VISUALIZING THE GIZA PYRAMIDS

Peter Der Manuelian – The Ancient Egyptians committed their legacy to stone, to limestone and wood and of course other materials as well, but it was mostly a stone legacy, and then, in the early 1900s you have the age of the great excavations, and these archaeologists transferred that legacy from stone to glass negatives, to paper drawings, to notes, and now here we are in the 2000s, and once again we are transforming that legacy into digital bits! And so everything is coming into electronic form.

In Antiquity, I have always wondered how the Ancient Egyptians bought into this concept of a unified state and to a Pharaoh who most of the Egyptians would never see! So many were worried about their fields, often small villages and they would never see the palace, never see Pharaoh, how would they believe in this system, accept these religious ideals, these many gods and paid their taxes and swear their obedience to the King? So one of the ways to try to bring this alive, not only for students but for research, is to recreate places such as the Giza Pyramids in 3D. We have the Pyramids, we have the royal temples, we have the *mastaba* tombs, of the elites, the high officials, and slowly we are building all of these buildings in 3D, with links to all the old archaeological data and this is a real time model. And that means that you can navigate down burials shafts, you can fly over the Pyramids, you can go into chambers and you can see things as they are today, as they were when the great excavators found them, in 1912 or 1920, or you can go back to the Fourth or Fifth Dynasty and try to see them that way as well…

You can get a view of these tombs, which is quite unique, and you can start to understand the matrix relationships or the sequences, how these cemeteries developed: Were they built from west to east? Were they built from east to west? Did they cluster around certain branches of the king's family, or people who had the same types of administrative duties? And when we can look underground and start to reconstruct these burial shafts, then we understand the sequence of these as well.

How did the Ancient Egyptians keep track of the hundreds of burial shafts at Giza, so that they would know not to bump into a shaft that is already existing…? And I'll give just one example: We recreated one tomb chapel which is under the ground, and this chapel has a window to the outside, and much of the painting had of course suffered inside the chapel because of rain sweeping in through this window. Well, when we reconstructed this chapel, we could tell that the sunlight would stream through this window and illuminate a very magical place on the opposite wall of the chapel. It's called a "false door," it's an offering focus where the living come and bring offerings to the dead. So, only by building this tomb chapel in 3D could we reconstruct the path of sunlight and that led me to investigate other tombs at Giza, and see if their windows also were focused on sacred spaces inside the chapel, and in fact that is the case. It gets even more interesting because if the neighboring tombs outside were built later, they might have blocked the sunlight's path and that

tells you very much about how the cemeteries developed, which tomb came first, which tomb came second. So, a very simple reconstruction of 3D visualization of something as simple as a window can tell you very much about the development and the sequence of the construction of these elite tombs at Giza…

3min 44sec