GEOPHYSICS

Paricutin Is Laboratory

Quantities of buried vegetation are being studied as "fossils in the making" because of the possible similarity between them and ancient fossils.

➤ PARICUTIN, the world's youngest volcano, has already been put to work in the interests of science. This fiery infant, that sprang from the soil of Mexico only a couple of years ago, has buried quantities of vegetation under the thick showers of ash it has spewed up. Because of the possible similarity between the burial of these plants and that of leaves and stems millions of years old, now found as fossils in the western United States, Prof. Erling Dorf of Harvard University has been closely studying these "fossils in the making." He reported on his preliminary findings at the meeting of the American Geophysical Union in Washington, D. C.

True fossilization, which implies mineral impregnation of the wood, has hardly begun, Prof. Dorf stated. Not all plant materials fossilize equally well, so some plants will be preserved and others will vanish.

In general, plant remains were well preserved only if buried close to their parent trees and shrubs. Preservation was better where ashes showered out of the air than where leaves were embedded in mud formed from the ash under water. Offsetting this, however, is the greater likelihood of the first kind of burials being subsequently destroyed by erosion.

Greatest likelihood of complete fossilization and subsequent preservation, Prof. Dorf thinks, will be in ash deposits subsequently covered and sealed under by flows of lava.

Science News Letter, June 9, 1945

Dam Causes Earthquakes

➤ SMALL local earthquakes in the neighborhood of Boulder Dam have apparently been caused by the pile-up of water in the great artificial lake thus created. No harm to the dam or its auxiliary installations is anticipated, however, Dr. Dean S. Carder, seismologist of the U. S. Coast and Geodetic Survey, who has been making a five-year study on the spot for the U. S. Reclamation Service, reassured his colleagues at the meeting.

Great care was exercised, in selecting the damsite, to locate it on the most stable geologic formations available, and to avoid all known active faults. Really active seismic regions in Nevada are well to the north, and the parts of California where major earthquakes have occurred are far to the west and southwest.

It was only to be expected, however, that the loading of a great mass of water into a hitherto empty canyon system would cause some slight earth movements. Total weight of water in Lake Mead, when it is full to spillway height, is approximately 40 billion tons. Withdrawals for power, irrigation, and city water supplies may reduce that by as much as eight or ten billion tons in a year. Low point usually comes in April, high water in July. The little quakes which Dr. Carder has been studying are most frequent when the lake is full.

Science News Letter, June 9, 1945

Storms Shake Land

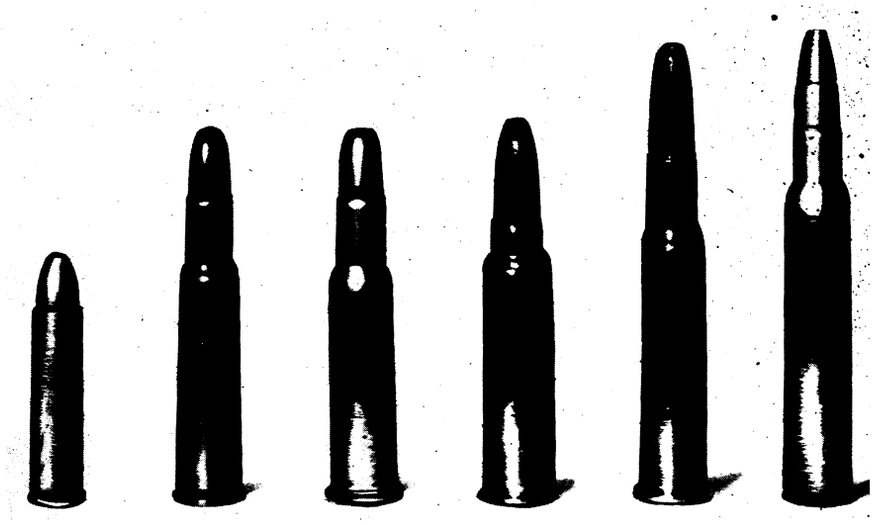
➤ THERE is literal truth in the poets' old declarations that great storms at sea make even the firm earth shake. A scientific, quantitative study of the correlation between sea storms and the almost imperceptible trembling of land masses known as microseisms was presented before the meeting by Leonard M. Murphy of the U. S. Coast and Geodetic Survey. Records of microseisms made at 13 stations in the United States, Alaska and Greenland, for three successive October-to-March seasons, indicated that the bigger and more intense the storm area the more marked was the earth trembling detected by the instruments, even far inland, Mr. Murphy told his audience. Storms off Newfoundland that recorded their passing on instruments in the United States failed to show up on the records of instruments in Greenland, and conversely, great storms off the Greenland coast did not register on the microseismometers in the United States.

Science News Letter, June 9, 1945

PHYSICS

Japanese Oxygen Mask Generates Its Own Oxygen

➤ A STRANGE type of oxygen mask that generates its own oxygen by electricity is part of the standard equipment of the Mikado's troops. Translations of instruction plates from an oxygen mask forwarded to the Air Technical Service Command at Wright Field reveal how the unique device works. Oxygen masks



VARY IN SIZE—These .30 caliber cartridges, pictured by the Western Cartridge Company, have only one thing in common: the diameter of all the bullets is exactly .30 inch. Everything else differs—weights of bullet and powder, length and shape of powder chamber, type of jacketing or no jacket at all. Each fits a different type of firearm. From left to right: cartridges for the Army's new carbine, Remington, Winchester and Savage sporting rifles, the Krag-Jorgensen rifle of Spanish-American War fame and the present-day M-1 (Garand) rifle.

used by American troops and flyers in high-altitude B-29 Superfortresses and other planes use compressed oxygen prepared at mobile oxygen-generating plants and stored in metal cylinders until needed.

One of the Japanese systems consists of six units, a battery, two electric buttons, a container for the oxygen generator, a gas meter, the mask and rubber tubing connecting the generator, meter and mask. Two special chemical oxygen generators are inserted in the container, which is fitted with a metal door opening at the top. When ready for use, one of the electric buttons is pressed down, igniting the generator. Oxygen begins to flow in five seconds. After generation has once started it does not stop for 75 minutes. By using both generators, enough oxygen to last a man for two hours is produced. The meter tells the Nip fighter how much oxygen he is getting.

The Japanese also use the compressed gas system, and the chemical system may be used as an auxiliary.

Science News Letter, June 9, 1945

PHYSIOLOGY

Youth Can't Be Kept

Searchers for the fountain of youth in pills from the drug store are doomed to disappointment. Aging process involves more than decline in "sex hormones."

By DR. EARL T. ENGLE

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➤ WHEN people reach middle age they begin to be fearful of growing old. They have no faith in the famous lines from Browning, "Grow old along with me! The best is yet to be," but make a frantic effort to regain their vanished youthfulness.

The magic in the words vitamins or hormones is attractive to many of this great group of our people. The advertising agencies and the facile and uninformed journalists do much to keep before the public the hopes that youth need not be lost, or once vanished, that it may quickly be restored.

At the present moment the so-called "sex hormones" are being exploited by the ready-worded writers. The term "sex hormones" represents an historical inaccuracy, which was quickly dropped by medical men, but is persistent in the lay mind. This group of substances, called steroid hormones by the chemist, contain among others two general categories of hormones. These are the estrogens, formerly called "female sex hormones," and androgens, once classified as "male sex hormones." This latter usage is repeated in the title of a new book. These estrogens and androgens are produced in the gonads, the ovaries and testes, and also elaborated by at least one other endocrine gland, the adrenal cortex.

The estrogens and androgens have considerable importance in causing the development of the secondary sex characters in girls and boys, respectively, at the beginning of adolescence. They are not sex specific, however, since both are present in varying amounts in both normal men and women. Paradoxically the stallion, one of the most "masculine" of animals, produces an extremely large quantity of estrogens, the hormones formerly called female sex hormones.

Another connotation which is erroneous is associated with the word "sex" hormones. Sex may mean maleness or femaleness, but to most people sex means just what the boys in the smoking room mean by sex. It is in the latter sense that the word sex hormone is inaccurate. Sexual behavior in the human is a complex, as everyone knows, composed of acquired behavior patterns and of a very large and important psychological component. To a degree the hormones play a necessary part, but only a part in the behavior pattern. The functions of these hormones are not restricted to sex or reproduction but also are important in other physiological phases of the bodily economy.

While these hormones have an important role in the development of the bloom of youth, they do so only within the limits of the inherited constitutional qualities and the nutritional state of the individual.

The actual clinical use of these hormones is limited. They are used as insulin is used in diabetes or as thyroid substance is used in hypothyroidism, that is, when there is definite evidence of a lack of the appropriate hormone.

Thus androgen may be used in young men who have lost both gonads by surgery or disease. In women, particularly those who have reached the menopause or "change of life," either estrogens or androgens are widely prescribed by physicians to aid the woman in making necessary physiological adjustments incident to the cessation of menstrual life. This treatment is frequently most necessary in women of the younger age groups who have lost the ovaries because of disease or tumorous growths. Estrogens are frequently used in older men who have a cancer of the prostate gland. In such a

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