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ARCHAEOLOGY

Deciphering Egypt's Great Pyramid

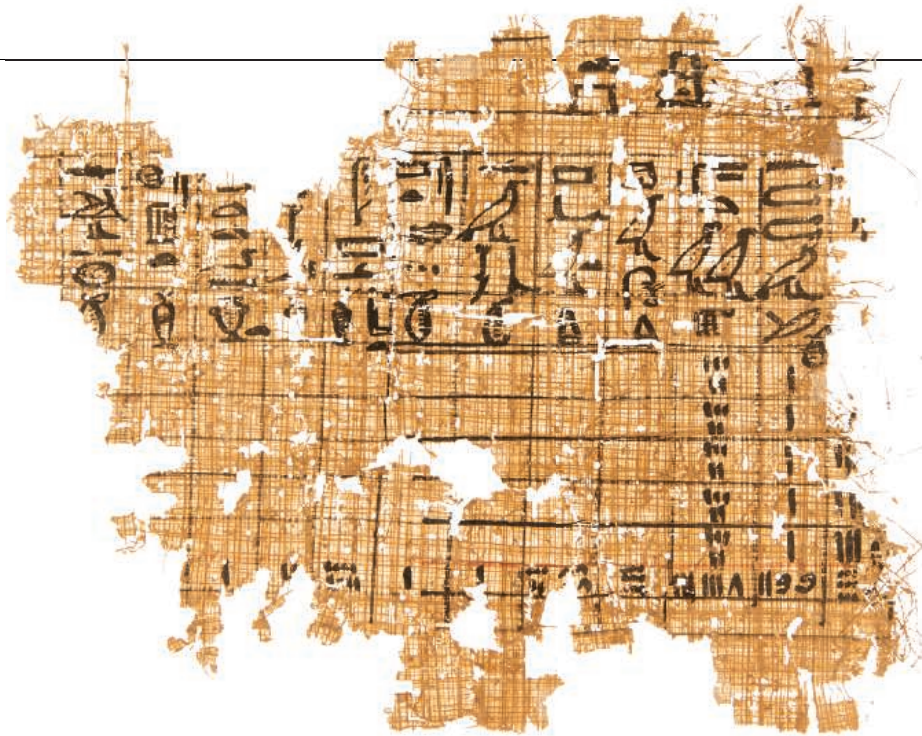
An ancient archive offers new insights into the construction of a man-made wonder

By Andrew Robinson

Two centuries after the decipherment of Egyptian hieroglyphs by Jean-François Champollion, there is still much to be learned about ancient Egypt. Most prominently, perhaps: Who built the pyramids at Giza and when, and what techniques were used? The astonishing Great Pyramid—the only survivor of the Seven Wonders of the Ancient World—is enigmatic about its origins and construction. Until very recently, no contemporaneous documentary references to its creation had been found.

Without a doubt, the Great Pyramid was commissioned by the Old Kingdom pharaoh Khufu (Cheops). The British Museum and Cairo's Egyptian Museum give his regnal dates as 2589 to 2566 BCE. Egyptologists Mark Lehner, who has conducted fieldwork at Giza for four decades, and Zahi Hawass, a former Egyptian government official in charge of Giza, argued for the later range of 2509 to 2483 BCE in their massive 2017 book, *Giza and the Pyramids*. But another high-profile Egyptologist, Pierre Tallet, whose pioneering fieldwork on the Red Sea coast of Egypt began in 2011, favors the earlier range of 2633 to 2605 BCE, derived from a recent astronomically based chronological model for the Old Kingdom.

In *The Red Sea Scrolls*, written by Tallet in close collaboration with Lehner, the authors use this latter date range. Egyptian dates before the Late Period (circa 660 BCE), they



note, “are much debated, especially so for the earliest periods.”

This landmark, elegantly illustrated book is the first to reveal how the raw materials used in the Great Pyramid's construction—copper, for instance, derived from pharaonic mining expeditions to the remote deserts of Sinai—were transported to Giza via Egyptian ports during the reigns of Sneferu and his son Khufu. Boats to transport miners and materials were built in the Nile Valley, dismantled, and then arduously conveyed to the Red Sea via tracks across the Eastern Desert. After use, the boats were stored at Red Sea ports in artificial galleries. “Egyptians, rather than being inexperienced and reluctant sailors, seem to have acquired a high level of experience in maritime navigation,” note the authors.



The Red Sea Scrolls
Pierre Tallet
and Mark Lehner
Thames and Hudson,
2022. 320 pp.

Timber, meanwhile, was likely ferried from the Nile Valley for use in furnaces to smelt copper ore on a vast scale. At one site in southern Sinai, discovered by Tallet in 2009, at least 3000 smelting units are estimated to have existed, one of them up to 80 m long.

The papyrus archive found by Tallet in 2013 at Wadi el-Jarf on the western Red Sea coast greatly excited Egyptologists. Old Kingdom papyri are extremely rare because papyrus does not last long in humid conditions. Yet more than a thousand fragments were discovered by Tallet's team, probably deriving from at least 30 rolls—“the oldest known explicitly dated Egyptian documents,” which frequently mention Khufu and the pyramid-building project. They survived because they were abandoned in the galleries instead of being officially archived in the Nile

A papyrus fragment sheds light on the construction of Egypt's Great Pyramid.

Valley—presumably because they were no longer regarded as being of any use.

Having pieced together evidence written in both hieroglyphic and hieratic script, Tallet and Lehner expertly reveal the archives of a single work gang, 160 men in total, which cover slightly more than a calendar year, probably during the final year of Khufu's reign. The crew worked under the naval designation “The Escort Team of ‘The Uraeus of Khufu is its Prow’”—the Uraeus being the stylized image of an upright, rearing cobra, a symbol of Egyptian sovereignty. Divided into four sections, they undertook at least five different tasks in different locations, all of which were recorded on separate papyri. These tasks included transporting by boat heavy blocks from Nile Valley limestone quarries to Giza's harbor for use in the Great Pyramid, voyaging across the Red Sea, maintaining a network of artificial canals, and building harbor facilities. One section leader, Inspector Merer, drafted “meticulous reports,” naming Khufu's half brother as the recipient of the stone, which provide a detailed picture of the functioning of the state at this iconic time in Egyptian history.

The archive reveals that Khufu's pyramid was made not by large teams of ruthlessly exploited, unpaid slaves, as seminally proposed by the ancient Greek historian Herodotus, but by a relatively small, “highly skilled, well-rewarded workforce.” The papyri reveal nothing definitive, however, about building techniques, such as how materials were lifted onto ramps as the pyramid rose from its base. This mystery remains to be deciphered. ■

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