

The Great Pyramid of Giza – A Monumental Construction for the Ancient Egyptians

Until the building of the Eiffel Tower in Paris in 1889, the Great Pyramid reigned supreme as the tallest building in the world

The area covered by the Great Pyramid – some 13 acres - could easily accommodate the Houses of Parliament and St Paul's Cathedral and still have room to spare. The cathedrals of Florence, Milan and St Peter's in Rome would also all fit comfortably inside.

The Great Pyramid is aligned with the four points of the compass with a near perfect precision. The average deviation of the sides from their alignment to north, south, east and west is a tiny fraction of a single degree - just 3 minutes 6 seconds.

It originally contained approximately 2,300,000 separate blocks of stone, each weighing an average of 2.5 tons.

According to the Turin Papyrus the whole structure was built in twenty-three years or less. Other sources imply 30 years or even slightly more. A rough calculation based on a 10 hour working day suggests that 34 stones (2.5 tons each) would have been laid in place every hour – this is, slightly more than one block every two minutes.

When it was built, the Great Pyramid rose to 481 feet (146.6 metres) – the top 31 feet (9.45 metres), including the capstone are now missing.

Its total weight was almost 6 million tons.

The horizontal cross section of the Pyramid is square at any level, with each side measuring approximately 756 feet (230.42 metres). The side lengths of the Pyramid are identical to within less than 2 inches.

The four corners of the Pyramid are almost perfect right angles and the sloping angle of its sides is a remarkably exactly 51 degrees 50 minutes and 40 seconds.

Some blocks were much larger than the average 2.5 tons. The limestone casing blocks which once covered its exterior weighed 10 tons or more and there are granite blocks in the Pyramid's interior known to weigh up to 50 tons.

Workers would need to have quarried just over 11,000 cubic feet (or a little more than 300 cubic metres) of stone every day

It is estimated that total labour force of cutters, haulers and stone setters would have numbered approximately 4,000 men. The single largest crew of labourers working on the Pyramid at any one time would have been around 2,000 men.

The Story of Nakht - A Conscript's Tale

Pyramid tells the story of the Great Pyramid through the eyes of the men who built it. And of the many myths that surround the building of the Great Pyramid none is more difficult to eradicate than the belief that it was built by slaves. It was a rumour first put about by the Greek historian, Herodotus, over two thousand years ago and it was cemented in the popular imagination by films such as Cecil B De Mill's *Ten Commandments*. But slaves did not build the Great Pyramid, willing conscripts did, and *Pyramid* is the story of one of them.

Nakht is not a real historical figure, but every aspect of his life is based on real evidence: the journey he travels, the clothes he wears, the tasks he's assigned. Nakht is conscripted along with his brother Deba from a tiny village near Aswan in about 2,500 BC. The two of them sail up the Nile to work at Giza, the great desert plateau of limestone where the Great Pyramid still stands today.

"It's more than forty years since the King's men came for me. They brought me to a life I could never have imagined, to a task I've come to understand only now it is complete..."

They came for me in late summer, in the village where I was born - the only world I had ever known. 'In the name of the King, In the name of the King'. It was a shout I vaguely remembered. I had heard it as a tiny boy, when they had come for my grandfather. Now they had come for my brother - and for me...

Not one of us really knew where we going, though some pretended. Karem-ah - the King's Official - said nothing to explain, just that we owed everything to the King and that now we would have the chance to repay him...

We were already further from the village than I had ever been in my life. Days and night passed like this, unchanging. Until one afternoon. It was the hottest part of the day and so hazy that it might have been a dream. Set back in the desert, high on the cliff, was a great triangle of stone, like a mountain, but a mountain made by men. I shall never forget that first glimpse of the mystery to which I was to dedicate my life. There it stood, all revealed before me, and I could understand none of it.."

BBCi - The Pyramid Challenge

The Great Pyramid is the biggest archaeological puzzle on the planet. To accompany *Pyramid*, BBCi - the BBC's interactive service - sets the nation the Pyramid Challenge. Complete the challenge and viewers have a chance of winning their own Pyramid adventure - the prize is a unique trip for four people to the Pyramid Complex. The interactive challenge is available to all viewers

across all platforms - through the main analogue broadcast, the web (bbc.co.uk/history) and via digital TV (digital satellite, digital terrestrial, and digital cable).

The Pyramid Challenge continues with *The Book Of Buried Pearls* the world's first interactive TV adventure story which runs on a loop for one week after the main broadcast on digital satellite and digital terrestrial television. In *Pyramid Challenge - The Book Of Buried Pearls* viewers are encouraged to take control of an intrepid treasure seeker on the trail of a genuine piece of 14th century Arabic literature. The original manuscript (under lock and key at the Egypt Exploration Society) captures the folk stories of the ancient tomb raiders of Egypt, and viewers must use their remote control to dictate what the adventurer should do to discover the book's secret.

Viewers need all their powers of observation and common sense to guide Ian Wright (seasoned adventurer from The Lonely Planet guides) through a series of challenging situations in modern day Egypt. Viewers direct him on a journey from Aswan, deep in the south, to Saqqara where the first pyramid was built, and on to the Great Pyramid itself at Giza. There viewers face their final challenge - to unlock the Pharaoh's hidden chamber. Those who succeed are rewarded with the Pyramid Challenge's secret words and a chance of winning a family trip to Giza - to live the adventure themselves. Entry is via the web, SMS and post.

Devised by the same team who made the Bafta-winning *Walking With Beasts Interactive*, the Pyramid Challenge is the first digital cross-platform TV service that allows viewers to dictate the dramatic outcome. Digital Cable viewers will also be able to take part with their own version of the Pyramid Challenge.

www.bbc.co.uk/history

Discover more about the splendours of Ancient Egypt with the BBCi History website.

Visitors to the site can try their luck at pyramid building, get their hands dirty in the mummification game and explore a reconstruction of the Great Pyramid complex.

A dedicated message board, hosted by the renowned archaeologist John Romer, will continue the 'how do they know that?' debate, inevitably provoked by the programme.

Leading authorities will investigate the innermost thoughts of the ancient Egyptians, whose hopes, fears and anxieties were remarkably similar to our own. Death, health and religion are amongst the subjects explored in the thought-provoking feature articles.

From King Khufu to Cleopatra, visitors can get the lowdown on the movers and shakers of Ancient Egypt. Photo galleries will present a dazzling array of mummified cats, tomb paintings of the gods and awe-inspiring pyramids. Hieroglyphic postcards will be a fun way of keeping in contact with fellow Egypt fans.

The BBCi history website has its own version of the Pyramid Challenge, along with full details of how to win a holiday to Egypt across all platforms.

Timeline of Ancient Egypt

Late Predynastic Period

3100-2950 BC

Earliest known hieroglyphic writing

Foundation of the Egyptian state

Early Dynastic Period (1st-3rd Dynasties)

2950-2575 BC

Creation of the capital city of Memphis

Intensive contact with Palestine

The earliest form of pyramid is built – the Step Pyramid at Saqqara – by Djoser

Old Kingdom (4th-8th Dynasties)

2575-2150 BC

The Old Kingdom or the “Pyramid Age” heralds the golden age of Pyramid building

The first king of the 4th Dynasty, Sneferu, comes to power

Sneferu builds the two Pyramids at Dahshur – the Bent Pyramid and the North or Red Pyramid

Khufu – Sneferu’s son and the second king of the 4th Dynasty inherits the throne

The Great Pyramid of Cheops (also known as Khufu) is built at Giza

Pyramids and elite tombs include the first extensive inscriptions

1st Intermediate Period (9th-11th Dynasties)

2125-1975 BC

Egypt splits into two smaller states, ruled from Memphis in the north and Thebes in the south

Middle Kingdom (11th-14th Dynasties)

1975-1640 BC

Mentuhotep reunites Egypt

Amenemhat I founds a new royal residence near Memphis

Egypt conquers Lower Nubia under Senwosret I and III

Classical period of art and literature

2nd Intermediate Period (15th-17th Dynasties)

1630-1520 BC

Hyksos kings seize power in the north

Theban 17th dynasty in the south

New Kingdom (18th -20th Dynasties)

1539-1075 BC

Egyptian empire in Near East and Nubia

Elaborate tombs of the Valley of the Kings

Rule of woman pharaoh Hatshepsut

King Akhenaten attempts to introduce a monotheistic religion

Brief reign of Tutankhamun

Ramesses II rules for 67 years

3rd Intermediate Period (21st-25th Dynasties)

1075-715 BC

Disunity and Libyan settlement in Egypt

Nubians conquer Egypt (late 8th century)

Late Period (20th-30th Dynasties, 2nd Persian Period)

715-332 BC

Egypt conquered briefly by Assyrians

Cultural revival under kings from Sais

Persian conquest of Egypt (525 BC)

Egypt independent again (404-343 BC)

Greco-Roman Period (Macedonians, Ptolemies, and Romans)

332 BC-395 AD

Alexander the Great occupies Egypt

Alexander's general, Ptolemy, becomes king and founds a dynasty

The Rosetta Stone is carved (196 BC)

Cleopatra VII reigns (51-30 BC)

Egypt becomes a province of the Roman Empire (30 BC)

[Sources: bbc.co.uk/history; **Pyramid** by Kevin Jackson & Jonathan Stamp]

BBC Worldwide Book

Pyramid

By: Kevin Jackson & Jonathan Stamp

Published: October 10th, 2002

Price: £16.99

ISBN: 0 563 48803 4

The Great Pyramid of Khufu is the oldest of the Seven Wonders of the World and the only one still standing. No building on earth has inspired more speculation, and questions about its origins have exercised minds for more than 4,000 years.

In **Pyramid**, published by BBC Worldwide on October 10th 2002, authors Kevin Jackson and Jonathan Stamp explain how Egyptian builders, equipped with only the most basic tools, were able

to achieve an extraordinary degree of accuracy in its construction. How were stones weighing as much as 50 tons hauled into position so precisely? What was life like for the conscripted labourers who built it? How long did it take them to complete it? Only now can these questions be answered. Using state-of-the-art computer graphics, **Pyramid** brings the world of IVth Dynasty Egypt to life and reveals how and why this most extraordinary of human monuments was built. **Pyramid** also traces the history of the exploration of the Giza site and examines the origins of Egyptology. Finally, **Pyramid** looks at some of the less orthodox theories of pyramidologists and considers how the Great Pyramid has become a magnet for so many charlatans, heretics and cranks.

Containing more than 120 colour images, including 20 computer graphics, **Pyramid** accompanies the BBC One programme to be transmitted in October 2002.

For press review copies, interviews and further information, please contact Elaine Robertson on 07836 372465 or email: elainebusiness@hotmail.com

Production & Book Biographies

Jonathan Stamp is the producer of *Pyramid* and co-author of the accompanying BBC book. He is currently Director of Development for BBC History. His BBC credits include *Behind Bars*, a 6-part series about imprisonment, which won the Howard League Media Award; BBC Two's *Reputations* about Coco Chanel; several programmes for BBC Two's *Timewatch* including documentaries on Hannibal, the Spanish Inquisition and Kamikaze pilots. He was nominated for an Emmy as Best Director and also Best Writer for *Timewatch: Kamikaze*. Jonathan has won two Emmies for *Allied to the Mafia* and *The True Story of the Roman Arena* – as well as Special Jury Prizes at New York and San Francisco Film Festivals for the same films. He has also received an Amnesty International Special Jury Award for *On Behalf of the State* – a film about capital punishment in Britain.

Laurence Rees is the executive producer of *Pyramid* and Creative Director, BBC History. In 1994, he launched *Reputations*, the BBC's historical biographical strand, and is currently editor of *Timewatch*, for which he has won three Emmy Awards. Laurence has a raft of acclaimed history productions to his name, including the six part series for BBC Two, *The Nazis - A Warning From History*, which won him a BAFTA award in 1998. In a lighter vein, he produced *Clive James' Postcards* (Rio and Paris) and was executive producer for the award winning series *The Crusades* with Terry Jones.

Laurence has authored several books including; a novel, *Electric Beach* (Weidenfeld and Nicholson), *Selling Politics* (BBC Books) and BBC companion books for his series *The Nazis - A Warning From History* and *War Of The Century*.

John Romer is a contributor. He is a renowned Egyptologist who has dedicated over 35 years to the study and conservation of Egypt's archaeological sites. After several epigraphic and archaeological surveys for the University of Chicago in Luxor and the German Archaeological Institute in Cairo, Romer became the Field Director of The Brooklyn Museum's Theban Expedition in 1977. He conducted physical surveys and conservation work at Luxor, Egypt and directed the excavation of the tomb of Ramesses XI in the Valley of the Kings. In 1992 at the request of the Egyptian Organisation of Antiquities he convened a multinational

committee to advise and recommend projects and procedures for the conservation of the Valley of the Kings at Thebes.

Romer is also a popular author and television presenter. His television films have won various awards and their accompanying books have often reached the best-seller list.

His TV work includes *Romer's Egypt: An Introduction To Ancient Egypt*, BBC Television (1981) and *Great Excavations: John Romer's History of Archaeology*, Channel 4 (2000).

Kevin Jackson is co-author of the book. He is a freelance writer, broadcaster and film-maker, whose recent publications include *Invisible Forms*, *The Language of Cinema* and *The Oxford Book of Money*. His work for the BBC includes films on Anthony Burgess, George Eliot and William Morris for television and documentaries on William Blake and John Ruskin for radio. A former Associate Arts Editor of the *Independent*, for which he continues to write, he has also contributed to *The Sunday Times*, *Sight and Sound* and the *New Yorker*. He is currently working on a biography of the English film director Humphrey Jennings.

The Mill

The Mill was founded in 1990 by a group of people including CEO Robin Shenfield, and managing director Pat Joseph. Over the last twelve years The Mill has grown into a group of companies providing a unique range of technology-based creative facilities for the entertainment and advertising industries, ranging from model making, camera operation to sophisticated visual effects in high-end commercials, television and feature film.

Mill Film was founded in 1997 to bring The Mill's expertise in visual effects into the realm of feature film and in 2001 was awarded the highest accolade in filmmaking, the Academy Award Oscar for visual effects in Ridley Scott's, *Gladiator*. In 2001 Mill Film worked on high-profile films *Lara Croft: Tomb Raider*, *Hannibal*, *Cats and Dogs*, *Chocolat*, *Knights Tale*, *Harry Potter and The Sorcerer's Stone* and the highly acclaimed *Black Hawk*

Down. Mill Film is currently working on *Harry Potter and the Chamber of Secrets*. In 2002 three of the eight films considered by the Academy for a visual effects Oscar involved a significant contribution from Mill Film.

Mill TV was formed in September 2001, specifically to bring high value, high-quality visual effects to long-format television projects. Headed by Dave Throssell, the new division has already completed projects such as BBC's *Rockface*, and worked on various projects for the independent television sector.