

Who built the Egyptian pyramids?



I can remember standing in the desert near Cairo and gazing across the Sphinx to the Great Pyramid of Giza, one of the most impressive structures on Earth, and counting myself extremely fortunate to be there. The pyramid carries some impressive statistics. It stands 450 feet tall (137mtrs) and consists of two million blocks of stone, weighing from the most common at 2.5 tons up to 50 tons. The weight of the pyramid is six million tons. The four corners are almost perfect right angles and align almost exactly to the four points of the compass. The sides slope at a perfect 52 degrees, or would do had not the smoothly polished limestone finishing blocks been removed and used in building works in Cairo. It is one of the original Seven Wonders of the World. Impressive though the statistics are, they do not reveal the true magnificence of this wonderful construction. I have to admit that upon entering the pyramid and climbing up the narrow cramped access shaft to the upper burial chamber, which was surprisingly cool, I experienced an eerie feeling of stepping back into history, and a strong feeling of trespassing.

To have seen this pyramid when perfectly smooth and dazzlingly white in the desert sun must have been an incredible sight.

So impressive are the pyramids that it has caused many to wonder how they could possibly have been built some 4500 years ago. Some even go as far as to suggest that it is

not possible for these structures to have been made by the labours of men, but were instead made by aliens.

Who built the pyramids, aliens or men?

The case for the Aliens:

The pyramids are so accurately aligned with the points of the compass that only aliens could have achieved this all those thousands of years ago. The angle of the slope of the sides is so precise only aliens could achieve this. The blocks are so heavy and the pyramid so tall only aliens could achieve this. In the period 2500 BC man did not have the tools or knowledge necessary to build the pyramids, so only aliens could have done it. How the aliens built the pyramids is not known, but they would have employed the use of advanced construction equipment.

The case for men:

Never underestimate the ingenuity of man. We are today so used to using machinery to carry out virtually all our major construction work that we sometimes forget that machinery, in terms of historical events, is a very new development, its only been around a couple of hundred years or so. Mankind managed very well without it for many thousands of years. We have long forgotten the techniques that were used in the building of the pyramids, but this doesn't mean that we are unable to work out how it was done.

In order to try and establish who built the pyramids we have to examine the evidence that we have. We have only the pyramids themselves, the excavation sites where the blocks were quarried from, and historical accounts.

The evidence:

Lets start with the excavation site. If like me, you have been there, you will know that it looks pretty much like any other quarry you might see today, except there is obviously no machinery. At the quarry face there are blocks cut into the rock but not yet cut away. There are rough hewn blocks scattered around ready for transporting and on-site finishing. The entire quarry shows obvious signs of systematic development of cutting blocks out from the face and transporting them from site. The rough hewn free standing blocks show the scars of repeated chisel blows where they were chiseled out of the rock face. There is nothing in the manner of these blocks that is anything other than old fashioned quarry work using a mallet and chisel. Nowhere is there any sign of advanced technology having been employed, just the opposite. The blocks were hewn out of the rock-face by manual labour, the signs are unmistakable. The chisels used were made of copper, the hardest metal then available, but even they were only good for about 100 blows before blunting, even though limestone is relatively soft and easy to work compared to hard rock such as granite. As the chisels were blunted they were exchanged for re-sharpened ones, and the process was repeated with a team of blacksmiths constantly re-sharpening and tempering the chisels.

How were the blocks transported to the pyramids? By man power. The vast majority of the blocks weighed in the region of 2.5 tons and were transported on wooden sledges. They could of course have chosen any size for the blocks, but this must have been the optimum size, any bigger would probably have slowed them down. A team of men with ropes could drag the sledge across the clay floor, and this could be eased with a little water tipped in front of the runners helping the sledge to slide easier. It is estimated that it may have taken 10 years just to build the ramp from the quarry to the pyramids. In this manner all the blocks could be transported to the site of the pyramid without presenting any insurmountable challenges. So far no alien technology required, it could all be done by well organised teams of men, and a great deal of manual labour. During the time of the annual flooding of the Nile the stone blocks could have been floated to the site of the pyramids on rafts, making the task a lot easier.

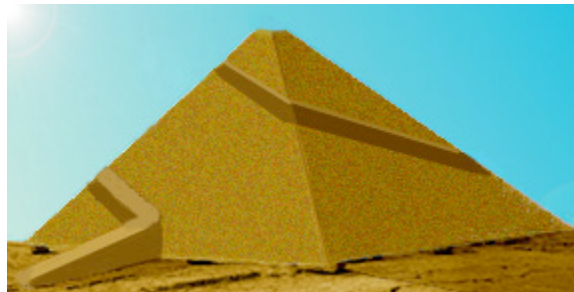
The work force was was not one of slaves , the Egyptians didn't need slaves. The Nile supplied a very fertile land where farming was relatively easy and food abundant. This civilisation had time on its hands, no wonder they were such great mathematicians, astronomers and architects. The work force was primarily made up of farmers, recruited nationwide for a period ranging from a few months to a few years, and they served their time for their king, much like serving National Service today in the armed forces. A total of 20,000 to 30,000 workers would have been needed for the task, ranging from unskilled hauliers, semi-skilled quarry men, skilled quarry men, masons who finished the blocks, men who placed the blocks, officials and caterers. A village was purpose built to house them all and they were well fed and cared for in return for their work. The remains of the village can still be seen today.

Now for making the pyramids themselves. About 2,550 B.C., King Khufu, the second pharaoh of the fourth dynasty, commissioned the building of his tomb at Giza. Some Egyptologists believe it took somewhere in the region of 80 years to construct the pyramid. Having man-hauled the blocks to the site of the pyramid the obvious problem now is how to stack them up. There are a number of ways this may have been achieved, all of which require a ramp, or a system of ramps, as the only method available to the ancient Egyptians was man-power, and they had that in abundance.

The actual method of ramps used is not known with any certainty, but it most likely started with a single ramp by which means the blocks could be hauled into position. The blocks were laid down in layers, each successive layer being a little smaller in area than the one below it to give the pyramid its shape. As the blocks are layed onto a level surface, the same height as the ramp, no lifting was required, only hauling of the sledges. Removing the blocks from the sledge may have involved no more than dragging the block off the sledge. The entire pyramid could have been built using this simple system without a single block actually having to be lifted off the ground! No alien technology required. Very smart people these Egyptians.



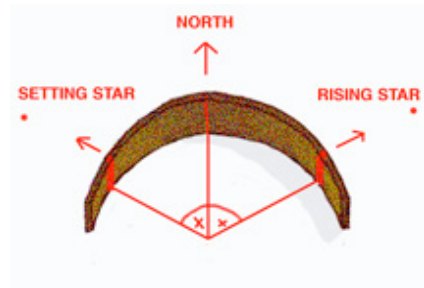
As each successive layer was laid the ramp would need be heightened, and lengthened so as not to be too steep. Eventually this method would reach a limit where the size and construction of the ramp would be nearly as complex as the pyramid. The easiest way around this problem is to curve the ramp around the pyramid as the pyramid increased in height.



Finally, all that remained was the placing of the top stone, followed by the placing and fitting of the smooth white blocks. As the facing stones were placed so the ramp could be removed as they worked their way back down. The pyramid required a certain amount of interior design and construction for the burial chambers, and this was no easy task. The blocks that protected the burial chamber were 50 ton blocks of granite. Even with the huge teams of men at their disposal and a system of ropes and overseers guiding them, it would have been a difficult and dangerous task. There are still marks visible on the blocks and in the interior of the pyramid that were used to guide the blocks into position. Difficult yes, impossible no.

It was men that built the pyramids, make no mistake. Do not underestimate the intelligence of the ancient Egyptians or the trained manpower that was at their disposal. It was a colossal effort of team work taking 80 years to complete.

How did they align the corners of the pyramid so accurately with the four points of the compass? This was the easy part. It just takes a curved wall facing more or less North as judged by the stars. Select a rising star on the Eastern horizon and mark a line on the top of the wall pointing to it. Mark another line on the wall when it is low on the Western horizon. Take the line straight down the wall, using a plumb line, and then extend it along the ground until it meets the other line. Bisect this angle and you now have a line pointing exactly due North.



There are any number of very simple methods that can then be employed to construct a right angle that will then align with the other points of the compass. After that its just a question of placing markers in the ground for the four corners of the pyramid. As I said, that part is easy, it does not require alien technology, just a little brain power.

How did they achieve such a perfect 52 degree angle of slope? Because they were clever! They were masters of angles, a skill they had acquired in part through astronomy, and also through a good knowledge of mathematics. Each mason that worked on finishing the outer blocks had a template with an angle of 52 degrees that he used to cut his block to fit. After that it was careful alignment of block to block as they placed them carefully on the inner blocks. It was literally done step by step.

Mystery solved, that's how it was done. Maybe not using that exact method, but something very like it. There is absolutely no need to suggest that it couldn't be done by man power, and certainly there is no need to go to the ridiculous lengths of suggesting it was done with the help of aliens. That idea is pure nonsense.

Why were the pyramids built? They were tombs for the king. The Egyptians had long observed a point in the sky around which all the stars appeared to rotate (the north celestial pole, today marked by the close proximity of the Pole Star) and believed the area to be an immortal place. The alignment of the pyramid to the compass points was to align it with the 'immortal place' in the sky, and the shape was believed to represent the rays of the Sun. The pyramid was in fact a device designed to transport the king to the immortal place so that he may live forever, as would all the workers that assisted in its construction.

N.B. The theory of how the pyramids were actually built is not my own pet theory, but one considered by experts in the field as to be the most likely. It is a known fact how the stones were carved out of the quarry. Graffiti inside the pyramid reveals that teams were used in competition with one another, with the best performers receiving 'bonuses' of extra beer or days off. The workers village is a known fact. The ramp from the quarry to the pyramid is a known fact. That the huge work force was recruited is a known historical fact. The labour force required and the time it would have taken has been very carefully calculated. The type of ramps used is open to question, but all are agreed that ramps were used, there is no other way it could have been done. And it was done - by men!