METEORITES AT THE NATIONAL MUSEUM - 3

Diamonds from the sky?

Yes indeed. The National Museum has a piece of Canyon Diablo iron meteorite containing small, black grains identified as diamonds. The first meteorite known to have these rare inclusions was a stone which fell in 1886 near Novo-Urei, Russia.

There have been 525 "falls" or "finds" from within this country and most of them have been of the stony type. Stony meteorites show some variety of color and formation. All forms of carbon have been found in them. A pallasite contains only iron and olivine; mesosiderites consist of olivine and pyrozene together with iron, but these classifications are used only in technical differentiation.

I wondered how the study of meteorites might be applied to industry, whereupon Dr. Henderson opened a volume which told that the first use of iron and nickel alloys was suggested by a study of the Smithsonian collection of meteorites by Samual J. Ritchie and John Gamgee:

"Mr. Ritchie...had met (in Washington) John Gamgee, an Englishman, who had interested the Government in the building of a refrigerated hospital ship for treatment of yellow-fever patients in the Gulf ports. Gamgee investigated ammonia refrigerating machines but soon found that cast iron would not hold compressed ammonia gas. He tried all kinds of alloys. Then going one day through the Smithsonian Institution with Mr. Ritchie, he saw some nickel-iron meteorites and decided to try such an alloy. Mr. Wharton furnished some nickel with which Gamgee produced a very superior nickel-iron alloy which held the gas. Gamgee's ship was never built but he had demonstrated the possibilities of nickel-iron alloys."

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STAR DUST

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"THE DISCOVERY OF THE SATELITES OF MARS" will be Dr. Woolard's subject on May 5th, 8 p.m. at the National Museum. For reference, a brief extract from the original report by the discoverer, Asaph Hall, is included in "Source Book in Astronomy," edited by Harlow Shapley and Helen E. Howarth, pp. 320-323.

This will be the last lecture of the season. A business meeting and election of officers will follow, the "electees" to take office in September.

The Nominating Committee will submit the following nominations:

President: Leo Scott.
Vice President: Ray K. Windham; Clarence Herreshoff.
Treasurer: Eugene S. Henning; James Q. Gant.
Secretary: Mrs. Wm. P. Harris, Jr.; Katherine Koetz.
Trustee: Leo Scott; Clarence Herreshoff.

Other nominations may be made from the floor.

RECENT ACCESSIONS AT THE PUBLIC LIBRARY

Climatology by Bernhard Haurwitz and James M. Austin. 400 pages, 17 plates in pocket inside the back cover.

Basic Air Navigation by Elbert F. Blackburn. Contains one chapter on "Principles of Celestial Navigation" and another called "Practice of Celestial Navigation."

Air Navigation, Part VII. Nautical Astronomy and Celestial Navigation. Published under supervision of the Training Division, Bureau of Aeronautics, U.S. Navy. This manual deals with nautical astronomy and celestial navigation including the fixing of position by celestial sights, the nature of astronomical time, determination of when the sun and moon rise and set, and the distribution and location of the principal navigational stars in the heavens.

AT THE APRIL MEETING, Mr. Frank Neumann of the U. S. Coast and Geodetic Survey gave an informative talk on earthquakes. He explained that as the earth whirls through space, various processes are going on--heating, cooling, mountain building, erosion, and isostatic processes. It is not known exactly how stresses in the earth are set up and cause earthquakes, but it is presumed that the rock deep in the earth is flowing. This slow subflow of rock sets up strains in the surface and when the strain becomes too great, the rock slips along a fault. Strains may be gradual or abrupt. In case of the latter, we have earthquakes.

Prior to development of the seismograph, there was no accurate means of determining the number of earthquakes, and fifty years ago it was believed about 6,000 occurred annually. Earthquakes are no longer considered extraordinary. Today we know over a million occur every year. Most of them take place beneath the ocean. Some of the strongest shocks in this country occurred along the Atlantic coast.

Ordinarily, earthquakes are associated in the public mind with volcanic activity. They may occur in regions of volcanic activity, but usually the strong ones do not. The greatest earthquake in the United States occurred in southeastern Missouri in 1811. In recent years there

has been considerable seismic activity in the St. Lawrence region as evidenced by the earthquake of September 5, 1944.

More than half the earthquakes are accompanied by sound. In certain regions sound phenomena seem more prevalent than in others. In California not much sound occurs. In southwest Texas, one earthquake was heard almost as far as it was felt. Some small earthquakes are practically all sound. It is believed the rumbles Rip Van Winkle heard in the Adirondacks can be attributed to earthquake sounds.

It takes about three hours for surface waves from quakes to go around the earth, but only 21 minutes to go through it. The disparity of time is due to the shorter distance and greater density of the core. These waves are recorded on the seismograph which is simply a pendulum the motion of which may be magnified as much as several thousand times. In addition to recording earthquakes, seismographs continually record small tremors corresponding to ripples. These are called "microseisms" and are definitely of a meteorological origin. They increase in amplitude with the occurrence of storms over ocean areas, particularly in the Arctic regions.

Most earthquakes are rather shallow in depth--from 15 to 30 miles; some have reached a depth of 400 miles, however. These deep focus earthquakes usually occur in or near Japan and in South America. All of the energy expended by the earthquake is in a few of the very large shocks. While there are a million earthquakes every year, a great part of the energy is represented in only a few of the largest ones.

Damage to property is due primarily to the high accelerations associated with the ground motion. There is also loss of life--approximately 35 to 40 thousand annually; in the severest earthquakes the loss has been as high as 300,000 lives. ---Marion F. Wagner