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FROM PEBBLES IN THE UNDERGROUND TUNNELS "RAVNE" TO CONCRETE BLOCKS ON THE BOSNIAN PYRAMID OF THE SUN

Under the Bosnian Valley of the Pyramids exists a huge underground network of tunnels and chambers. These tunnels had been cut in conglomerate rock. Based on density and a phase of cementation it can be concluded that this conglomerate is of rather recent geological age (tens of thousands of years). It's origin is in prehistoric glacial deposits. Conglomerate rock consists of rounded pebbles.

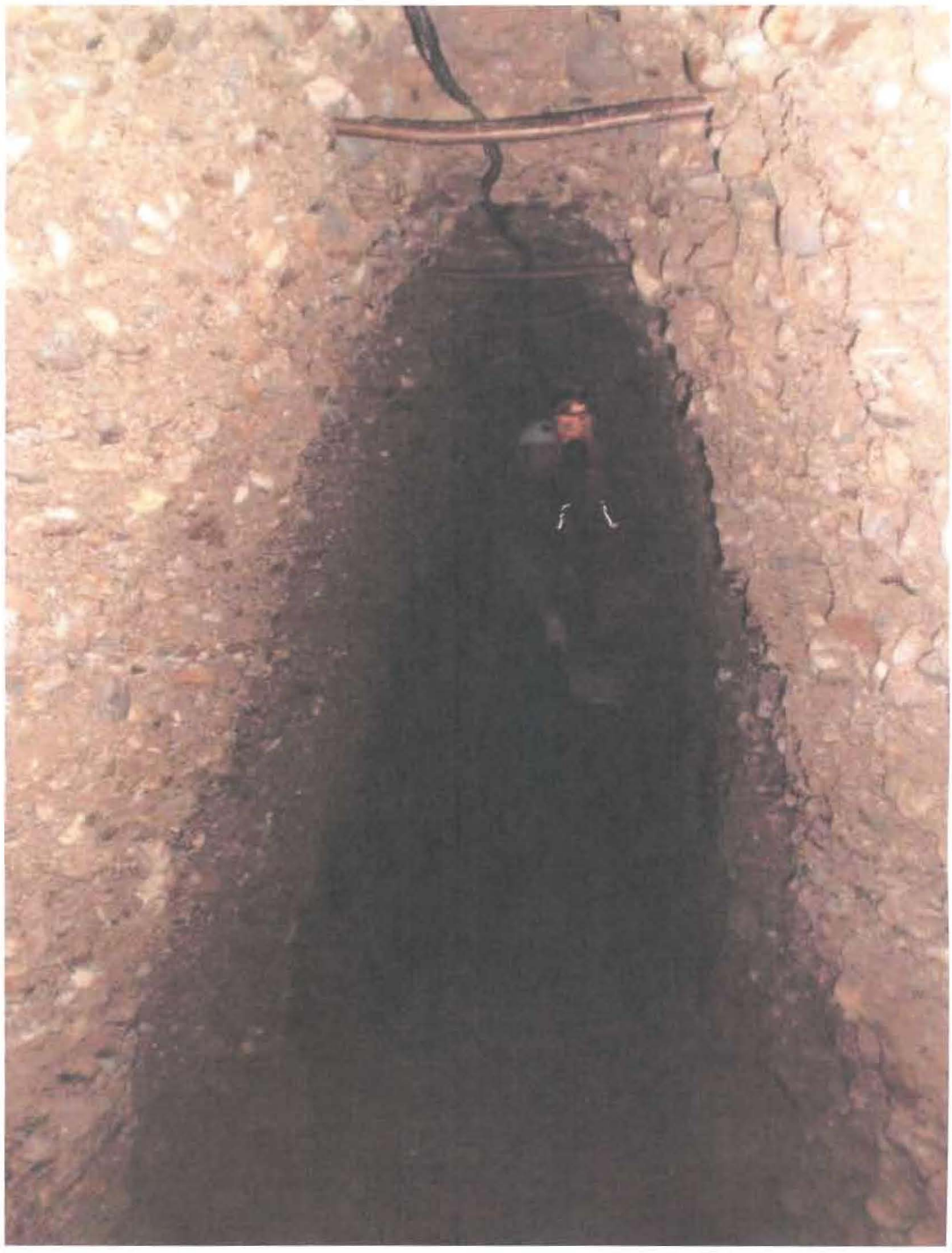
Huge quantities of conglomerate rocks had been extracted during the construction of underground labyrinth. This material had a potential to be used as a building material. Sure enough, blocks discovered under the layer of soil on Bosnian Pyramid of the Sun, show the presence of rounded pebbles in huge quantities. Material is exactly the same like the one present in underground tunnels.

It's logical to conclude that the ancient builders had no waste of the material: what they extracted from the underground was used in process of coating of the Bosnian Pyramid of the Sun.

Lab testing in five scientific institutions in Bosnia and Italy confirmed the artificiality of the cemented concrete on the Bosnian Pyramid of the Sun.

Very important question about the source of material is answered at this time: the source of material! Conglomerate rocks and clay were available to ancient builders in quantities.

Years in front us should give us answers on logistic: transportation, process of heating, source of labor.



Tunnels had been cut through the conglomerate. Conglomerate rock is a common sedimentary rock. Type: clastic. Color: variable. Texture: rounded pebble to cobble sized grains (finer grained matrix). Origin: river and glacial deposits. Common material: quartz, feldspars, micas, calcite, clays. Use: building material.

Age of conglomerate sedimentation: over 32.000 years. This projection is based on a piece of wood found in conglomerate (140 meters from the entrance, 5 meters below the surface, one meter above the layer of clay/marl). Radiocarbon dating of the wood performed in Germany (Christian-Albrechts University in Kiel) has shown the age of 32.000 years and dating in Poland (University of Technology in Gliwice) has shown the age of 34.000 years. The sediment has not been deposited very long time ago because of lots of visible open spaces/pores.

"Archaeological park: Bosnian Pyramid of the Sun" Foundation has been cleaning and securing the existing tunnel network. All tunnels have been sealed off with the gravel and sand from the river beds in the distant past and it creates another mystery: beside the question who built the tunnels there is a new one - who blocked them off and why? This fill in material is different than the conglomerate rock in density, but the content is the same.

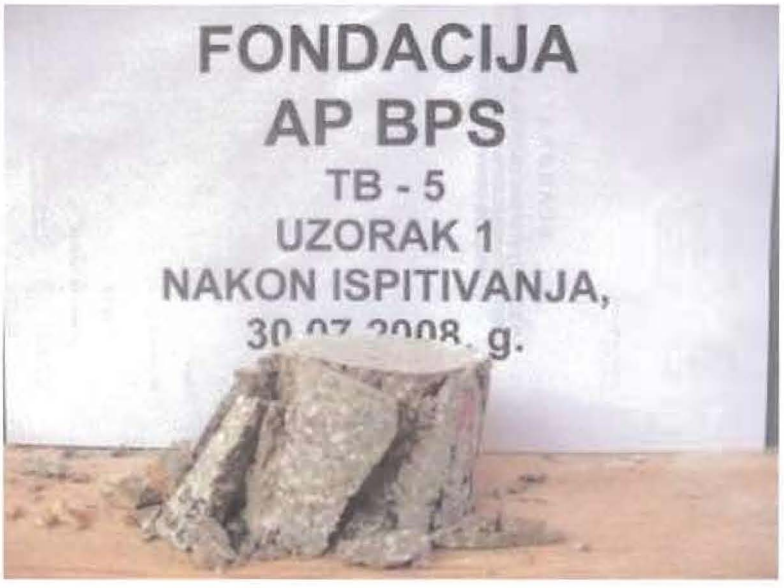
During the cleaning process (2007-2010) fill-in material is taken out tens of meters away from the entrance to the "Ravne" tunnels.

Detail of the fill-in material clearly shows pebbles made up of fragments of different rocks and the roundness of the grains.

Detail from the block from the Bosnian Pyramid of the Sun, Northern side: pebbles of different size and from different rocks, the grains are rounded.

Detail from the blocks from the Bosnian Pyramid of the Sun, Northern side: pebbles are used as a building material. Rough cemented concrete blocks are covered by a finer layer, same material.

Samples of blocks from the Bosnian Pyramid of the Sun have been investigated in five scientific institutions (four Bosnian institutions: Institute for Materials from University of Zenica; Institute for Construction and Material from University of Sarajevo; Civil Engineering Institute from Tuzla; Company "Geoprojekt" from Tuzla; also, "Politecnico di Torino" from Italy). They all confirmed properties of the artificial cemented concrete where clay was used as a binding material.



Hardness of the concrete from the Bosnian Pyramid of the Sun (74-133 MPs) is superior than modern concrete material (10-40 MPs); water absorption (1%) is also superior to modern concrete (up to 3%).

CONCLUSIONS:

- Hundreds of thousands of tons of conglomerate material were extracted under the Bosnian Valley of the Pyramids during the construction of underground tunnel network;
- Conglomerate material, pebbles of various size and origin, was completely used in construction of hundreds of thousands of tons of concrete blocks that coat the Bosnian Pyramid of the Sun. So, there was no waste of the material during the process.