

56th IAA HISTORY OF ASTRONAUTICS SYMPOSIUM (E4)  
Interactive Presentations - 56th IAA HISTORY OF ASTRONAUTICS SYMPOSIUM (IP)

Author: Dr. Aya Hesham  
Ain Shams University, Egypt

Prof. Amany Mokhtar  
Ain Shams University, Egypt  
Mr. Essam Gouda  
Egyptian Society For Astronomy, Egypt  
Mr. Hany Zarif  
Egyptian Society For Astronomy, Egypt  
Mr. Osama Fathi  
Egyptian Society For Astronomy, Egypt

THE ROLE OF ANCIENT EGYPTIANS IN UNDERSTANDING THE SOLAR SYSTEM, MOON  
PHASES AND BUILDING A GATEWAY TO THE STARS.

**Abstract**

Ancient Egyptian culture dates to well before the invention of the telescope, thus only five planets were visible to the naked eye (Mercury, Venus, Mars, Jupiter, and Saturn). What they knew about the planets and how they understood them is transmitted in texts and images that were re-discovered and translated since the 19th century by modern scholars and the process is still ongoing.

The Egyptians took measurements from the stars to accurately align their pyramids with the earth's four cardinal points. like the famous Great Pyramid of Giza, its alignment is nearly perfect, only 0.067 degrees counterclockwise from the earth cardinal alignment. In addition to the narrow shafts discovered at the King's Chamber wall. It was found that these are star shafts, and they are at the general direction of where the North Star and Orion's Belt would've been when the pyramids were constructed.

Nabta Playa stands 700 miles south of the Great Pyramid of Giza. It was built more than 7,000 years ago, making Nabta Playa the oldest known stone circle in the world — and the Earth's oldest astronomical observatory. By tracing back Arcturus' movements across the night sky, they discovered that the stars would have matched up with Nabta Playa's stone circle around 4800 B.C. Nabta Playa was aligned with the Sun and stars to mark the seasons. This early calendar foretold the coming of spring, summer, fall, and winter, helping civilizations track when to plant and harvest crops.

Dendera Temple is famous for the astronomical scenes, its ceiling is divided into seven bands of astronomical figures, including signs of the zodiac, the 14 cycles of the moon. The ancient Egyptians observed how the moon phases affected the tides by tracking them alongside the sun and developed calendars to predict agricultural rhythms.

This paper proposes a description of these contributions by putting it in relation with the historical context such as the origin of the Egyptian archaeoastronomy, and the philosophical trends/ social interactions of their relation to the sky, through their understanding of the Solar System, Moon phases and building a gate to the stars in the Great Pyramid.