

Archaeological/historical/heritage research: Egyptian and European missions continue to carry out excavations and restoration work at Karnak, and there is no prospect of an end to such work. Heritage research at the site is mandatory since it forms part of the larger grouping of Ancient Thebes monuments within the existing World Heritage Site. On the other hand, the astronomical alignment of the site is recognised by just a small group of specialists and in this sense the situation is very different from other Egyptian sites such as Abu Simbel.

Main threats or potential threats to the site: The water table is the main problem at Karnak, in common with several other Egyptian sites. The foundations of some sectors of the temple, such as the Great Hypostyle Hall, have had to be reinforced with injections of concrete and the accumulation of salts in the stones in the walls may adversely affect the decorations and inscriptions. The Egyptian authorities are well aware of the problem and are working to counteract the potential threats.

Management: Karnak follows the general management plan of the World Heritage Site of 'Ancient Thebes with its Necropolis'. It is already a major attraction for mass tourism, without the need of additional outreach or propaganda. Conferences and seminars are regularly held in Luxor where professional scholars of all over the world present their latest discoveries.

Case Study 8.3: The Temple of Hathor at Dandara, Egypt

Presentation and analysis of the site

Geographical position: The enclosure of the temple of Dandara is located in the province of Qena, Egypt, close to the city of Qena (capital of the province), in the west bank across the river from the city centre.

Location: Latitude 26° 9' 55" N, longitude 32° 39' 23" E. Elevation 75m above mean sea level.

General description: The Dandara complex is one of the best-preserved temple enclosures in Egypt. Its huge temenos wall contains two monumental gates enclosing the main temple dedicated to the goddess Hathor, the small temple of Isis, two mammisi and a ruined Coptic church.

Inventory of the remains: Two of the buildings at Dandara are important in relation to astronomy: the temple of Isis, orientated (presumably deliberately) upon the rising position of Sopdet (Sirius), one of the celestial manifestations of Isis, and the temple of Hathor. This fact that the latter is oriented astronomically is established by the various stretching-of-the-cord ceremonies and related texts engraved on its walls. The decorations also include various feast calendars, the famous circular Zodiac in the ceiling of a small chapel (a replica, the original now being in the Louvre Museum in Paris) and a second Zodiac on the ceiling of the hypostyle hall.

History of the site: The temple at Dandara includes the remains of constructions by Old, Middle and New Kingdom pharaohs. For example, the temple of Isis shows evidence of early foundations with slightly different orientations. However, most of what is seen today is the work of the Ptolemaic rulers and the first Roman emperors. The circular Zodiac apparently dates to the reign of Ptolemy XII or perhaps to that of his daughter Cleopatra VII (c. 50 BC) while the astronomical decorations on the ceiling of the hypostyle hall were apparently created during the reign of Tiberius or even later.

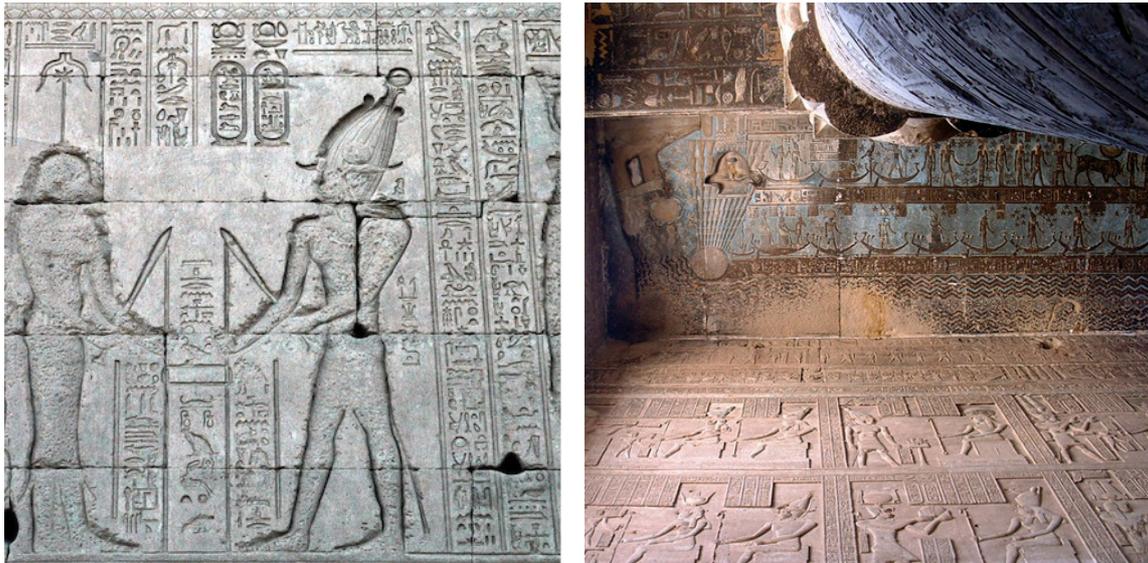


Fig. 8.3.1. Left: Alignments at the temple of Hathor enclosure at Dandara relating to important stars and asterisms in ancient Egyptian skies are reflected in the ‘stretching of the cord’ texts inscribed on the temple walls. **Right:** The astronomical ceiling of the hypostyle hall. Photographs © Juan Belmonte

Cultural and symbolic dimension: The Zodiacs represent an important astronomical feature of the temple of Dandara. Recent studies suggest that they were maps of the heavens showing stars, asterisms and constellations belonging to the different astronomical traditions existing in Ptolemaic Egypt. The monumental temple of Hathor is orientated to the rising of Meskhetyu (Ursa Major) in the north-east but its axis is also perpendicular to the course of Nile. This suggests that, as at Karnak (see Case Study 8.2) the location of Dandara was carefully selected to combine astronomical and topographic orientations reinforcing the cosmic symbolism of the whole landscape. In the Ptolemaic period there was a close connection between the temples of Dandara and Edfu, and a divine pilgrimage took place between the two sacred precincts.

Authenticity and integrity: The temple of Hathor is beautifully preserved, as are the buildings at Dandara in general. Nearly everything in the temple is original and in situ, with the major exception of the circular Zodiac, which was moved to France in the 19th century; in its place is a good-quality replica.

Generalities: The vast majority of the temple inscriptions, and detailed maps of the different structures, are available in the publications of the Institut français d’archéologie orientale (IFAO). Despite the alarming quantity of highly speculative interpretations (many published on the internet), only a handful of serious works have dealt with the astronomical aspects of the temples.

Present site management

Present use: The temple of Dandara is not on the major tourist routes, but there are daily excursions from Luxor which combine a visit to Abydos and Dandara.

Protection: The SCA own and administer the site. The whole enclosure of Dandara is fenced off and protected. It is surrounded by a buffer zone in the form of a park but the urban expansion of Quena could reach the outskirts of the temple.

State of conservation: The temple of Dandara, along with the temple of Horus in Edfu, is the best preserved of all ancient Egyptian temples. The decorations on the walls, including the astronomical texts and calendars, are well preserved, and all survive in situ apart from the circular Zodiac (which is excellently preserved in Paris) and some of the divine images which were looted in the Christian and early Islamic periods. The celestial diagram on the ceiling of the hypostyle hall, including the second Zodiac, has been recently restored to recreate its original livid colours.

Context and environment: The Dandara complex is located close to the River Nile in its western flood plain. Little remains of the other temples or the village that would have surrounded the sacred enclosure in ancient times.

Archaeological/historical/heritage research: The Institut Français d'Archéologie Orientale (IFAO) has been conducting excavations, restoration, and documentation work at Dandara for several decades. The astronomical context of Dandara is relatively well understood, unlike other similar Egyptian temples.

Main threats or potential threats to the site: The temples on site are well protected and the structure of the buildings is robust; hence there are no immediate direct threats to the site. However, while the temple and surrounding park are currently located within agricultural fields, the expanding city of Qena and its network of roads and streets are slowly approaching the area of the temple. The local landscape may change dramatically in the next few years and this question will need specific attention.

Management: There is little activity at the site apart from the restoration teams (when present) and the site seems to have had no special management plan up until now.

Case Study 8.4: The pyramids of Giza and related buildings, Egypt

Presentation and analysis of the site

Geographical position: The pyramids of Giza are located on a limestone plateau by the edge of irrigated lands at the apex of the delta of the River Nile, in the province of Giza, Egypt.

Location: Latitude 29° 58' 40" N, longitude 31° 8' 5" E. Elevation 60m above mean sea level.

General description: The Giza plateau is a necropolis containing the tombs of several kings and queens of the fourth Dynasty and their families. It was also considered a sacred site and a sanctuary, and cult practices were performed there for dozens of generations, especially in the Sphinx area and in the temple of Isis, Lady of the Pyramids.

Inventory of the remains: The World Heritage Site comprises the large pyramids of three kings of the fourth Dynasty; their related valley temples, upper temples, and causeways; the Sphinx and its temples; and the necropolis of the royal family and the nobles laid out to a Hippodamian (grid) plan. These tombs include texts with festival lists.

History of the site: The plateau of Giza was selected by Khufu (Keops in ancient sources) (c. 2550 BC), second pharaoh of the fourth Dynasty, as his resting place. His burial enclosure included a large pyramid, a large family necropolis and possibly the Sphinx. This part of the