

The aluminum artifact of Aiud, Romania

By **LEONARDO VINTIŢI**
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“Oopart” (Out Of Place Artifact) a term applied to dozens of prehistoric objects found in various places around the world that, given their level of technology, are completely at odds with their determined age based on physical, chemical, and/or geological evidence. Ooparts often are frustrating to conventional scientists and a delight to adventurous investigators and individuals interested in alternative scientific theories.

In 1974, just over a mile from the city of Aiud in Romania, a group of workers were carrying out an excavation job on the banks of the Mures River. While digging, they stumbled upon some fossils—along with a mysterious metal artifact.

In addition to the fossilized Mastodon bones found in the excavation, workers uncovered an aluminum wedge-shaped block lodged under a 35-foot layer of sand. This wedge-shaped metal block appears to have been manufactured, as it did not resemble an animal bone or a geological feature.

The strange block was donated to the Museum of History of Transylvania, but despite such an unusual find, an in-depth investigation of the object would not happen for another 20 years. That's when editors from a Romanian UFO magazine found the artifact in a museum storeroom in 1995. The metal wedge weighed in at about 5 pounds and measured approximately 8.25 x 5 x 2.75 inches.

The artifact was chemically analyzed in two laboratories to determine its composition—one laboratory was at the Archeological Institute of Cluj-Napoca and another in Lausanne, Switzerland. Both facilities came to similar conclusions: The object was determined to be composed mainly of aluminum (89 percent) along with 11 other minor metals in

specific proportions.

Scientists were more than a little shocked since aluminum in its pure state cannot be found in nature, and the technology needed to create something of such a pure grade has only been available to mankind since the middle of the 19th century.

A thin, exterior layer of oxidation that evenly covered the aluminum block helped date the object to around 400 years old. However, the geological stratum in which it was found suggests that it already existed for some 20,000 years before—during the Pleistocene Era.

Due to its chemical composition and decidedly manufactured shape, several hypotheses regarding the true origin have emerged. While some scientists believe it may very well be part of a manmade tool (no actual tool has been specified), other scientists suggest that the aluminum relic may have served as a component for an ancient space craft.

An aeronautical engineer examining the object compared the Aiud block to a support point for a smaller version of a space exploration module, such as a lunar module, or the leg of the Viking probe. According to this hypothesis, the object, as a part of an extra-terrestrial spacecraft, may have landed in the river after a forceful landing.

So what is the true origin of the Aiud block? Was it merely a tool segment manufactured by an ancient civilization that had managed to produce aluminum of considerable purity hundreds or even thousands of years earlier than the rest of mankind? Or does it belong, as some believe, to an ancient spacecraft? And was this craft designed by man, or does it have an alien origin?

Either way, both the analysis of its oxidized exterior and the geological stratum in which it was found fail to adequately explain how something of such an advanced technology could have existed in such a remote age.

Tardigrades: Nature's tough guys turned cosmonaut

They knew tardigrades were tough. But could this remarkable organism survive naked in outer space?

By **MICKEY LAM**
Epoch Times Staff

The European Space Agency's final hurdle of the tardigrade assault course was like no other. After the tardigrades were dipped in liquid nitrogen, baked at 302 F, subjected to 6,000 times atmospheric pressure, and plunged in mineral acid followed by a bath of boiling alcohol mixed with noxious chemicals by researchers, they were finally launched into lethal radiation, freezing temperatures, and the harsh vacuum of space itself—then brought back to Earth.

There are an estimated 1,000 species of tardigrades, nicknamed “water bears” due to their appearance and cute style of ambling. Some are armored, some have claws, while others have suction pads. Measuring between 0.01 and 0.04 inches in length, most are plant eaters, found in mosses and lichens on rocks, piercing and sucking the liquid contents of nearby plant cells through a stylet.

Unrelated to any other animal, these strange creatures have been placed in a phylum of their very own.

Placed in a container named Biopan-6, 600 tardigrades made up of Richtersius coronifer and Milnesium tardigradum were launched into space aboard the FOTON-M3 mission in September 2007.

A year after launching the tiny tardigrades into space, the scientists were convinced: The tardigrade can tough it out. What is more, even after its arduous journey it can still reproduce.

“How these animals were capable of reviving their body after receiving a dose of UV radiation of more than 7000kJm⁻² under space vacuum conditions which presumably increase UV sensitivity remains a mystery,” wrote Ingemar Jönsson and fellow researchers in a paper published a year after the trip.

‘Tardigrades tell us something fundamental about the nature of life!’

— Dr. Ralph O. Schill, University of Stuttgart

Discovered in 1773, tardigrades have been put through the wringer by scientists worldwide testing the limits of their survival. They have complex nervous and digestive systems, but no lungs; their permeable skin handles gas exchange.

The majority of species are surrounded by a thin film of water in or near freshwater habitats. However, this environment undergoes wet/dry cycles causing evaporation (desiccation) or freezing. To survive, tardigrades form a “tun” and enter a state of anhydrobiosis, a form of cryptobiosis, whereby their metabolic rate drops to a standstill.

“They have the remarkable ability to circumvent such problems and are able to survive almost complete dehydration and freezing,” Dr. Ralph O. Schill from the University of Stuttgart, Germany, told The Epoch Times.

“In the cryptobiotic stage, tar-



TOUGH TRAVELER: A tardigrade seen through an electron microscope. These tiny creatures have continued to impress researchers with their endurance after their latest test—a trip to space. DR. RALPH O. SCHILL

digrades show extraordinary tolerance to physical extremes including high-energy radiation, immersion in organic solvents, brief exposure to high temperatures, and prolonged exposure to indefinitely low temperatures. When environmental conditions are adequate, tuns rehydrate and the animals resume metabolic activity.”

“In this state, they are capable of surviving for very long periods,” said Dr. Schill.

For exactly how long, no one is sure, but the story of a researcher who rehydrated 120-year-old moss samples to find moving tardigrades has been passed around tardigrada circles with awe, despite lacking scientific confirmation.

Humans are not so tough. In space, the water in our bodies would evaporate and bubbles would form in our circulatory system, cutting off the oxygen to our brains, making us black out after approximately 15 seconds.

In space in a low orbit at about 160 miles above Earth, the tardigrades were exposed to different UV-radiation ranges over 10 days. All were exposed to ionizing solar, galactic cosmic radiation and temperatures near absolute zero.

The researchers found that the tardigrades survived by retracting their legs and shrinking their bodies to protect their internal organs and reduce the surface area for transpiration. Wax covers the outer surface, body water decreases eightfold replaced by a sugar, trehalose, which keeps the cell structure intact. (In some tardigrades, trehalose was not found so the exact mechanisms still remain unknown.)

“Tardigrades tell us something fundamental about the nature of life!” said Dr. Schill. All life forms on Earth are water based that need a constant replenishment of water, making us incredibly vulnerable to environmental changes. When desiccation occurs, the water in our cells leaves, damaging their structures.

The final results of the space trip revealed that those tardigrades exposed to space and UV-A and -B not only survived well, but their eggs remained unharmed. Those exposed to unfiltered radiation including UV-C radiation did not survive. Most died within 30 minutes of rehydration except for three *M. tardigradum*, which were capable of “coordinated leg movements” and reproduction afterward.

With so little water in space, how did their DNA remain intact against such powerful radiation? “Until now, we don't know. However, it seems that mechanisms of protection, as well as repair mechanisms are responsible,” Dr. Schill said.

These animals are so unique that a symposium has been dedicated to them, where scientists share their test results in hopes of unlocking biological secrets of tardigrades. The symposium takes place every three years and it is a meeting of the world's best scientists in the field of tardigrade biochemistry, physiology, molecular biology, ecology, morphology, and biogeography.

“A better understanding of the survival mechanisms in cryptobiotic organisms will lead to the development of new methods for preserving biological materials in situ,

macromolecules and cells from non-adapted organisms which would be of great benefit to tissue engineering, cell transplantation, individual medicine, cryopreservation, other areas of biotechnology, and... biodiversity research,” Dr. Schill said.

Dr. Ralph O. Schill is a member of the organizing committee for the 11th International Tardigrade-Symposium 2009 in Tübingen, Germany, August 3-6, 2009. www.tardigrada-symposium-2009.org

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COMPUTING VARIATION: A new computer program recreates the intricate patterns found in snowflakes. PHOTOS.COM

Scientists build computer model for snowflakes

CHICAGO (Reuters)—The random, symmetrical beauty of snowflakes has been recreated in a computer program, U.S. researchers said.

It took four years for two mathematicians from the University of Wisconsin, Madison, and the University of California, Davis, to develop the computer model theory and perform the computations.

Even though we have artfully stripped down the model over several years so that it is as simple and efficient as possible, it still takes us a day to grow one of these things, Wisconsin researcher David Griffith said in a statement.

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In nature, snowflakes form from water molecules crystallizing around a speck of dust or other material. The result is intricate fern-like stars, needles, and prisms, often adorned by tiny ridges and circular markings.

The model may help meteorologists predict how snowflake types affect the amount of water that reaches the ground.

Water is the most amazing molecule in the universe, pure and simple, Griffith said. It has just three little atoms, but its physics and chemistry are unbelievable.

WASHINGTON (Reuters)—The brains of men and women respond differently to beautiful objects such as paintings, researchers reported.

They used imaging technology called magnetoencephalography to look at the brain activity of 20 volunteers while looking at pretty paintings and ugly pictures of cities and found clear sex differences when the test subjects saw images they described as beautiful.

Women use more of the whole brain when appreciating a nice piece of art, while men use mostly the right

‘Perhaps women make use of both global and local features in making their judgments, whereas men only rely on global features.’

—Francisco Ayala, University of California

side, Francisco Ayala of the University of California, Irvine, and colleagues in Spain found.

The differences are likely linked to known differences in the way male and female brains process spatial information, and probably are unique to humans, Ayala and colleagues reported in the Proceedings of the National Academy of Sciences.

“The differences between the decorative objects found in Neanderthal and modern human sites support that idea of a ‘modern brain’ capable of appreciating beauty and its uses in

different ways,” they wrote.

Most explanations of why men and women process this information differently focus on the use of the brain to navigate spatially, they said.

“Perhaps women make use of both global and local features in making their judgments, whereas men only rely on global features.”

Language could also explain it. “Women obtain higher scores on a diversity of verbal and language tasks. Perhaps women are more likely to associate the images with verbal labels than men,” they wrote.

Beauty is in the sex of the beholder