

INT. FILMING ROOM

NARRATOR addressing the audience.

NARRATOR

The first step in building any pyramid is finding a place to build it. If the site for the pyramid isn't good it lead to ruin for the pyramid. A good, or maybe bad, example of this is The Bent Pyramid. Because they built the pyramid on soft clay they were unable to finish building the pyramid as planned.

A good example of a solid foundation is that of The Great Pyramid. The Great Pyramid is the largest pyramid, and a solid foundation is what allows the pyramid to stay standing for thousands of years. So how do they start the foundation?

EXT. EGYPT/DESERT

Narrator is in the desert addressing the audience.

NARRATOR

The first thing they did was to survey the sight to align the pyramid. The Great Pyramid is aligned along the cardinal points of the compass. The sides of the pyramid are off by less than a twentieth of a degree. So how did they do this?

Show an animation of the process while explaining it.

NARRATOR

Many experts believe the Egyptians looked to the sky. It's relatively easy to determine true north by watching the polar stars rise and set.

They first built a semicircular wall to act as the horizon. They then marked where a polar star rises and sets. Then they marked a line in the middle. That middle line points to true north.

From there all they have to do is plot the first side of the pyramid along true north. They then would have been able to mark the other three side from there.

However, before they can start placing blocks on the pyramid they need to have a solid, flat foundation.

EXT. EGYPT/DESERT - FOUNDATION

Have the Narrator standing in front of the pyramids and have the pyramid disappear to reveal the foundation as they talk.

NARRATOR

The foundation fo the pyramid were built up from the bedrock, not on a flat sandy base. Limestone blocks were used to build the foundation. These blocks needed to be flat in order to start building the pyramid. There are several ways the Egyptians could've achieved this. One method is using water to level out the foundation.

Begin showing an animation of the process.

NARRATOR

One theory states the the Egyptians dug trenches around the foundation of the pyramid. They then filled those trenches with water, creating a level surface. Now, with a level surface for reference the Egyptians would carve off any stone above the water level. Once that was done, they would lower the water level and repeat the process until the foundation was level.

Begin animation of the A-frame.

NARRATOR

Another method thought to be used by the Egyptians was the A-frame. The A frame is comprised of two planks of wood joined together at a 90 degree angle with a crossbar towards the bottom. There would then be a plumb line hung from the vertex of the A. Using a level surface, for example

water, the Egyptians would mark where the plumb line would be when the surface was level.

Using that tool they would set the A-frame upon a surface. Based on if the plumb line hung in line with the mark, the Egyptians could tell if the surface was level.

End animation of A-frame and start animation of rods and string tool.

NARRATOR

There's yet another method believed to be used by the Ancient Egyptians to ensure that their blocks and foundations were level. It's believed that a rods and string tool was used to ensure that blocks were level.

A rods and string tool consisted of two rods of the same height and a string that connects the two. The string comes across the top of the two rods. Then, taking a third rod of the same size, the Egyptians could see if the area was level.

They would sit the two rods away from each other on the surface so that the string in the middle was taught. Then, they would take the third rod and see if the rod would slide under the string, or if it would hit the string.

This would allow them a more precise view of what areas were too high. The Egyptians would use red ocher to mark the high points, so they could come back later and shave it down. It's believed that they used flint scrapers and sandstone rubbers to smooth out the stone.

INT. FILMING ROOM

Narrator is back in the filming room addressing the audience.

NARRATOR

These methods are what allowed the

Ancient Egyptians to level out their foundation. However, some of these methods were also used to smooth out the outer casing and inner chambers of the pyramids.

Now that the Egyptians have a level base, they can move onto the rest of the pyramid. The first thing they need to do is gather the limestone blocks. Come back for the next episode of How the Pyramids Were Built where we'll discuss how the Egyptians quarried all of that stone.