Classic rock

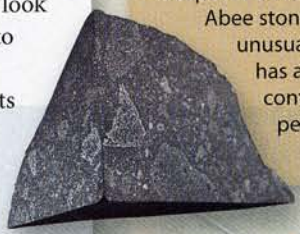
With almost no metals, stone meteorites are the most common in space but tough to find on Earth. /// BY MICHAEL E. BAKICH

Recovery of most stone meteorites happens because people see them fall. Stones are tough to identify — they look like Earth rocks. Meteorite hunters are hard pressed to pick out a stone meteorite on most terrain.

Exceptions exist, however. The ice-covered deserts of Antarctica and the vast sand dunes of northwest Africa make perfect hunting grounds because of the lack of rock.

MAP: NASA'S EARTH OBSERVATORY/FRANCIS REDDY/*ASTRONOMY*: ROEN KELLY

METEORITE IMAGES: ROBERT HAAG, EXCEPT WHERE NOTED



Abee (Alberta)

Enstatite chondrite — 155 grams

Witnesses saw this meteorite fall June 9, 1953. They found a stone weighing nearly 107 kilograms in a crater 2 meters deep and 1 meter wide. The Abee stone meteorite is unusual because it has a high total iron content — 32.5 percent.

NWA 482 (Morocco)

Lunar achondrite — 27.7g

A buyer purchased a 1,015-gram stone in Alnif, Morocco, in 2001. NWA 482 is the only oriented lunar meteorite found, meaning its passage through the atmosphere melted the meteorite's exterior, forming a pattern of flow lines.

Norton County (Kansas)

Aubrite achondrite — 889g

This witnessed fall occurred February 18, 1948. More than 100 rocks were recovered, with the largest single specimen weighing more than a ton. This meteorite has a lightly colored fusion crust because of its low iron content.

Pasamonte (New Mexico)

Eucrite achondrite — 41g

About 75 golf-ball-size stones fell March 24, 1933, from a fireball that outshone the Sun. This meteorite's interior has a soft ash-like texture.

Pena Blanca Springs (Texas)

Aubrite achondrite — 11.5 kg

Ranch workers driving a truck heard this meteorite break up in the air. The ranch's cook saw it plunge into a murky pond 14.6 kilometers southeast of Marathon, Texas, August 2, 1946. The men partially drained the pond and recovered a total of 70.4 kilograms of this meteorite.

Colony (Oklahoma)

Carbonaceous chondrite — 164g

A farmer recovered a single 3.9-kg, highly weathered stone in 1975 from the tines of his cotton cultivator. In 1980, the great meteorite hunter Harvey H. Nininger identified the specimen as meteoritic.

Allende (Mexico)

Carbonaceous chondrite — 17 kg

Thousands of stones fell on and near Allende, Mexico, February 8, 1969, at 1:50 A.M. Analysis shows a 23.8-percent iron content. Calcium and aluminum inclusions date this meteorite 100 million years older than Earth.

La Criolla (Argentina)

L6 chondrite — 6.1 kg

After a bright fireball and many detonations, several dozen pieces of this stone fell over an 8-kilometer-long region east of La Criolla, Argentina. The pictured stone landed in the mayor's yard.

D'Orbigny (Argentina)

Angrite achondrite — 88g

The witnessed fall of this stone occurred in 1979 near Buenos Aires. One 16-kg stone was recovered but was not recognized as a meteorite until some 20 years later.

1 gram = 0.035 ounce
1 kilogram = 2.2 pounds
1 kilometer = 0.62 mile

Astronomy magazine

Orgueil (France)
Carbonaceous chondrite — 11g

About 20 pieces of this stone fell May 14, 1864. It was the first meteorite found to contain hydrated minerals — interstellar water. This meteorite's internal makeup includes high carbon content, 19.5-percent total iron, and at least two amino acids: beta-alanine and glycine.

Tatahouine (Tunisia)
Diogenite achondrite — 37g

This witnessed fall occurred June 27, 1931. More than 12 kilograms of small, perfect hypersthene crystals rained out of the sky in the early morning. None showed fusion crust, indicating a low-speed, low-altitude fragmentation.

Nakhla (Egypt)
Nakhlite (martian) — 13g

This witnessed fall occurred June 28, 1911, at 9 A.M. Searches of the strewn field produced more than 40 stones, one of which allegedly killed a dog. So far, less than a kilogram of material has been recovered.

Shalka (India)
Diogenite achondrite — 41.2g

Many people saw one stone — nearly a meter across — fall November 30, 1850, in West Bengal, India. Unfortunately, only 3.6 kg of the original material is preserved. This stone is 100-percent orthopyroxene.

Millbillillie (Australia)
Eucrite achondrite — 946g

Witnesses saw this stone meteorite fall in October 1960. The dark fusion crust hides a light inner matrix of plagioclase and pyroxene crystals.

Calcalong Creek (Australia)
Lunar achondrite — 7-carat slice

Meteorite dealer Robert Haag of Tucson, Arizona, identified this specimen as lunar when it arrived in a box of Millbillillie stones. Chemical tests confirmed his belief.

Kapoeta (Sudan)
Howardite achondrite — 114g

World War II British soldiers saw this fall April 22, 1942. A single 11.3-kg stone landed in front of a column of armored vehicles.

Zagami (Nigeria)
Shergottite (martian) — 2.35 kg

In October 1962, an 18-kg stone fell near a man herding cows. Chemical results match rocks tested by the Viking probe on Mars.

Mayo Belwa (Nigeria)
Aubrite achondrite — 82g

Witnesses reported a bright fireball and thunderous noise August 3, 1974. The result was a single 4.8-kg stone with no fusion crust.

Murchison (Australia)
Carbonaceous chondrite — 965g

Residents near Murchison witnessed this fall September 28, 1969. Scientists consider this meteorite important because it contains amino acids, the first we've found of extraterrestrial origin.

Allan Hills 84001 (Antarctica)
Orthopyroxenite (martian) — 1.93 kilograms

Searchers found this specimen in 1984. It originated in Mars' Eos Chasma region. Some scientists thought ALH 84001 contains microfossils. NASA