

“LIFE and SPACE” ECLECTIC

May 06'2005

Hello to everyone from Antonina!

Remember we are part of the Universe where among milliard of planets in milliards of galaxies there is possibility of life in forms that we couldn't imagine but couldn't stop to think about...

In the June Life & Space edition meteorites as distributors of life forms in Space will be discussed. Today I invite you to talk about meteorites, and meteorites hunting.

METEORITES ARE: (Courtesy of Cascadia Meteorite Laboratory, <http://meteorites.pdx.edu>)

HEAVY: Most meteorites contain a significant amount of Fe-Ni metal, and are thus heavier (high-density) than rocks typically found at the surface of the Earth. There are exceptions to this rule. Some meteorites contain no metal at all, and are about as heavy as the dark volcanic rocks found in Hawaii and the Columbia Gorge.

MAGNETIC: Most meteorites contain a significant amount of Fe-Ni metal, and are attracted to a magnet. Again, there are a few exceptions of stony meteorites that contain no metal and are not attracted to a magnet.

IRREGULAR IN SHAPE: Meteorites aren't round. If a meteorite has entered the Earth's atmosphere without rotating, it can develop a conical shape similar to the reentry capsules used in the Apollo space missions, although this is not typical. Most meteorites are irregularly shaped.

COVERED BY A FUSION COATING: When a meteorite enters the Earth's atmosphere, friction raises the surface of the meteorite above its melting temperature. As the meteorite descends, it slows down, frictional heating decreases, and the melt quenches to form a fusion coating, a thin layer of dark glass. The fusion coating may be black or brown, dull or shiny on a recently fallen meteorite. After the meteorite has been on the Earth's surface for a while, the fusion coating may rust, giving the outside of the meteorite a reddish-brown coloring, or the fusion coating may erode off partially or completely. The fusion coating is a thin, discrete layer surrounding an interior that looks quite different from the fusion coating. Some Earth rocks can develop a weathering rind (from chemical weathering) on their exteriors that is similar in appearance to a fusion coating. However, there is rarely a sharp boundary between a weathering rind and the interior of the rock. Many meteorite's surfaces develop shallow pits during entry into the Earth's atmosphere. These pits, known as regmaglypts, resemble thumb prints, and are usually better developed on iron meteorites than on stony meteorites.

SOLID AND COMPACT: Most meteorites do not have the bubbly texture (vesicular) that is often found in many volcanic rocks on Earth. There are a few exceptions to this rule.

DIFFERENT FROM THE OTHER ROCKS IN THE AREA: Many meteorites are composed entirely or in large part of metal. These are obviously different from the rocks found on the Earth's surface. The stony meteorites are different in appearance from most types of Earth rocks, but unfortunately are similar in appearance (at least with a fusion crust) to the dark volcanic rocks that are common in Oregon and Washington.

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METEORITES (courtesy of Cascadia Meteorite Laboratory, <http://meteorites.pdx.edu>)

Below is Allende (CV3 carbonaceous chondrite), and Gibeon (IVA) iron meteorite.



METEORITE WRONGS (courtesy of Cascadia Meteorite Laboratory, <http://meteorites.pdx.edu>)

Man-Made Iron: People have made numerous objects from iron and steel. Fragments of these objects frequently turn up as purported meteorites. Some of them has a shape similar to the aerodynamic shape seen in some meteorites. No meteorites have the perfectly spherical shape. Even wrongs can be magnetic, but they do not contain the appropriate nickel contents or textures shown by iron meteorites.



HINTS FOR HUNTERS

The odds of finding a meteorite on Earth after travelling a couple miles are actually pretty good if you're looking in the right kinds of places (old surfaces, dry conditions, no vegetation, like deserts). According to experienced meteorite-hunter who finds a lot of meteorites in Nevada and the deserts of the USA (Robert Matson, meteorite-list-bounces@meteoritecentral.com), it takes on average about 5 hours of walking to find a meteorite; that's a meteorite per linear 20 km.

With your questions regarding meteorites and impact stones please contact collector Simon DeBoer sdeboer@wightman.ca

Field trip, May-June'2005 (over the weekends):

We are looking forward to visit (possible) meteorite crash place in North Bay (Ontario). For farther information, please contact Antonina at (613) 968-9501 or by e-mail antonina55@yandex.ru