrolatric practices. Used to justify this astronomical origin of religion is the presence of astromorphism in some of the rock art and amulet specimens from the Upper Palaeolithic as was the translation of the secular utilities of astronomy into religious behaviour.

Theories regarding the origin of religion have always been used to establish a broader message and Astronicism is no different. Beyond its association of the origin of religion with primitive observations of the night sky, Astronicism identifies a lineage of astronomical religion

stretching from Palaeolithic star worship and celestial divination to the astrological and astrotheological systems of antiquity through to the analiptic religions of today such as Astronism.[94] From prehistory to modernity, the night sky and its phenomena have always played a role in either inspiring human spirituality or acting as the objects of human religious belief.[95] The Astronic theory of the origin of religion embodies the beginning of the relationship between astronomy and religion which continues in new forms today.

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