

Obelisk Monuments in Religious Practice and Astronomical Observations in Ancient Egypt

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Article Info	ABSTRACT
<p>Article History Received 27-08-2024 Revision 10-10-2024 Accepted 08-11-2024</p> <p>Keywords: Obelisk Astronomy Egypt</p>	<p>The obelisk, a tall and slender stone monument, is an iconic element in the landscape of Ancient Egypt. This study examines the role of obelisks in religious practice and astronomical observations in Ancient Egypt. Based on an analysis of ancient texts, archaeology, and astronomy, the study suggests that obelisks had a dual role in Ancient Egyptian culture. First, the obelisk is an important religious symbol in rituals. They were associated with Ancient Egyptian gods, such as Ra and Atum, and were used in various rituals, including festivals and offerings. Secondly, the obelisk is used as a tool to see the sky. By its shape and position, Ancient Egyptian astronomers divided the day into two parts based on its shadow. It helps them understand cosmology, determine calendars, and predict astronomical events. This research improves our understanding of the function of obelisks in Ancient Egyptian culture. His discovery showed that the obelisk is a decorative monument and has religious and astronomical purposes.</p> <p style="text-align: right;">This is an open-access article under the CC-BY-SA license.</p> <div style="text-align: right;">  </div>

I. Introduction

One of the most famous monuments of Ancient Egypt is the obelisk, with its distinctive shape of slender, tall, tapered pillars at the top. Its shape is rich in meaning and is the

hallmark of the obelisk. Although most modern societies consider the obelisk an architectural symbol used in many countries around the world, the obelisk originated in Ancient Egypt and is strongly associated with religious practices and astronomical knowledge. The connection between this monumental architecture and the astronomical belief and knowledge system of Ancient Egypt provides an excellent picture of how they saw the world and their place in it.

Obelisks are of great importance in religion and astronomy. The ancient Egyptian astronomical tradition was powerful; Observation of the movements of the stars, sun, and other celestial bodies is essential for establishing calendars, predicting the flooding of the Nile River each year, and carrying out various religious rituals. Its towering shape and exact orientation make obelisks often used as gnomons or shadow pointers to calculate time and the sun's movement. It shows the connection between religion and science, an essential part of daily life in Ancient Egypt.[1]

In addition, the exact orientation of the obelisk shows how skilled the Ancient Egyptians were in astronomy. They use obelisks to know the time and season by looking at the shadows cast by the monument throughout the year. It is crucial to carry out an elaborate and ceremonial religious calendar as well as for agriculture. New studies show that these obelisks often align with the positions of certain stars, suggesting that the Ancient Egyptians understood very well how the earth and the cosmos were related.[2]

In Ancient Egypt, the interaction between religious practice and astronomical observation through obelisks showed a collaboration between science and spirituality. The Egyptians saw religion and science as complementary parts of their world understanding. In this situation, the obelisk symbolizes integration, combining beautiful architectural elements with scientific and religious purposes. It reflects a perspective on the vast world of Ancient Egypt, where humans, gods, and the cosmos are connected in a complex but peaceful network.[3]

Therefore, research on obelisks in Ancient Egypt provides insight into architecture and art and a broader understanding of how the people of Ancient Egypt used sophisticated astronomical knowledge in their daily religious practices and made it more than just stone monuments.

This study aimed to study how obelisks functioned in the religious and astronomical practices of Ancient Egypt, as well as how these monuments show synergies between two important elements in Egyptian civilization. By understanding this context, we can gain a deeper understanding of how the Ancient Egyptians understood the universe and their place in it and how they conveyed this understanding through monumental architecture.

II. Method

This study employs a qualitative descriptive approach to provide a detailed and comprehensive description of the phenomenon under investigation. It is achieved through in-depth data collection, which includes direct observation and documentation. Direct observation enables the researcher to engage with the Object or phenomenon in its natural setting, allowing for a nuanced understanding of the contextual details and subtle nuances that might be overlooked. Additionally, documentation serves as a complementary source of

information, providing historical, procedural, or contextual background that can enhance the interpretive analysis.

The qualitative analysis process involves several key stages to uncover the collected data's underlying meaning and significance. Initially, data is categorized based on shared characteristics, allowing the researcher to identify patterns and recurring themes. These themes serve as the foundation for deeper analysis, helping to reveal the central aspects of the phenomenon that are most relevant to the research objectives. Through this process, a narrative is constructed, which summarises the findings and provides a cohesive explanation of the observed phenomena, highlighting any relationships, trends, or insights that emerge from the study. This narrative ultimately offers a holistic perspective that captures the essence of the research results in a descriptive and interpretive way.

III. Results and Discussion

The obelisk is one of the most iconic forms of architecture that originated in Ancient Egypt. Its slender, tapered, tall structure at the top became a timeless symbol of strength, power, and spiritual connection between the gods and the human world. Although many obelisks are currently found in various places worldwide, from Paris to New York, their history and significance are still strongly linked to Ancient Egyptian culture.

The tall, slender, tapered stone monument at the top is called an obelisk. The memorial is usually made of a single block of large stone, usually granite, which is carved and polished to fine. The shape is rectangular, with each side getting smaller and smaller towards the top, usually in the form of a small pyramid called a "pyramidion". Ancient Egypt called the obelisk "*tekhen*", meaning "axis of light".[4] Obelisks are often decorated with hieroglyphs that show feats and respect for the gods, especially *Ra*, the most revered sun god in Egyptian mythology.

Around 2500 BC, the obelisk was first made during the Old Kingdom of Egypt. However, they became prevalent during the New Kingdom, especially during the XVIII to XIX Dynasties (c. 1550 to 1070 BC). One of the oldest surviving obelisks today is the Obelisk of Heliopolis, built by Pharaoh Senusre I in the XII Dynasty and was the centre of *Ra* worship in Egypt. The obelisk was first built in the Heliopolis area.[5]

The construction of an obelisk requires great engineering ability. First, granite stones are carved directly from the mines, usually in Aswan, hundreds of kilometres south of Heliopolis. Once carved, the stone was transported to the construction site via the Nile, a remarkable logistical effort given its size and weight of hundreds of tons. Immediately upon arrival at the site, the obelisk is lifted using a system of ramps, levers, and simple but useful equipment. Pharaohs and high priests often attended the obelisk's inauguration, an important ceremonial event. Once elevated, the pyramids at the top were often coated with gold or electrum to catch sunlight, strengthening their bond with the sun god *Ra*. [6]

In terms of Ancient Egyptian architecture and engineering, the construction technique of obelisks shows advancements in technology and skills to ensure that the obelisk remains balanced and does not crack during lifting. The carving process must be carried out carefully as it is constructed from large stone blocks. Using tools made of stone, copper, and wood to shape and smooth the stone's surface demonstrates exceptional engineering expertise and knowledge. The basic principles used in manufacturing and removing obelisks are still a

testament to the ingenuity and technical expertise of the Ancient Egypt people, although modern technology has evolved.[7]

The obelisk had a symbolic and ritual meaning in Ancient Egypt society in addition to being an extraordinary architectural work. Obelisks are usually placed before significant temples, especially those explicitly erected for Ra, such as the Temple of Karnak in Luxor. This placement has religious value and serves as a decoration. Considered to represent the sunlight radiating from Ra to the earth and touching the world, the obelisk increased the power and power of the pharaoh as an intermediary between humans and the gods.[8]

There were several main functions of the obelisk in Ancient Egypt society:

- a. Symbol of Power and Eternity: Pharaohs often made obelisks to show their power and to immortalize their names among the gods and their people. Hieroglyphs carved on obelisks show victory and dedication to *Ra* or other gods.[9] It indicates that the pharaohs had power on earth and a special relationship with the world of gods.
- b. Ritual and Religious Instruments: In religious ceremonies, the obelisk is a ritual instrument representing sunlight. Most people believe that the obelisk can infuse the energy of heaven into the temple and protect the kingdom and its inhabitants. Obelisks link the human world and the cosmos because their position and orientation are often adjusted to astronomical events such as solstice.[10]
- c. Astronomical Center: An obelisk is an astronomical instrument in addition to its religious function. Obelisks can show time with shadows, especially daylight and seasons. This function is essential for organizing religious calendars and ceremonies that depend on the solar and star cycles. The ancient Egyptians used obelisks as an important instrument for viewing the sky, and they were often placed so that their shadows were aligned with certain astronomical events.
- d. Marker of Historical Events: Several obelisks were erected to commemorate important events in Egypt's history, such as military victories or the pharaoh's ordination ceremony.[11] In this case, the obelisk serves as a memorial monument that records history for the next generation. The cultural and historical heritage of Ancient Egypt has been preserved for thousands of years due to the presence of hieroglyphs on obelisks.

Overall, the obelisk is more than just a stone monument; As religious symbols, astronomical instruments, and historical markers, they show how the ancient Egyptian society combined their religious beliefs with scientific knowledge. A deep understanding of obelisks' history, manufacturing methods, and social role allows us to appreciate Ancient Egypt's rich cultural heritage and current influence. The obelisk shows a harmonious and holistic perspective of the world in which religion and science work together to solve the mysteries of the universe and reinforce the role of the pharaoh as the ruler of the world and the divine intermediary.[12]

The obelisk is one of the most famous monuments dating back to Ancient Egypt civilization. Its slender, tall, tapered shape at the top has a strong religious significance. His strong association with the sun god Ra and his role in various religious ceremonies and sacred temple sites throughout Egypt is one of the most important features of the obelisk. In a religious context, the obelisk bridges the human world and the gods. It is considered a representation of the concept of protection and rebirth given by God. "*Ra*" is a highly revered sun god in Ancient Egypt mythology who is considered the creator and ruler of the universe.

Considered a representation of sunlight radiating to the earth, an obelisk, or pyramidion, the obelisk that peaks are usually coated with gold or electrum to capture and reflect sunlight, confirming the direct relationship between the obelisk and Ra.

The obelisk is a symbol of rebirth. According to Egypt beliefs, the sun symbolizes the cycle of death and rebirth, with the sun setting each night and rising again in the morning. As a representation of sunlight, obelisks are thought to be able to transmit life energy from Ra to Earth, giving rebirth to nature and humans. Therefore, the obelisk is also considered a symbol of regenerative power that helps the kingdom and its people survive.

It is also believed that obelisks have protective powers. Due to its association with Ra, who was also considered the protector of the kings and people of Egypt, the obelisk could deter bad forces and maintain the balance of the world. They are placed in shrines and front of major temples as spiritual guardians protecting the sites from outside threats.[13]

In ancient Egypt's religious ceremonies, the obelisk played an important role. They are usually placed in front of large temples as markers of entrance to sacred areas. This placement has a deep symbolic meaning and is not only decorative with aesthetic purposes. The obelisk is considered a cosmic axis connecting the underworld (the afterlife), the human world, and the celestial world. Pharaohs stood before the temple and formed a direct path between them, and Ra and the other gods connected humans and gods.

In the context of rituals, the obelisk is often the centre of various religious ceremonies related to the worship of *Ra*. For example, during major festivals such as *Opet* and *Sed*, the obelisk becomes the centre of a procession performed to honour and ask for *Ra's* blessings. In addition, the shadow produced by the obelisk is also used to determine the exact time for the execution of a particular ceremony, which often corresponds to an astronomical event coinciding.

The obelisk is important in large temples, such as the Temple of Karnak in Luxor. The temple became an important centre of worship, and pharaohs such as Thutmose I and Hatshepsut built large obelisks in honour of Amun-Ra, a combined image of Ra and the wind god Amun. These obelisks served as symbols of the political and spiritual power of the ruling pharaohs.

Many of Ancient Egypt's most famous obelisks have been moved from their place of origin, but some still exist today. Here are some significant examples:

- a. Hatshepsut Obelisk in Karnak: One of the two obelisks built by Queen Hatshepsut is in the Temple of Karnak. One of the tallest obelisks ever erected in Egypt is 29.5 meters high. This obelisk, a symbol of the strength and maturity of Hatshepsut, the female pharaoh who ruled Egypt with an iron fist, has a gold coating on its top, indicating its connection to Ra.
- b. Lateran obelisk in Rome: Thutmose III built this obelisk in the Temple of Karnak, but it was brought to Rome by Emperor Constantine II in the 4th century AD. At 32 meters tall, it is one of the tallest obelisks still in existence today. How Ancient Egypt's symbolism was adapted and adapted for the Roman Empire is evident from its new location in Lateran Square in Rome.[14]
- c. Luxor obelisk in Paris: In the 19th century, Muhammad Ali, the ruler of Egypt, sent one of the two obelisks that Ramses II built in front of the Luxor Temple to France. This obelisk was moved to the Place de la Concorde in Paris. This 23-meter-tall obelisk is

decorated with hieroglyphs depicting the achievements of Ramses II. His move to Paris shows that Ancient Egypt's heritage still has a strong cultural influence outside Egypt.[15]

- d. Washington Obelisk Monument: The Washington Monument in Washington, D.C., United States, is a tribute to George Washington, the first president of the United States. This monument, which is 169 meters tall, is the tallest obelisk structure in the world, although it is not an original Egypt obelisk. The design that resembles an Egypt obelisk suggests that Egypt's symbols representing power and eternity can be used in modern times.

With its close association with the sun god Ra, the obelisk was of great importance to the people of Ancient Egypt regarding religion and society. The obelisk serves as a physical monument and a spiritual marker connecting the human world with the divine. Obelisks, used in religious ceremonies and placed in sacred temples, demonstrate their function as a tool to channel divine energy and maintain a balance between the universes. We can see how the architectural and religious heritage of Ancient Egypt continues to evolve and be adapted to different cultures around the world by looking at examples of famous obelisks, such as those in Karnak, Rome, and Paris. Obelisks are historical artefacts and a timeless symbol of man's relationship with creation and the universe.[16]

In Ancient Egypt, astronomy was a rapidly growing field of science and was very important for people's lives. The Ancient Egyptians were known to be avid stargazers, and their knowledge of the sky was used to determine the time, navigation, and organize religious activities. The appearance of the star Sirius - also called Sothis by the Egyptians - is one of the astronomical phenomena highly respected by the Egyptians. It marked the beginning of the new year and also the arrival of the annual flood of the Nile, which was crucial to the agricultural well-being of the Egyptians.[17]

Great architecture, such as pyramids and temples, was often arranged around specific astronomical phenomena, demonstrating their astronomical knowledge. For example, the structure of the Great Pyramid of Giza faces the four cardinal directions. In addition, the Egyptians made a very accurate solar calendar. It consists of 365 days divided into twelve months, 30 days each, with an additional five days at the end of the year.

Obelisks played a significant role in Egyptian astronomy, particularly orientation and timekeeping. These towering structures, many of which are designed to be astronomical instruments, are frequently erected in front of sizable temples. Usually, a shiny substance, like gold or electrum, covers the top of the obelisk or pyramidion, making it highly reflective of sunlight. Obelisks may be used to determine time by measuring the shadows they cast. An obelisk may be used as a gnomon to tell the time by tracking the length and direction of shadows cast by the sun. Using a timetable, Egyptians can determine the precise time of day, which is crucial for religious observance and other necessary customs.

Obelisks are also used to determine the orientation of sacred buildings. Architects and builders often use the strategic placement of obelisks to guide their buildings to specific astrological phenomena. For example, on certain days in the ancient Egypt religious calendar, some temples were built with the main axis parallel to the rising or setting of the sun. The obelisk in front of the temple ensures that the orientation of the building corresponds to the position of the sun.

One example of how two seemingly different fields of knowledge can influence and support each other is the integration of religion and astronomy. Astronomy in Ancient Egypt was heavily influenced by religious beliefs and practices and was seen as the scientific study of the sky. The use of the obelisk, which has a dual role in astronomical and religious contexts, is a prime example of this integration.[18]

The religious beliefs of people in many ancient countries, including Ancient Egypt, greatly influenced how they viewed and used astronomy. For example, the Ancient Egyptians believed that their gods, including Ra (the sun god) and Osiris (the God of death and resurrection), had a connection with several celestial bodies. Most people consider the stars, sun, and moon representations of divine forces communicating with the human world.[19]

In a religious and astronomical context, the obelisk, one of the most iconic symbols of Ancient Egypt, is often considered a symbol of the sun and is associated with the sun god Ra. The obelisk has a tall and towering shape with a pyramid-shaped crest coated with gold or electrum, making it appear to shimmer in the sun, considered a reflection of power.[20]

Ancient Egypt priests used the obelisk as a tool to determine the time and orientation of sacred buildings. They can measure time accurately by studying the shadows created by the obelisk at various points throughout the day. The obelisk functions as a gnomon, a tool for determining time based on the sun's position. Additionally, obelisks help to set the orientation of buildings, ensuring that important structures such as temples are aligned with certain astronomical events, such as the sun's rising or setting on important religious calendar days.[21]

The integration between religion and astronomy in Ancient Egypt exemplifies how these fields can influence and support each other. Religious beliefs drove the development of astronomy as a tool to ensure that religious ceremonies and rituals were performed at the right time. On the other hand, astronomical instruments such as obelisks have both scientific and spiritual purposes. By investigating the case of the obelisk that served both purposes, we can see how religion and astronomy fused in Ancient Egypt civilization, creating a connection between heaven and earth and between man and God.

IV. Conclusion

The obelisk has both astronomical and religious purposes. The ancient Egyptians used obelisks as timekeepers and tools for astronomical orientation, suggesting a close relationship between their religious beliefs and scientific knowledge. The journal concludes that the obelisk has a dual meaning in terms of religion and astronomy and that it shows the culture of Ancient Egypt that combined these two aspects. Further research should look at the relationship between the architectural design of the obelisk and the astronomical knowledge possessed by the ancient Egypt people. Comparing the use of obelisks in Egypt with similar monuments in other countries could also provide new insights into the spread of astronomical technology and its cross-cultural impact. In addition, a more in-depth analysis of the construction techniques and astronomical orientation of mainland Egypt obelisks can also provide new insights into the spread of astronomical technology.

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