

OCEANOGRAPHY

Magnetic Rock From Sky

► ROUGHLY 7,000,000,000 mysterious particles from outer space bombard the earth each year. This was revealed from studies made of the ocean bottom.

More than 300 of the odd magnetic particles were swept from 45,000 square miles of ocean floor by a home-made magnetic rake during the Danish Deep-Sea Expedition in 1950-52. They have been named caudaites to distinguish them from meteorites and cosmic dust.

The particles are believed to originate from the tails of the larger cosmic bodies that enter the earth's atmosphere.

Varying in color from grayish-brown to shining black, the caudaites are nearly all spheres. They measure less than one-half millimeter in diameter. Upon examination, scientists found that some of them consist wholly of magnetite.

Others have a silicate groundmass loaded with magnetite crystals. They also found that nearly all the particles had spherical cavities. Altogether, seven metallic particles were found in the material studied.

Support of the theory that the particles come from outer space involves several factors.

The structure and composition of the metallic particles indicate that their formation requires high heat and rapid cooling.

No comparable particle formation has been found to occur naturally on land.

A comparison of the particles with iron meteorites was made from similar particles found in an 1872-76 expedition and showed that all the material found in the particles is also found in stony meteorites.

Other particles found by a Swedish expedition from deep borings into the sea bottom rule out artificial origins.

The scientists reporting the cosmic particles estimated that the total weight of the 7,000,000,000 particles falling on the earth each year would be about 30 tons.

A complete description of the magnetic particles was reported to the British scientific journal *Deep-Sea Research* (1955, Vol. 2) by Anton Fr. Bruun of the Zoological Museum, Copenhagen, Ebbe Langer of the department of metallurgy, Copenhagen Technical University, and Hans Pauly of the Mineralogical Department of the Kryolitselskabet Oresund, Copenhagen, Denmark.

Science News Letter, April 30, 1955

MEDICINE

May Transplant Heart

► THERE IS hope, now, that human hearts can in the future be transplanted, Dr. Charles A. Hufnagel of Georgetown University, Washington, D. C., declared at the meeting of the Kentucky Academy of General Practice in Louisville, Ky.

The hope comes from present success in replacing worn or damaged arteries and other blood vessels with ones transplanted from the dead or from animals or with plastic vessels.

About half the victims of hardened arteries can be given relief through such substitute blood vessels, Dr. Hufnagel said. In general, the larger the vessel the more chance of success. In the tiny vessels, with bores six-hundredths of an inch or less, "we seem to reach a point beyond which success declines sharply because of technical problems," Dr. Hufnagel finds.

Plastic tubes, up to eight inches in length, are substituted for large arteries when they become clogged or blocked. When smaller vessels are involved, the surgeons prefer to use arteries taken from animals, or from human cadavers. Successful transplants up to 20 inches in length have been obtained.

When an animal or human artery is planted in a living person, it is dead. But it provides a framework around which new cells form, and contains blood flow while the building process is going on.

Successful artery transplants and implants are most frequent when atherosclerosis, a

buildup of clogging material inside the vessel, is at an early stage. Dr. Hufnagel said much of the success he reported was due to early recognition of the condition by family doctors in their periodic checkups.

The transplant and implant techniques are also used for artery aneurysms, in which a section of artery wall becomes weak and threatens to burst like a toy balloon.

Dr. Hufnagel is the inventor of a substitute heart valve, a plastic ball that controls blood flow when inserted into the heart's main artery.

Science News Letter, April 30, 1955

CHEMISTRY

New Manganese Isotope Fills Gap in List

► ONE OF the last gaps in the middle of the list of radioactive forms of common metals has been filled by the identification of manganese 53.

Found in a sample of chromium bombarded by protons, the necessary timing studies to establish the half-life of 140 years for the new isotope were carried on by Joseph R. Wilkinson, graduate student at the Florida State University, working with Dr. Raymond K. Sheline, associate professor of chemistry.

More than two and a half years have been spent measuring the half-life by means of

Geiger counters. Theory had predicted a long-lived form of manganese for this particular place in the list of isotopes, which has been a blank up to the time of the present discovery. Part of the work now reported by Mr. Wilkinson and Dr. Sheline was to make sure that no short-lived radioactivity would be present in the irradiated sample to confuse the results.

The new isotope could be used to follow changes in manganese-containing iron, due to wear or to shift in crystalline structure due to age, Dr. Sheline and Mr. Wilkinson stated.

Science News Letter, April 30, 1955

MEDICINE

Drug Speeds Recovery From Leg Inflammation

► RECOVERY FROM thrombophlebitis and other inflammatory conditions can be speeded and many patients spared going to a hospital by use of a drug called Parenzyme, Dr. Bert Seligman of Flower Hospital, Toledo, Ohio, reported at the meeting of the Kentucky Academy of General Practice in Louisville, Ky.

This drug is a preparation of highly purified trypsin in sesame oil. Trypsin is an enzyme chemical believed to make body tissue more permeable so that the cells and liquid forming the reddened swelling in inflammations can disperse.

Thrombophlebitis is a combination of inflammation and clotting of blood in blood vessels. It usually attacks a leg. Dr. Seligman said that with the trypsin preparation he can treat about half his thrombophlebitis patients in the office rather than a hospital and that patients in the hospital are confined only about half as long as with conventional treatment.

Science News Letter, April 30, 1955

MEDICINE

Patients Think as Well With Only Half Brain

► CUTTING OUT half the brain of mentally retarded patients caused no loss in intelligence or marked change in personality, Dr. Alexander Tolor and Adam Munz of Columbia-Presbyterian Medical Center, New York, told the meeting of the Eastern Psychological Association in Philadelphia.

In fact, loss of half the brain resulted in a slight gain in I.Q., the scientists found.

The drastic operation was resorted to because the patients—two girls and a boy—had for a long time had uncontrollable seizures and paralysis of one side of the body. They were severely retarded mentally and had behavior difficulties.

The patients, after the operation, did seem to be more aware of being disabled and sick, and they were more depressed.

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Magnesium weighs less than two-thirds as much as equal volumes of aluminum and about one-fourth as much as steel.