

THE TALLEST BUILDINGS IN THE WORD, BUILT IN DIFFERENT TIMES

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Abstract During the existence of mankind, one of the main aspirations of people is to build buildings as high as possible. This is confirmed by the ancient Hebrew myth about the Godol of Babylon. Although this initiative failed, but the pyramids of Egypt, many old and new high-rise buildings in different parts of the world testify that this desire has not slowed down to this day. Leading countries have been competing with each other in the construction of skyscrapers for a long time to show their ambitions. New technologies promise many innovations in this direction, and therefore it is necessary to remember the path taken.

Key words: structure, building, construction, stone, steel, neolithic, pyramid

Introduction

People began construction activities with the use of stone tools to improve their living conditions. Dwellers in caves and caves made convenient and well-protected entrances with these tools. They cleaned and repaired the wall and floor surfaces, etc. Those who went hunting and foraging for natural food had to do much more work, because it was difficult to find natural shelters in the open fields and forests. Archaeologists have discovered million-year-old stands with roofed dwellings. In addition to stone, tree trunks and clay, animal bones and skins were used for their construction. As the population grew and mobility increased, the need for housing grew. Work tools and construction culture

were improved. In the Neolithic age, human development reached the point where it moved from a hunter-gatherer (hunting, fishing,

gathering) to a productive economy (agriculture and animal husbandry). If we add to this the emergence of religious concepts in an earlier period, the necessity of building other purposes besides dwellings (shrine, burial, warehouses, shelter of goods, etc.) appears logically. This period coincides with the constructions discovered in the world, which are amazing for the skill of execution. Then gradually the heights of buildings increased and the level of construction was defined by tall buildings.

Main Part

Gyobekli Tefe (in Turkish - "belly hill") is considered the oldest and tallest building in the world. The diameter of the 15 m high hill is 300 m. It was built 12,000 years ago. Presumably a chapel, and still partially underground, 20 circles of over 200 massive T-shaped stone pillars with figures carved into them have been erected. These stones are the oldest known megaliths in the world with a height of 6 meters and a weight of 10 tons. (Fig.1) A building higher than it, 10,000-8,000 BC. Not found anywhere.



Fig.1. Gyobekli Tefe

For the next three millennia, the tower of Jericho (Palestine) was the leader with a height of 8.5 meters. The earliest, stone architectural monument has a cut shape. It is built of raw stone,

with a 22-step staircase in the middle. Its diameter is 9 meters at the base and 7 meters at the top. The thickness of the walls is 1.5 m. It could have been a protective or cult building (Fig.2).



Fig.2. Tower of Jericho

Between 5,000 and 4,000 BC, the Er-Grach mengen was the highest in France. A stone boulder obelisk up to 20 meters high and 3 meters wide. Its erection must have been incredible with the means available at the time, as it weighed 280 tons, but a few centuries later it fell and broke into four pieces. These parts are intact and it is easy to judge their size and weight (Fig. 3).



Fig.3. Er-Grach mengen

Since then, the highest building was the 13 m high ziggurat built in Shuamdnareti (Iraq) in 4000 BC. He maintained his primacy for 400 years. Ziggurat in the ancient biblical language meant height, and such artificial elevations were erected only for the main gods in the form of a multi-level truncated pyramid. Baked clay bricks and reed stalks were used as building materials. External cladding was done with fired bricks. A white temple was built

on Ziggurat Anu 500-600 years later, as shown in Fig. 4.

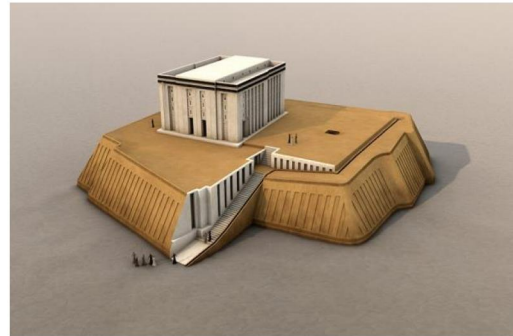


Fig.4. Ziggurat Anu with a white temple

Megalithic tomb Newgrange in Ireland was built in 3600 BC (Fig. 5). The height of the kurgan is 13.5 meters, the diameter is 85 meters. The entrance with 1.5-2.5 m high stones is connected with a 19-meter corridor to the ritual hall built with 20-40 tons of stones. It is similar to Stonehenge, but the stonework is covered with earth and gravel. 97 stones follow the entire perimeter of the tomb. It is interesting that the corridor is oriented to the southeast in such a way that during the winter solstice, on December 19-23, the 20-cm-wide hole left above the entrance receives the sun's rays as soon as it rises and illuminates the inner space for a while (15-20 minutes).



Fig.5 Newgrange

The Caral Pyramid is located in the territory of modern Peru and is the oldest structure on the American continent. 3000-2750 BC It was the

tallest building in the world with many steps and its height was 26 m (Fig. 6).



Fig.6.CaralPyramid

In Great Britain, 40 m high Silbury-Hill, built of chalk stone in 2750 BC, is one of the largest artificial cairns in the world. Its diameter at the base is 167 meters, and at the head is 30 meters (Fig. 7). It held the title of tallest building for only 100 years.



Fig.7. Silbury-Hill

In much less time than its predecessor, the oldest of the Egyptian pyramids, the Pyramid of Djoser (2650-2620), took the lead as the tallest building in the world for a total of 30 years. Its construction started like an ordinary rectangular tomb, but then the decision was changed and a six-step pyramid (height 62 m) with a base of 125x115 m came out. The construction was carried out in six stages, and the number of corresponding stages reflects the way of the pharaoh's passage to heaven (Fig. 8).



Fig.8. Pyramid of Djoser

Despite its solid base (144 X 144 m) and height (93.5 m), it only had to be the first 15 years (2620-2605) in the medium of the 7-step pyramid. This non-standard limestone building has been eroded over time and today only its three steps are visible and its height is 65 m.

2605-2600 The tallest building in the world was the Bent Pyramid. Its height was initially 104.7 meters, currently it is 101.1 meters. Base 198.4 X 198.4 m. During the construction process, the 54-degree inclination of the sides was replaced by a 43-degree inclination, which gave the pyramid an unusual shape. There are several explanations for the cause of the bend. The most interesting thing is that the clay foundation of the building could not withstand the load and in this way the load provided by the project was reduced. It is also possible that Pharaoh Snofru, the builder of the pyramid, died suddenly and it was urgently necessary to finish the pyramid (Fig. 9).



Fig.9. Bent Pyramid

The leadership of the Egyptian pyramids among the world's tallest buildings was continued by the Pink Pyramid. The 109.5 m high and 218.5 x 221.5 m base pyramid built of pink limestone is distinguished by a slight slope of the walls.

Among the 7 wonders of the world, the pyramid of Cheops was built first, and no matter how surprising it is, only it has survived to this day (Fig. 10). However, this grand structure with a base of 230 x 230 m is almost undamaged. Only its tip has been affected by natural precipitation and has significantly decreased (138 m) compared to the initial height (146.6 m). The construction was

completed in 2570 BC and for 3881 years it was the tallest building on earth.



Fig.10. Pyramid of Cheops

In 1311, Lincoln Cathedral was built in England. The material was the rocky light stone on which the temple rests. On the top of the tower was a gilded tree almost as tall as the head, and the full height of the temple was 160 meters. It held the title of the tallest building in the world for 238 years and would hold it until the construction of the Eiffel Tower in 1549 in order to prevent the collapse of the structure, which had been damaged by constant rains in 1549. The height of the temple left without the spire is currently 83 meters (Fig. 11).

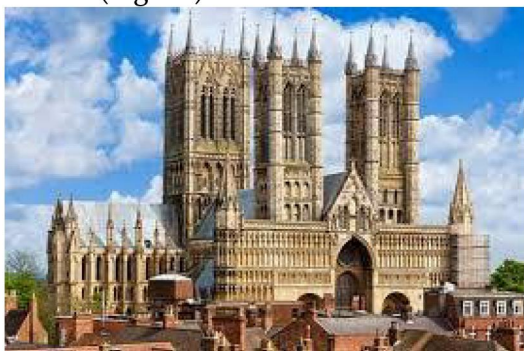


Fig. 11. Lincoln Cathedral

Since then, the world's highest-recognized 159-meter-high, light-stone-built St. Olaf's Church in Tallinn (1549-1625) and the 151-meter-high St. Mary's Church in Germany (1625-1647) have shared the same fate. Their almost 100-meter-long chimes caught fire from the fall of the mech and were destroyed in such a way that no one tried to restore them. Their heights are 123 m and 104 m, respectively (Fig. 12 and Fig. 13).



Fig. 12. St. Olaf's Cathedral

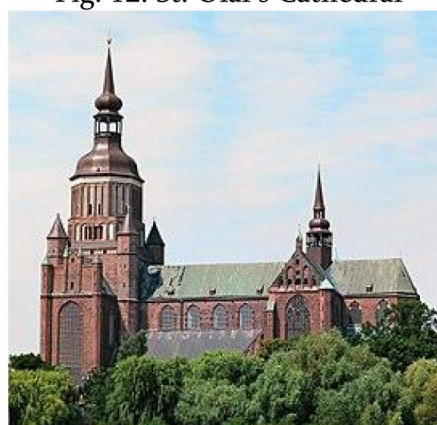


Fig. 13. St. Mary's Church

1647-1874, for 227 years, the cathedral of Strasbourg (France) (142 m) was considered the tallest building in the world. which was built for 4 centuries (1015-1439) from red sandstone (Fig. 14).

The neo-gothic, brick St. Nicholas Cathedral (147.3 m) in Hamburg became the tallest building in the world for two years in 1874,



Fig. 14. Strasbourg Cathedral

1876-1880, the tallest building in the world was the 151 m high Gothic Cathedral of Our Lady of Rouen (France). From 1880 to 1884, the Cologne Gothic Cathedral (157 m) was the leader, which is still the third highest church in the world. Its construction lasted more than 6 centuries (1248-1880).

Since 1884, the 169.3-meter-high obelisk of the first US president George Washington has been considered the tallest building in the world, which is still the tallest obelisk in the world today. It is built of light granite stone and covered with marble. The thickness of the walls near the foundation is more than 1.5 meters and gradually decreases in height.

In 1889, engineer Eiffel built an unprecedented height (312 m) tower of metal construction at the World Exhibition in Paris. The Eiffel Tower. It is still one of the most popular tourist attractions in the world. In 1930, he gave up the first place in height, when the 319 m high skyscraper, the Chrysler Building, was built in New York.



Fig.15. Empire State Building

Almost exactly one year later, on May 1, 1931, the construction of the 102-story, 381-meter-tall Empire State Building in New York City was celebrated in a record-breaking 410 days. It was the tallest building in the world for 23 years. The telemast of Oklahoma (USA) with a height of 480.5 took away this title from him. After that, for the next 55 years, the name of the tallest structure was carried mainly by television towers built in

the USA and other countries until the construction of Burj Khalifa. The Empire State Building was the world's tallest building and skyscraper for a record long time (41 years) (Fig. 15).

On January 4, 2010, the opening ceremony of the most multi-story (163) and tallest skyscraper "Burj Khalifa" was held. Its height, 828 m, was kept a secret until the end. This unique building has broken all the height records and no one has competed with it to date.

Conclusion

1. Although the oldest building discovered in the world was built 12,000 years ago, and since then many stone buildings have been found on earth, but only after 7-8 thousand years it became possible to build structures over 100 meters high in the form of the Egyptian pyramids. It is amazing that after that it took nearly 4 thousand years for the Pyramid of Cheops to build even a slightly higher structure, and this process was very slow.
2. The construction of high-rise buildings became particularly active after the construction of the Eiffel Tower at the end of the 19th century. In recent years, the construction of super-tall buildings has been taking place at a fairly high pace worldwide. Accordingly, modern technologies are at a high level of development. Despite this, the fact that after 2010 there has not been a building higher than the Burj Khalifa has been built around the world.

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