

SHOCK WAVES INDUCED FROM THE EXPLOSIONS OF COSMIC BODIES IN MIDAIR TURN THE SANDY FACE OF THE EARTH INTO SLIPPERY GLASSES. A QURANIC PROSPECTIVE

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ABSTRACT

From time to time, cosmic bodies enter the earth's atmosphere. Provided their sizes are small enough they would be completely burnt out, large sizes cosmic bodies would struck the surface of the Earth leaving impact craters. A medium size cosmic body would go through an air explosion inducing a halo and a shock wave. This shock wave would raise the temperature of the surface instantaneously in a vast area of the Earth turning the sandy face of the ground into slippery glasses.

If there is a well or a spring in the area then the shock wave will force the water deep into the ground. The third effect of the shock wave is to knock down fruit and trees in the area.

This proposed mechanism is capable of explaining the existence of large areas of glassy material with no apparent trace of impact craters like in the Libyan desert glass area.

This paper is based on few Quranic verses from Surat Al-Kahf.

"....and send on it a halo (Husbân) from the heaven thus the face of the earth will become slippery(40) or its water becomes deep-sunken, so that you will never be able to seek it (41)He was surrounded by his fruit thus he remained clapping his hands (with sorrow) over what he had spent on it , while it has fallen on its trellises, and he could only say " Would that I had ascribed no partners to my Lord!" (42) .

Introduction

As I have just received acceptance for a paper entitled " cosmic catastrophe as a possible cause for forest knocking down prior petrification, I recalled the Quranic verses of surat Al-Kahf(the cave) indicating a cosmic catastrophe that resulted in knocking down the garden of the man who disregarded the benefits of God given to him, I quickly looked up the meanings of words describing the effects of this catastrophe using El Allousy and Makhloof explanations. It turned out that

زلقا :slippery means the face of the earth : (Saeedan) صعيدا

and I know already that

حسيانا : (Husbân) means a halo :

as I will proof in what follows, and in front of me was an internet set of pictures illustrating midair explosion of a meteorite that resulted in a halo in the air and shock wave that knocked down the trees in Siberia (reproduced in fig 1). As this mans twin gardens were cultivated by grapes and surrounded by palm trees thus, eventually the ground was a sandy one. Now the picture was complete; a mid-air meteoritic explosion resulted in a halo in the sky, a shock wave that raised the temperature enormously and high pressure that turned the sandy face of the ground into sliding glasses, and as the Quranic verses indicates, forced the origin of the water deep down

in the earth beyond the capability of getting it up, and knocked down the grapes and trellises. The nature of this cosmic event and each of its three effects will be addressed in this paper.

A HALLO FROM THE SKY

Apart from (Husbân) حسيانا mentioned in the context of Surat el-kahf, it was repeated twice in connection with both the sun and moon simultaneously,

The sun and the moon within (Husnan)

الشمس والقمر بحسيان (5)

الشمس والقمر حسيانا (96)

(Surat A- Rrahman and Surat Al-Anham) respectively. Following the famous Saudi Sheikh, Abd El Aziz ibn Baz, الرحي consists of two identical discs, the hand used to rotate the system is fixed to the disc by a tight circle called (Husbân) حسيان . As a matter of fact الرحي is a perfect stereographic projection of a total solar eclipse, with one disc representing the apparent solar disc and the other representing the apparent lunar disc with identical size to the apparent sun thus blocking the solar disc completely at the moment of totality and the solar corona becomes visible resembling the حسيان (Husbân) . In other word, (Husbân) حسيان is used to describe the hallo or corona.

THE EXPLOSION OF THE COSMIC BODY

Most meteoroids, enter the atmosphere at 11 to 17 kilometers per second (24,600 to 38,000 miles per hour). Describing a midair explosion of the Wabar impactor , (Wynn and . Shoemaker) wrote" Because of an assumed oblique angle of its path, the body took longer to pass through the atmosphere than if it had come straight down. Consequently, air resistance had a greater effect on it. This drag force built up as the projectile descended into ever denser air. For most meteoroids, the drag overwhelms the rock strength by eight to twelve kilometers altitude, and the object explodes in midair. The Wabar impactor, made of iron, held longer . Nevertheless, it eventually broke up into at least four pieces and slowed to half its initial speed. Calculations suggest a touchdown velocity of between five and seven kilometers per second, about 20 times faster than a speeding 0.45-caliber pistol bullet.

In the case of the Wabar Impactor in " the empty Quarter in Saudi Arabia, fragments of the original meteorite were found as well as craters. There are similar iron-meteorite craters in Odessa, Tex.; Henbury, Australia; Sikhote-Alin, Siberia; and elsewhere. But 98 percent of Wabar-size events do not leave a crater, even a temporary one. They are caused by stony meteoroids, which lack the structural integrity of metal and break up in the atmosphere. In the case of the Tunguska event in Siberia, no meteoritic fragments or impact craters in an area of 15000 squared kilometer were found(Longo et al.1994). The 1908 Tunguska catastrophe is a recent example of such event where a cometary nucleus or perhaps, a meteorite was fragmented by atmospheric pressure and disintegrated quickly in midair explosion as was eye witnessed and represented by in fig 1. A group of American scientists found that small meteorites would burn up while large meteorites hit the ground. However, medium objects between 10 and 300 feet wide explode in midair. They used a computer program to test their different theories. They found that a stony meteorite, 200 feet wide (about 61 meters) falling at a 45-degree angle would explode at just the right height. They also found that after the explosion, only fine gravel would fall into the swamps below(Mike brinker home page on Tunguska).

Shock effects at the site of hypervelocity meteorite impact are considered by Heide and Wlotzka (1994) and references therein. He gives a table of five grades of stages of shock metamorphism which ranges from 5 to 80 Gpa(10 000 atm) producing post shock temperature to more than 3000 ° C. In the case of stage II, the pressure range is 35-45 Gpa , producing temperature about 300 ° C resulting in the production of diaplectic glasses of quartz and feldspar, coesite and stishovite in quartz.

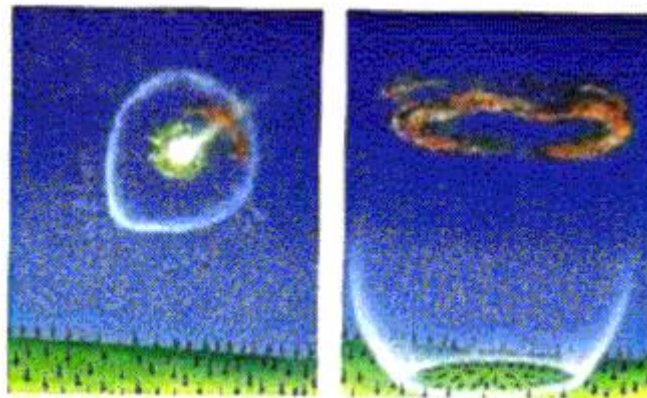


Fig 1:Mid-air explosion of a cosmic body producing a halo(husbân) and a shock wave resulting in knocking down of forest trees (extracted from Mike brinker home page on Tunguska).

1- TURNING THE FACE OF THE EARTH INTO SLIPPERY GLASSES

At the point of impact in El Wabar , a cone like curtain of hot fluid-a mixture of the incoming projectile and local sand-erupted into the air. This fluid became the black glass , The shock wave then caused an eruption of the surface. Some of the impactite was thrown up into the molten glass and was shocked again. In rock samples this mixture appears as thick black paint splattered on the impactite. Other chunks of impactite were completely immersed in glass at temperatures of 10,000 to 20,000 degrees Celsius. When this happened, the sandstone underwent a second transition into bubbly glass. The shock wave then caused an eruption of the surface. Glowing fluid has coated the white boulders with a splatter that first looks like white paint but then turns progressively yellow, orange, red and finally black as it solidifies-all within the few seconds it takes the rocks to hit the ground. Some pieces of the white rock are fully coated by this black stuff; they metamorphose into a frothy, glassy material so light that it could float on water, if there were any water around. A fiery mushroom cloud drifts blazing rainbow colors magnificently. As solid rocks become froth and reddish-black molten glass rains down. (Wynn and Shoemaker).

The most dense of the silica polymers are coesite and stishovite. Coesite was synthesized in 1953 and stishovite which is isostructural with rutile, TiO_2 in 1961 and it was not until latter that they were found in nature. They have both been identified in very small amounts at meteor crater ,Arizona. . Their formation is attributed to the high pressure and high temperature resulting from the impact of a meteorite. Coesite has also been found in Sanidine-coesite eclogite from kimberlite pipir in south Africa (Cornelius and Hurlburt Jr 1977)

Moreover, in the Wabar event, the impactite contains coesite, a form of shocked quartz found only at nuclear blast zones and meteorite sites. X-ray diffraction experiments show that coesite has an unusual crystal structure, symptomatic of having experienced enormous pressures(Wynn and . Shoemaker).

. Microscopic rock deformation takes place such that the crystal structure of some minerals is transformed by the shock waves during an impact (or shock waves induced from midair cosmic explosion). Quartz, for example, develops striations that are oriented in more than one direction. It can also recrystallize into new minerals, such as coesite and stishovite, detectable only in x-ray diffraction experiments. (Wynn home page)

In the Tunguska event it was reported that the Russian investigator (E. Sobotovich) found a large number of diamonds in the area (Mosa and Rayes 1986 and references therein). Magnetite and silicate spherules were found in soil samples from the surrounding 100 to 200 km (Heide and Wlotzka 1994).

Coesite is a polymorph of quartz, meaning that it is composed of the same chemistry, SiO_2 , but has a different structure. Both quartz and coesite are polymorphs with all the members of the Quartz Group which include cristobalite, tridymite and stishovite. Well formed crystals are very rare as coesite does not usually get much time to form crystal faces. It forms quickly at high pressures, above 20 kilobars. Where on Earth do you find such an environment? At a meteor impact site! , or following midair explosion of a cosmic body. Where the pressures are great but the overall temperature is not that high. And indeed it was at the meteorite crater in Arizona, called Meteor Crater, one of the most well studied meteor impact sites in the world, that the first tiny crystals of coesite, and its cousin stishovite, were found in nature. Now the presence of coesite and stishovite is diagnostic evidence of a meteor impact when craters of unknown origin are examined. Coesite has also been identified in kimberlites where

other high pressure minerals such as diamond are found (see coesite by internet). We propose that it can also be an indicator of midair explosions particularly in the absence of craters.

The structure of coesite is composed of SiO₄ tetrahedrons that are linked into four membered rings. The rings are then linked together into a chain-like structure. This structure is much more compact than the other members of the quartz group, except stishovite, and is reflected in the higher density and index of refraction.

The mineral stishovite has the following characteristics(galleries.com):

- Chemistry: SiO₂; Silicon Dioxide.
- Class: Oxides and Hydroxides
- Group: Rutile and Quartz.
- Uses: As an indicator of a meteor impact and as mineral specimens.
- Specimens

Stishovite is a polymorph of quartz and the other members of the quartz group, meaning that it is composed of the same chemistry but has a different structure. The structure of stishovite is isostructural with the titanium oxide rutile and all the other minerals of the Rutile Group.

Well formed crystals are very rare as stishovite does not get much time to form crystal faces. It forms quickly at very high pressures but not necessarily at high temperatures. The presence of stishovite is diagnostic evidence of a meteor impact when craters of unknown origin are examined.

Stishovite's basic structural unit is an SiO₆ octahedron. This is a much more compact arrangement than the SiO₄ tetrahedron of quartz and the other Quartz Group members. Because of this compactness stishovite is the densest member of the Quartz Group and has the highest index of refraction. Comparing stishovite's density and index of refraction to that of quartz's, 4.28 to 2.65 and 1.81 to 1.55 respectively, it is hard to believe that they are both composed of the same elements and in the same proportions.

Stishovite's structure is made of parallel chains of single octahedrons composed of a silicon ion surrounded by six oxygens. It is the parallel chain structure that produces the prismatic crystal habit typical of the Rutile Group. The octahedron chains are arranged with the octahedrons on their "sides" and sharing opposing edges with other octahedrons. The four fold symmetry is the result of the square void created between the chains.

Stishovite is classified as an oxide instead of a silicate like quartz because the structure of stishovite is identical to other oxide minerals. Quartz's structure is the foundation of many tectosilicate minerals and therefore the similarity of quartz's structure to other silicates is justification for its classification, although many mineralogists classify quartz as an oxide.

Stishovite is only metastable at normal surface pressures; meaning that, if it could, it would slowly convert to the quartz structure. But this is a slow and complicated process taking thousands of years if it happens at all. It is so slow a process mostly because the transformation involves the breaking of bonds and the rearrangement of atoms.

Barakat et al. (1997) studied the distribution of Libyan desert glass in the great sand sea in Egypt. It is estimated that that SG was produced 28.5 million years ago. They found that the total quantity of SG(silica glass) on the surface amounts approximately to 267 tons. Figure 2 shows a piece of this SG.



Fig 2: A fragment of Silica glass from the great sand sea, Egypt.

2- **FORCING THE GROUND WATER DEEP DOWN**

The shock wave has the power to force the level of water deep down into the well and perhaps heat or even evaporate the surface areas.

3- **KNOCKING DOWN GRAPES AND TREES**

The results given by Longo et al (1994) are compatible with other calculations showing that the Tunguska body could have been a normal density meteorite. The size of this meteorite is estimated to be about 50 meters across, it produced a great fireball, failed to produce a crater but did generate a tremendous destructive shock wave in the atmosphere (Shoemaker and Shoemaker 1990). Observers described a fiery tail some 800 kilometers long. At an altitude of about 6-km, the object shattered in a rapid series of bursts and vaporized, caused the fall of trees (fig 3) in a radial pattern over an area of 2.150 square kilometers and sent pressure waves twice around the planet (Gallant 1994).

Yousef and Waley(2000) posultated that midair cosmic explosion could be the cause of knocking down a number of forests millions of years ago that became petrified in a later stage.

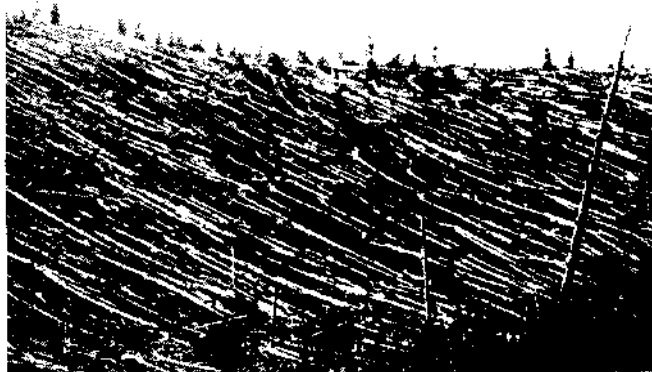


Fig 3: Devastated Tunguska forest (from Heide and Wlotzka 1994 and reference therein)

Conclusion

It is found that mid-air explosion of cosmic bodies produce shock wave that has the power of turning the sandy face of the earth into a uniform glass area. It is anticipated that a shock pressure of 35-45 Gpa (10 000 atm) produce temperature of 300°C can produce diaplectic glasses of quartz and feldspar, coesite and stishovite in quartz (Heide and Wlotzka 1994).

Numerous sites on earth are known to have forms of glasses that can only be made under shock waves conditions. Some of those sites have no apparent crater. Thus the existence of such glasses in those locations is an indication of shock waves produced by mid-air cosmic explosions.

The shock wave also forces the surface of water or oil in wells (if present) to deepen down to great depths. It is suggested that provided there is another outlet of the underground aquifer, the liquid can be pushed out from the second outlet.

The shock wave also causes trees to fall down over vast areas.

Acknowledgements

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بسم الله الرحمن الرحيم

الموجات التصادمية الناشئة عن انفجار جسم سماوى فى السماء تحول الرمال على وجه الأرض إلى زجاج منزلق

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الملخص

بين حين وآخر تفتحم بعض الأجسام السماوية الغلاف الجوى للأرض. إذا كانت أحجام هذه الأجسام صغيرة جدا فإنها ستحترق كلية فى الهواء ، أما إذا كانت كبيرة بالقدر الكاف فإنها سترتطم بالأرض مخلقة حفر الارتطام. وفى حالة الأجسام متوسطة الحجم فإنها ستنفجر فى الهواء وينتج عن الانفجار هالة وموجات تصادمية فيؤدى الضغط المتزايد والحرارة العالية إلى تكون طبقة زجاجية منزلقة على وجه الأرض.

وفى حالة تصادف وجود بئر أو عين ماء تحت موضع الانفجار فإن الموجات التصادمية ستقوم بإغارة الماء (أو بئر البترول) فى الأرض كما ستسقط الأشجار والثمار فى المنطقة.

إن هذا الانفجار الهوائى المقترح للجسم السماوى (مذنب أو نيزك غير حديدى أو غير ذلك) يستطيع أن يفسر وجود مساحات شاسعة من الزجاج على سطح الأرض فى غياب حفر الارتطام كما فى حالة الزجاج المتواجد فى بحر الرمال.

إن هذا البحث يعتمد على بضع آيات قرآنية من سورة الكهف (40-42).

" .. ويرسل عليهما حسباننا من السماء فتصير صحبنا (40) أو يصير ماؤهما نورا فلنرى تستطير له طلبا (41) وأحيط بثمره فأصبح يقلب كفيه على ما أفتق فيها وهي خاوية على عروشها ويقول باليتنى لو أهرتك برى أحدا (42)