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# **R E P O R T**

**ON A GEOLOGICAL SURVEY  
OF "VISOČICA" ELEVATION  
IN VISOKO, BOSNIA AND HERZEGOVINA**

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## 1.1 INTRODUCTION

With reference to a request from **Semir Osmanagic** from Houston, Texas (USA) for continuation of a geological survey in order to obtain further information confirming that once a PYRAMID was built at Visocica" in Visoko, a survey of the location and research works were carried out resulting in this report about geological features of the soil at this particular location.

### GEOLOGY OF THE TERRAIN

A material made of rocks, which was found during the research works in this location and beyond, originates from the period of NEOCENE, the later geological period of Tertiary that lasted around 27 million years. In this geological period the ground, which had been between valleys, was vertically elevated due to the major tectonic disturbances, and after that followed a period of erosion.

**Breccia is** a kind of rock made in the geological period of Neocene. It consists of large and small fractions of carbonate rocks. These carbonate rocks are of various age. They were moved by springs and floods, got cemented over millions of years and thus created breccias. In the valleys and swallow holes soil sediments brought in by flowing waters settled to the bottom thus creating multicoloured conglomerates out of gravel, sandstone and shale. Their colour is reddish due to iron and aluminium oxides. The connective material or cement is made of sandy carbon particles of quartz, feldspar and only some flakes of mica.

A bad feature of breccia when it is used as construction material is that it breaks into pieces when exposed to weathering factors such as freezing and melting.

**A conglomerate** – stands for grey rounded fragments of alkalic limestone connected with reddish sandy material or “cement“.

Dolomites usually formed over conglomerate rocks. It is not the case here. The presence of dolomites as massifs has not been registered yet (ie the natural process of their formation).

**“Grauvake“ – sandstone** consists of quartz grains, rock fragments and a lot of matrix – cement (fine grains of dust and clay). Sandstone is a common natural building and paving material, often used in architecture. It is found in blocks which can be easily processed and cut into plates of required dimensions for construction of any specific edifices.

One can notice that in the very city of Visoko many edifices were built of sandstone (eg the town hall, a number of supporting walls, and most of the city buildings).

Given that the shape of Visočica is a symmetrical geometric form, whose four sides are identical (except the front side where there is an entrance plateau), it can be concluded that nature itself could not form such a regular form as all these materials are sedimentary rocks made of fine grains flown in by water and deposited.

## THE RESEARCH ACTION PLAN

Six (6) probing wells 40 metres deep were made in August of 2005 at the location where it was assumed that a pyramid had been built, including an estimated position of one of the stairs and the entrance plateau to the pyramid. Further research works are planned to clarify several major issues and answer the following questions raised at the initial stage:

1. During the research works carried out in August it was confirmed that the entrance plateau was most probably paved with manufactured sandstone plates. This kind of sandstone was found at the very entrance of the plateau, as well as at the probing wells B-5 and B-6, but at various depths. Further research was planned to verify whether the entrance portal was paved in the form of a staircase or whether the slope line was closely followed in the pavement process.
2. At the probing well B-3N a layer of marl mineral calcite was found. This material does not originate from the same geological period. Therefore it was necessary to clarify whether this kind of material had been manufactured and put up by man.
3. At the probing well B – 4, 4 carbonate sandstone plates were found (Horizon (15) – iron and carbonate sandstone with layers of clay marl). A distance between the plates was approximately 1.10 metres. It was necessary to determine whether the whole plate was manually polished or it was only its small fragment which was taken out of the core in the course of drilling.
4. Try and define the process of construction of the pyramid itself (ie in the form of a staircase or differently).

### 1.4 THE RESEARCH RESULTS

Micro locations of the three probing wells were defined at the research area, as follows:

SB – 1 – lateral in relation to the object and above the probing well B-3

SB – 2 – on the right-hand side from the probing well B – 4 and

SB – 3 – at the entrance plateau, between the probing wells B – 5 and B – 6

#### 1.4.1 THE PROBING WELL SB – 1

The size of the probing well is 2.00 x 9.00 m. The surface layer of soil has to be removed in order to define whether breccia is horizontal. Actually, this would answer the question whether this is one of the pyramid's stairs.

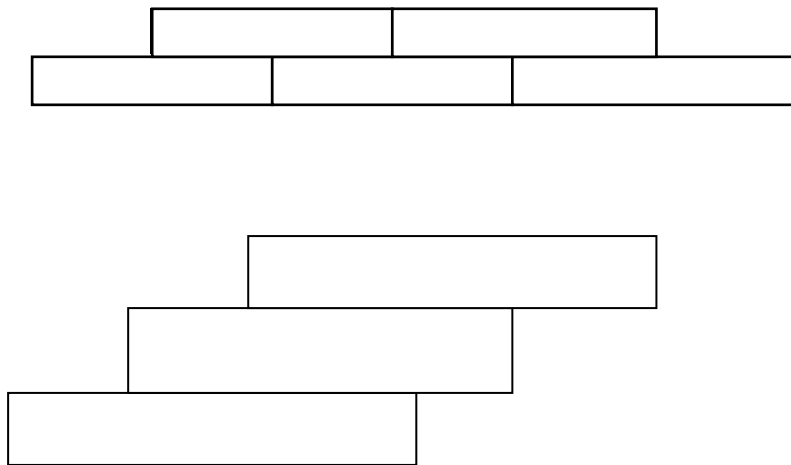
The surface layer of clay and debris was removed. Breccia was reached. Its surface is not flat but it maintains a continuity of a horizontal position. In order to verify whether the blocks were cut vertically on their sides or they had some other shape, a cross trench was made down the slope. But, it was found during the excavation that there was humus under the layer of clay with debris, indicating that this material was deposited at a later stage. The works were suspended then.

We found out that during the war (ie 1992-1995) an excavator removed the soil from this particular part of the terrain so that the probing well could not give a proper indication or answer the question it was expected to answer.

While climbing from the location of this probing well to the top of Visočica it was found that after regular periods of climbing under the same angle one reaches a flat plateau, approximately 2.5 metres wide, then another steep area follows, then another plateau, and this pattern is repeated to the top of Visočica.

We moved the research team above the probing well and planned to remove the surface layer of humus, reach breccia and the first plateau.

An excavation done by mattock and shovel already revealed certain rough outline with specific geometry. When the blocks were cleaned by a broad knife and small broom it was found that they were ordered like bricks in a brick wall – the upper block was moved inwards in relation to the lower one.



The edges between the blocks are not clearly visible as flat surfaces because, as I stated before, breccia cracks and falls apart when exposed to frost. As the layer of humus is not very powerful, it could not protect the surface layer of breccia. It is interesting, though, that the blocks which were covered with moss are complete and undamaged.

Two such blocks were discovered under this probing well. The flat sides of these blocks and the connection line between them are clearly visible.

Further detailed cleaning of the connection line between the two blocks, at the specific area where humus grew deeper, revealed that the block was manually processed underneath and that its surface was flat and smooth.

Three teams were digging at this probing well: one in the central part, one below it – towards the bottom of the slope and one at the flat part of the plateau. The team which operated at the plateau removed 2.00 x 2.00 metres of the surface layer of humus there. The excavated surface was flat. Unfortunately, as the works were suspended, we would not clean this surface in more detail in order to determine what the geometry of the plateau was like.

The dimensions of the excavated part of the side of the pyramid are approximately 2, 00 x 12, 00 metres.

#### **1.4.2 THE PROBING WELL SB – 2**

The location of the probing well SB – 2 is at the right-hand side from the probing well B – 4. The aim of this piece of research was to verify whether the carbonate sandstone was processed, ie polished manually. The dimensions of the probing well are 2.50 x 5.00 metres. The depth of the well was planned to be 2.40m, and that was the depth where the first layer of thick strata had been found at 0.10m. The surface was to be uncovered, cleaned and washed in order to answer the question posed at the planning stage.

However, the questions could not be answered as further works were suspended. The final depth of the probing well was 2.20m when the works ended.

Regarding the geological profile, the following horizons were found:

Horizon (1) – humus

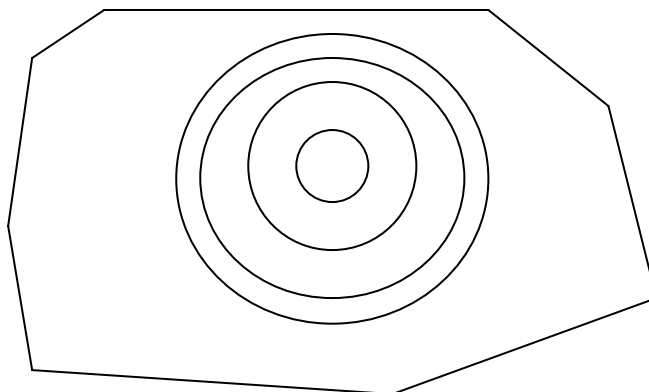
Horizon (2) – humus with debris

Horizon (3) – sandstone (from the first Report, Horizon (15) – iron-carbonate sandstone with layers of clay marlstone)

Horizon (4) – clay-marlstone

The plates of various size, made of dolomite and sandstone, were found at the depth of 0.60 – 0.70 metres. The plates were arranged in an orderly way and in the same level across the surface of the probing well.

A sandstone plate with clearly visible concentric circles was found at the depth of 0.70 metres. This feature should be investigated further in a research process in order to determine whether the circles were made manually.



### **1.4.3 THE PROBING WELL SB-3**

This probing well is located between drill holes B-5 and B-6. Its dimensions were set to 2.50 x 6.00 metres initially.

As sandstone was found at various depths in the drill holes, given that the B-5 drill hole was in the centre of the research area while the B-6 was at the edge of it, it was necessary to find out whether the whole plateau was paved and whether the sandstone was paved in the form of a staircase or along the side of the slope.

After removing the covering layer of humus the first (I) sequence of horizontally paved sandstone plates were found at the depth of 0.10 metres. It was found by further excavation that across the whole surface of the probing well there was sandstone at the depth of 0.10 metres.

However, in the second (II) sequence of sandstone plates at the right hand side of the probing well we found two plates one over another at the angle of approximately 25 degrees. Between those two plates there was clay marl and a human skeleton in it. The skeleton was not complete. It consisted of a left leg bones and fractions of a skull placed in the area of pelvis.

All sandstone plates in the III sequence were paved one over another under the same angle as it was done in the II sequence. In the II sequence of plates remains of a human skeleton were found again.

The remains of this skeleton were photographed by an archaeologist and its orientation was defined. Then they were packed and sent to analysis in order to determine how old they were.

To define the width of this paved plateau, the excavation site was enlarged, so that the overall width and length of the probing well was 9.30 m x 9.80 metres. The shape of the well is irregular because the research works were stopped before the completion.

On the basis of excavation done so far it can be confirmed that the plateau was most probably paved across the whole width of its central part. However, a further research should show why the plates were oblique. Was this done because the plates had been paved upon different foundations or was there a process of terrain sliding, even if no traces of instability were found?

The paving was not done in the form of a staircase but it was following the shape of the slope. It should be defined though whether the material underneath the plates was brought in or the slope had had that shape originally.

### **1.4.4 THE PLATEAU'S ENTRANCE**

As already stated, the initial research works revealed sandstone in this area at the very surface of the terrain.

The land owner, who probably did not know what kind of edifice this was, and in order to prepare a proper entrance to his property, cleaned the layer of humus over the sandstone plates by an excavator, then lifted the plates and moved them to a big pile. From a

conversation with him I learned that the plates had been arranged one next to another, but he could not remember the exact location of each plate.

It is obvious at a first glance that these sandstone plates were manually processed, ie taken out of blocks and cut to fit the required dimensions. Unfortunately, due to the work with the excavator, some of the plates were broken. However, the ones which remained undamaged have regular edges and the same thickness.

The plates which were excavated should be protected not from weathering but from mechanical damage, so that during the reconstruction process they can be put back into their original position. Each plate should be measured (length, width, thickness), marked and then their original position should be defined by an appropriate computer programme.