

Mnajdra: Cosmology of the Sky

Irene Friesen Wolfstone

Irene Friesen Wolfstone completed an MA (Integrated Studies) with a specialization in Cultural Studies from Athabasca University. Irene studies matriculture, food sovereignty, nature connectedness, and climate change. Living in a round house is a catalyst to thinking outside the box.

Abstract

Did the astronomical knowledge embedded in Mnajdra originate in North Africa? This question guides my exploration of the cosmology that informed the design of Malta's Neolithic temples at Mnajdra. I begin by describing the archaeoastronomical features of Mnajdra, using recent research by John Cox and Tore Lomsdalen. I consider the matricentric design and artefacts that characterize Mnajdra. Secondly, I explore the astronomical and matricultural knowledge of North Africa and discover that they are intertwined in its cosmology of the primordial mother who is also Ruler of the Skies. Wendorf and Malville's study of Nabta Playa confirms that the astronomical knowledge of North Africa dates to the Neolithic. Mythological studies focus my lens on Tanit, North Africa's earliest deity, whose veneration is both historic and contemporary in Tamazight (Berber) culture. The architecture of Mnajdra, with its intersection of astronomical and matricentric elements, reflects many aspects of North African cosmology, leading to my hypothesis that it is possible that North African astronomical knowledge informed the astronomical design of Mnajdra.

Keywords: Mnajdra, Tanit, matriculture, cosmology, archaeo-astronomy, Africa

Introduction

Malta is located in the Mediterranean Sea, north of Libya and east of Tunisia. For many years, Malta's megalithic temples were regarded as the world's oldest known free-standing structures. The temples were constructed 4100-2500 BCE by Neolithic communities using tools made of stone and bone. This study focuses on the temple complex of Mnajdra with the intention to explore the possibility of an African origin for the astronomical knowledge evident in Mnajdra's architecture. Unexpectedly, this exploration found that matricultural artefacts and designs are intertwined with Mnajdra's astronomy and appear to be integrated in the cosmology of Neolithic Malta; thus, this study opens a discussion on the intersection of Mnajdra's astronomy, matriculture and cosmology.

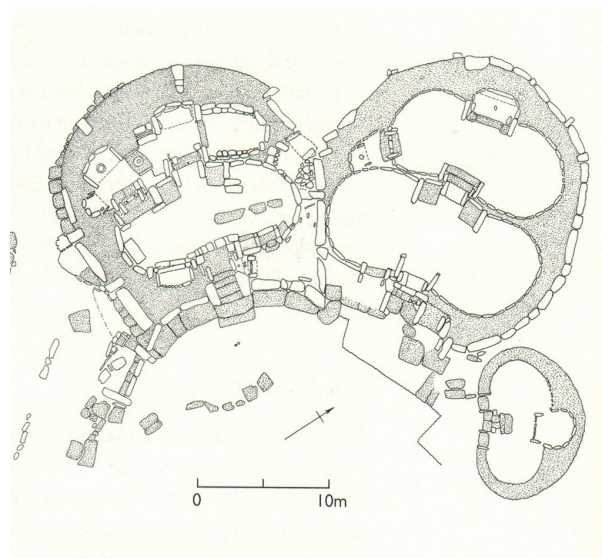
This interdisciplinary study draws on the theoretical framework of cultural studies, including Afrocentric theory and archaeomythology, as well as indigenous, feminist and environmental perspectives. Afrocentric theory disputes the androcentric, ethnocentric and colonialist biases of Western scholarship; it assumes that humans originated in Africa, that first civilizations were in Africa, and that knowledge flowed with human migrations from Africa to other continents. Gender is a consideration in the study of cosmology and culture as well as in material culture; therefore, it is reasonable to assume that women were active participants as astronomers, architects and users of Mnajdra. In order to avoid projecting a Western anthropocentric and reductionist worldview onto an ancient culture, I tentatively ascribe to Neolithic Malta an organic view of the human/nature relationship, similar to indigenous philosophies in

which cultural values are reciprocity and participation in enspirited nature. Drawing on Harald Haarmann's (2007) theory and methods of studying culture, I seek evidence of the inter-relationship of humans and the cosmos by reading the language of culture in myth, ritual, sign and symbol.

Several assumptions related to cosmology guide my studies. Cosmology is a comprehensive and integrated perspective of space and time, space and place; it functions as a paradigm for balancing the ecological and social life of a society. Cosmology lies intertwined with and beneath culture. Culture is specific to place and experience and, thus, relatively transitory, whereas cosmology survives for millennia once it is established in the myths, legends, instincts and traditions of people. It is deep knowledge that is lived, embodied and often not articulated in linguistic form. Remnants of cosmology are retained in myth, ritual, signs and symbols in spite of new technology and other cultural changes (Haarmann, 2007, p. 176). Religion is a modern dualistic construct that emerges from cosmology and culture to formalize the relationship of humans to the cosmos in texts and institutions. Based on these assumptions, my study of Neolithic Mnajdra does not use the term 'religion' because it implies a conceptual solidity documented in text, institutionalized ritual, and priestly functions — three factors for which there is scant evidence in Mnajdra. Eschewing the word 'cult', I prefer the term 'culture', which is inclusive of Neolithic and indigenous cultures characterized by fluid, unregulated epistemologies.

In this study, I use 'matricentric' and 'matricultural' to describe cultures that venerate the Maternal. Matriculture, a neologism coined by Tina Passman (1993), recognizes that women's procreative and creative abilities are interwoven in human thought and action and explained in cosmological narratives — a worldview that contests the essentialist ideology of universal patriarchy that permeates twentieth-century Western archaeological scholarship (Zweig, 1993, p. 151; Passman, p. 181).

Mnajdra



**Figure 1. Mnajdra South (left), Mnajdra North (middle), and small trefoil (right).
Gimbutas (1999), *The Living Goddesses*, fig.74.**

Mnajdra is a complex with three temples connected by an elliptical forecourt that overlooks the southern Mediterranean (Figure 1). The focal point of each temple is a niche at the end of the central passageway.

- The small trefoil temple is the oldest and is dated to the Ġgantija phase 3600-3200 BCE. It has two elliptical apses.

- Mnajdra South, built second, has a trilithon entrance with pitted decoration. There are four apses along the central passageway to the niche at the back. The complex floor plan includes several niches and benches, creating the sense that the functions performed here required ease of movement, access to supplies, and places to sit and sleep. The front right apse has a cut-out door to an external room and two cut-out windows (Figure 2).
- Mnajdra North, built sometime after Mnajdra South, features a grand entrance, four apses and a large niche; its floor plan is minimalist compared to Mnajdra South.



Figure 2. Interior apse of Mnajdra South indicating one cut-out window and the cut-out door. Photo by author.

Mnajdra's Astronomical Elements

For many years, it was assumed that Mnajdra South was the only temple with astronomical features; however, recent research by John Cox and Tore Lomsdalen (2010) found astronomical orientations and alignments at twenty-five temples on Malta and Gozo (pp. 2217-2231); thus, the evidence for intentionality continues to mount, pointing to a culture with astronomical knowledge. A quarter century of archaeo-astronomical research at Mnajdra produced the following findings:

- Paul Micallef, in 1976, publishes articles on orientations and in 1990, he discovers the significance of two vertical orthostats inside Mnajdra South, based on his observations of winter and summer solstice sunrises. The entrance to Mnajdra South is aligned with sunrise on the solstice and equinox. The first rays of the rising sun at the summer solstice illuminate the vertical orthostat in the left front apse. The first rays of the rising sun at the winter solstice light up the vertical orthostat in the right front apse. At the spring and autumn equinoxes, the rays of the rising sun illuminate the central passage and inner niche (Lomsdalen, 2014, pp. 72, 86).
- In 1992, Serio, Hoskin and Ventura suggest that the orientations could be intentional (Serio, Hoskin & Ventura, 1992, p. 117).
- The small trefoil temple has two orthostats with neat rows of drilled holes, which are interpreted as tally marks, indicating that Mnajdra sky-watchers worked with "great precision" in their

observations of the sky, possibly of the rising point of Pleiades (Ventura, Serio & Hoskin, 1993, p. 35).

- In 2010, Tore Lomsdalen argues intentionality by providing detailed descriptions of multiple solar events and interprets the astronomical significance of the cut-out windows that were formerly called oracle holes (Lomsdalen, 2010, p. 9). Mnajdra North is designed to frame a winter solstice sunrise (Lomsdalen, 2013, p. 192).

Two incised stones provide further evidence of astronomical knowledge. The fan-shaped Tal-Qadi stone has radiating lines and symbols that represent stars and the crescent moon; it may have been an instrument for stellar observations. Ħaġar Qim temple, only 600 metres from Mnajdra, was where a stone solar wheel was found.

Mnajdra's Matricultural Elements

There are indicators that Neolithic Malta was matricultural. Over thirty female sculptures have been found in Malta's megalithic temples, ranging from small mobiliary art to monumental statues. They leave little doubt that the female gender was significant to the culture. The four-apsed designs of Mnajdra South and Mnajdra North resemble a mother's body with wide hips, full breasts, a birth canal, and a portal between the breasts of the mother. Viewed together, the floor plan of the temples (Figure 1) seems to repeat the motifs in the Gozo sculpture of two females holding a young child (Figure 3).



Figure 3. Drawing of double seated female sculpture found on Gozo.
Gimbutas (1999), *The Living Goddesses*, fig.76.

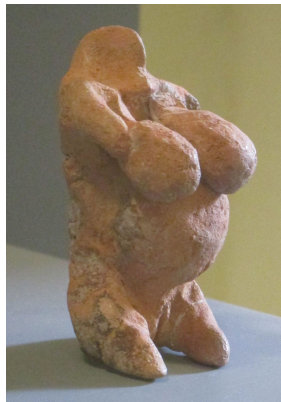


Figure 4. Mnajdra Woman.
Photo by author. Courtesy Heritage Malta.



Figure 5. Clay twist.

Photo: Dr. Bernadette Flynn. Courtesy Heritage Malta.

A sculpture called Mnajdra Woman (Figure 4) was found by Ashby in 1910 in a pit under the torba floor of Mnajdra South's inner right apse, along with five clay twists (Figure 5). The sculptor of Mnajdra Woman created detail emphasizing the late stage of pregnancy, including enlarged breasts, a swollen belly and incised vagina. The sculptures date to 3600-2500 BCE. Given where they were found and their attributes, Sara Rich (2008) proposes that these artefacts were used by midwives to teach about pregnancy and miscarriage or as a prop for childbirth rituals (p. 261). The clay "twists are interpreted as representations of fetuses" at various stages of development (Rich, p. 261; Gimbutas, 1989, p. 109). Rich concurs with Isabelle Vella Gregory's interpretation:

...prehistoric women chose to embody in clay significant events in their lives: giving birth and possibly miscarriage. These representations also shed light on another aspect of women's lives — the transmission of knowledge and the creation of a community feeling among women as they spoke about and shared their experiences of their lived bodies. (as cited in Rich, p. 263)

Weaving is a motif at the megalithic temples. Bobbin artefacts were found by Ashby in 1910 in the small room of Mnajdra North. Dominic Cutajar (1986) identified several carved artefacts related to weaving and spinning tools: "Actual specimens of...spinning implements were recovered in dated archaeological contexts at Ħaġar Qim, Saflieni, Mnajdra and Tarxien...thus leaving no doubt as to their being well-known and very likely common" (p. 164). Anthropologist Barbara Tedlock (2009) explains the link between weaving and birthing:

For millennia, women the world over have sat together spinning, knotting, weaving, and sewing. These rhythmic acts of unravelling and tying together can be seen as expressions of unity and hope in the face of the reality of change, destruction and death...Women's rituals surrounding the weaving of cloth often evoke those performed during childbirth. (p. 223)

The artefacts found at Mnajdra suggest that one of the functions of Mnajdra may have been to support birthing mothers. Mnajdra may have been used as a birthing centre, similar to the birthing room at Çatal Hüyük:

...excavations revealed a room where inhabitants apparently performed rituals connected with birthing... A low plaster platform could have been used for actual birthing. The color and symbolism in the room suggest that people regarded birth as a religious event and that they accompanied it with ritual. (Gimbutas, 1999, p. 11)

The female imagery at Mnajdra does not represent the nubile body of the young woman nor the sagging body of the elder woman; it offers a representation of the mothering woman. Furthermore, the imagery is not sexual, provocative or coy. I interpret the temple design as an expression of the heart of the Maltese people — an investment in their relationship with the cosmic maternal principle. The creative arts of architecture, weaving and sculpting

maintained the reciprocal relationship on behalf of the collective community. I suggest that the temples were sacred places because the maternal principle was embedded in their architectural design. This matricultural interpretation offers an alternative to the “white mythologies” (Derrida, 1982, p. 213) of Eurocentric scholars who view Malta’s Neolithic builders as construction managers motivated by rivalry with neighbouring communities, creating temples designed for use by male elites to maintain power over the masses. Moreover, I posit that the meaning of Mnajdra’s architecture will be unlocked only when we comprehend how its Neolithic culture viewed motherhood and birthing.

There is little controversy about Malta’s veneration of a female deity previous to the Phoenician era. Of all the Neolithic temples in Malta and Gozo, the one at Tas-Silġ is unique in that a female divinity was venerated with a certain amount of continuity from Neolithic times down to the Christian era. In the same place, we have Neolithic, Phoenician, Classical, Byzantine and Arab traces, and only a few metres from the site of a shrine dedicated to Our Lady of the Snows (Vella, 1986, p. 315). When the Phoenicians arrived in Carthage, their goddess Astarte was assimilated with indigenous Tanit, creating a syncretic Tanit-Astarte. When the Romans arrived on Malta in the seventh century BCE, they romanized Tanit to Juno Caelestis and dedicated a temple to her at Tas-Silġ (Stuckey, 2009). Further research is required to explore the pre-Phoenician history of Tanit on Malta and her possible influence on its matriculture and cosmology.

Mnajdra’s Cosmology

What does Mnajdra’s architecture tell us about its cosmology? Respected scholars offer diverse perspectives on cosmological thinking in the Neolithic. David Lewis-Williams and David Pierce (2005) miss the mark when they assert that monumental architecture expresses a biological basis for social domination: “The way in which monuments were laid out reflected and controlled social distinctions that were in turn related to neurologically wired concepts” (p. 171). Caroline Malone and Simon Stoddart (2011) suggest that there are “clear underlying structuring principles” behind the layout of the temples with human representation that is “potentially suggestive of cosmological beliefs” in “regeneration and celebration of the cycle of life” (p. 768). Tore Lomsdalen (2010) posits that the temple design represents “an image of the world” in the context of cosmological time and space. The Neolithic builders viewed stone as a manifestation of power and as sacred for its timeless and predictable attributes; thus, the megalithic proportions of the temples symbolize the immensity of the temple builders’ cosmos. In Lomsdalen’s cosmological interpretation of ancient beliefs, the rhythmical moon phases gave the reassurance of survival by linking time to birth, becoming, death, plants and fecundity. Mnajdra was built as an observatory of solar time cycles; it marked the passage of the sun to symbolize the assurance of never changing time or immortality. Lomsdalen’s insightful interpretation of cosmology engages with cosmic time and space; he acknowledges the relationship with landscape, ancestors and spirit worlds that are typical of indigenous spiritual traditions. He looks to the east and south for the origins of megalithic architecture with astronomical features (Lomsdalen, 2010, p. 3).

North Africa

Astronomy and matriculture are intertwined in the cosmology of North Africa. Mythology and material culture provide the signs and symbols for our exploration.

Astronomy in North Africa

The ceremonial centre of Nabta Playa in Egypt was established by a cattle-herding culture during the Neolithic Subpluvial when the Sahara was still a savannah (Wendorf & Malville, 2001, p. 489; Malville, Wendorf, Mazar and

Schild, 1998, p. 488). It was located in the Nubian Desert about 100 kilometres west of Abu Simbel on the Nile. By 3300 BCE, desertification had made the Sahara uninhabitable, compelling the Nubians to abandon Nabta Playa and migrate to the Sahara's great river valleys. Nabta Playa included a twelve-foot stone circle with twenty-four alignments and orientations, indicating knowledge of lunar, solar and stellar movements observed over millennia (Wendorf & Malville, 2001, p. 489).

Nabta Playa may be the world's oldest known astronomical site, but it is not the only site of astronomical knowledge in Africa. Johnson Urama insists that African astronomical systems are as old as the people themselves. Urama, one of the organizers of the 2006 conference on African cultural astronomy, points to the Dogon, Yoruba and Igbo, who have long histories of astronomical cultural knowledge (Holbrook, Medupe & Urama, 2008, p. 6). Nick Brooks (2005) posits that "stone arrangements with apparent astronomical functions are abundant throughout" Amazigh territory and are generally co-located with burial groups (Brooke, 2005, pp. 413-439). César Esteban's (2008) overview of archaeoastronomical research in North Africa identifies several Neolithic sites "distributed in a very extended geographical area," including monuments in Niger dated between 3600-220 BCE, and in Libya's Fezzan region dated between 3200-2900 BCE (p. 180). Juan Belmonte's archaeoastronomical survey of dolmens and necropolises in northern Tunisia identifies patterns of east/west orientation that follows the sun-rising and climbing through the sky (as cited in Esteban, 2008, p. 181). The significance of this research is that it indicates a sky-watching culture. At the time of this writing, there is no direct link between the megalithic astronomical sites in Libya and Tunisia and those in Malta, but the research attests the existence of African astronomical knowledge dating back to the Neolithic; thus, it is possible that the astronomical knowledge embedded in Mnajdra originated in North Africa.

Cosmology in North Africa

In the cosmology of North Africa, the concepts of time and space are woven into narratives of the primordial mother who is ruler of the sky. The primordial mothers of Africa have common attributes because they are one and the same, with minor cultural distinctions: Tamazight Tanit, Libyan Neith, Egyptian Isis, Akan Ngame, Idemili of the Igbo and more. Tanit's many names include Tanith, Thinit, Tanis, Tinit and Tanou. These cultural names represent the original great mother, a powerful self-generating force. The sign of Tanit depicts her arms outstretched holding up the sky. Tanit is indigenous to North Africa and shares her name and attributes with Libyan Neith, who later becomes central to the Egyptian pantheon (Stuckey, 2009). The name *Ta-Nit* translates as 'Land of Neith' in ancient Egyptian. Martin Bernal argues that Neit (Neith) is the root of the West Semitic *Atanait* (Tanit), which is modified in the Doric dialect to Athana or Athene (p. 51). According to historical records, Plutarch, Diodorus and Herodotus wrote that the Libyan (African) birthplace of Neith, whom the Greeks adopted as Athena, was the legendary Lake Tritonis in present-day Tunisia (Rigoglioso, 2010, p. 56). George Barton (1934) insists that Tanit pre-dates the Phoenicians at Carthage and is a Hamitic deity (p. 303). In this study, Tanit and Neith are viewed as interchangeable.

Tanit is "unequivocally portrayed as an autogenetic / parthenogenetic creatrix," as the eldest and as mother of all the gods (Rigoglioso, 2010, pp. 23, 31-32). As the first conscious act of creation from the void, she who takes the inert potential of Nun and causes creation to begin (Griffis-Greenberg, 1999, n.p.; Rigoglioso, 2010, p. 29). She is sometimes portrayed as having undifferentiated gender or as possessing both genders.

Tanit is 'Opener of the Sun's Paths in all Her Stations' ruling the daily risings and settings of the sun and also the rising and setting sun at various places along the horizon during the year, notably the equinoxes and solstices (Iles, 2007, n.p.; Griffis-Greenberg, 1999, n.p.). As 'Mistress of the Bow' and 'Ruler of Arrows,' Tanit uses her bow and

arrows to govern the stars. She is venerated as the 'Ruler of the Sky, the Earth, and the Underworld.' As 'Ever-Ready Shooter,' she gives life to humans and all living things on earth by shooting into fetuses the particles of her kra or vitalizing fire (Rigoglioso, 2010, p. 42; Griffis-Greenberg, 1999). As 'Opener of the Ways,' she is responsible for opening the cosmic pathways. She opens the birth canal for new life to emerge and the portals to the underworld so that deceased souls can find their way (Iles, 2007; Griffis-Greenberg, 1999). In ancient Egypt, her maternal functions were later split into Nut, patron of childbirth and mother of Isis, who was the manifested night sky, and Hathor, the manifested sky of the day. It was said that she wove the world on her loom, weaving both gods and humans. As patron of weavers, she provided the bandages used in mummification and the respectful care of the dead (Dexter, 1990, p. 24; Rigoglioso, 2010, p. 31). Each weaver's weaving was symbolic of her becoming a continuation of the parthenogenetic power of the first Weaver.

Matriculture in North Africa

There is considerable scholarship about matriculture in Africa. Cheikh Anta Diop (1974) presents matriarchy as a basic trait of African agricultural civilizations (p. 144). Amadiume (1997) views matriarchy and matricentrism as synonyms for a core societal value in which motherhood has broad socio-political expression: the traditional power of African women had an economic and ideological basis which derived from the importance accorded motherhood (p. 112).

Matricentrism is common to all traditional African social structures because it generates affective relationships. Amadiume (1997) critiques European studies of African societies for overlooking the system of matriarchy; she argues that this blindness is a consequence of gender prejudice and ethnocentrism that results from the masculinization of language and the imposition of the structures of Greek and Hebrew mythologies on Africa (p. 29).

The indigenous Tamazight culture of North Africa is heterogeneous and comprises several ethnic groups, including Tuareg and Kabyle. I use 'Tamazight' to describe the culture as well as the language because the t-prefix recognizes the matricultural value embedded in the language, whereas *Amazigh* (m.sing.) and *Imazighen* (m.pl.) are androcentric. Most scholars use 'Berber,' however, this pejorative term perpetuates the indignity of a 'barbaric' identity imposed by colonizers.

Matriculture is expressed in Tamazight creative arts, particularly pottery decoration and weaving. Malika Grasshoff (2009) illustrates many matricentric elements of Kabyle women: from the cradle to the grave, the woman as mother is viewed in this culture as the protector of life; she is the potter, the provider, the weaver of human bonds (p. 186). The adoration of the mother is expressed as ancestor veneration and in rituals performed for nature in order to create a spirit of unity with the ancestors and all of life (p. 180). Hélène Claudot-Hawad (2009) demonstrates that the pre-eminent role of Tuareg women derives from cosmology (p. 162). Matriculture in North Africa, which is both historical and contemporary, is currently under attack by the foreign fundamentalisms of Islam and Christianity.

Cultural continuity depends on the maternal power to generate, and continuity is assured only when the mother/daughter relationship is visible to human eyes (Cavarero, 1990, p. 61). Respect for mothers is integral to living in balance and harmony with the cosmos and with nature. Birthing is an event that reinforces the sacredness of life; it is a microcosmic drama that repeats the macrocosmic birthing by the primordial mother and thus participates in the continual renewal of space through time. Women's creative work as weavers and potters also participates in the creativity of the primordial mother.

If Neolithic Malta shared the cosmology of its African neighbours, including the Tamazight culture's veneration of the primordial mother, then the temple design (Figure 1) and the double female sculpture (Figure 3) may represent symbols of cultural continuity: grandmother, mother and infant daughter.

Conclusion

While Nabta Playa is the oldest known astronomical site in the world, it is not the only astronomical site in North Africa. Research indicates that astronomy was embedded in megalithic structures over a large region. Applying an Afrocentric assumption that knowledge flowed from south to north, I hypothesize that it is possible that African cultural astronomy influenced Mnajdra's architectural design and artefacts. At this time, the evidence is circumstantial and further research is required to confirm this hypothesis. There is much to learn about Mnajdra's sky-watching culture. There is abundant material for further research on stellar and solar orientations at Neolithic temples throughout Malta. Future studies may locate astronomical knowledge in Neolithic Maltese pottery and weaving designs, as it is in Tamazight culture. Future studies may also shed light on cultural rituals that maintained the community's reciprocal relationship with the Ruler of the Sky.

It is probable that Mnajdra's Neolithic peoples were matricultural, based on temple design and the artefacts of Mnajdra Woman, five clay lumps and bobbins. The evidence suggests that Mnajdra's functions were focused on natality, not necrophilia. Tas-Silġ is an under-researched site and will undoubtedly disclose more information about Malta's matricultural cosmology.

Architecture is an aesthetic expression of a culture's cosmology. Perceptions of cosmic order are translated into architectural design and art. I suggest that Mnajdra was made sacred because it was a symbol of the cosmic order; thus, the modern word 'temple' is fitting. Mnajdra was a place to re-enact the cosmic drama of time, space, origins and regeneration. In Mnajdra's architectural design, we experience a cosmology in which matriculture and astronomy intersect.

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