

to prescribe for whatever emergency harasses a patient.

The Indian medicine man holds the airplane image in his hand and consults it, pretending to receive advice from it.

How widely the airplane god has spread among Choco and other Indians of Panama is not yet known. The wooden airplane is one of five assorted religious images collected in the region

by Capt. K. S. Anderson of the U. S. Army, and received by the Smithsonian.

It is not known, either, whether the airplane god is believed to have some specialized power over nature, as such gods often supposedly have. Perhaps the thought is that Dr. Patterson—or rather two Dr. Pattersons—now come more swiftly by air to the aid of the sick.

Science News Letter, July 25, 1936

MEDICINE

Disease Transformed Into Another for First Time

FOR the first time in the history of medicine one disease has been transformed into another, an achievement that promises to be of wide significance to all biological science.

Dr. George Packer Berry of the University of Rochester School of Medicine reported to the American Association for the Advancement of Science, meeting in Rochester, N. Y., the production of a malignant 100 per cent killing tumor disease in rabbits by injecting into them a virus of a non-fatal skin disease to which had been added some completely heat-killed virus of the deadly disease.

No disease, whether caused by bacteria or filterable viruses (thought to be organisms too small to be seen with a microscope), had heretofore been changed into another. This discovery has important bearing upon questions of how diseases originate and why and how new diseases or strains of infection come into existence.

Out of Dr. Berry's discovery may come an explanation of why and how vaccination protects against smallpox, for instance. Also it is possible, said the Rochester scientist, for more than one kind of virus to infect a single cell of the body, a discovery that promises to be of importance in the study of cancer.

Rabbits have two diseases, one called myxoma which is malignant and very infectious. From this the bunnies never recover. The other, called rabbit fibroma, is nasty appearing but the rabbits never die from it. The diseases look somewhat alike. Both are caused by tremendously small unseen organ-

GEOLOGY

The "Bays" of Carolina May Have Been Formed by Water

THE world's greatest area of supposed explosion craters, making the battlefields of Flanders seem like miniature models, may not have been due to explosions after all. They may have been formed by the far less spectacular action of water, dissolving underground beds of stone.

Such is the hypothesis of the origin of the famous Carolina "bays" advanced in *Science* (July 3), by Prof. Douglas Johnson, Columbia University geologist.

The "bays" of the Carolina coastal plain are not arms of the ocean, and probably never were. They are great oval depressions, each rimmed with a sand ridge that is highest on the southeastern side, and usually filled with timber growth. Although there are very many of them—hundreds of thousands in all, Prof. Johnson says—practically all have their longest diameter oriented in the same direction, from northwest to southeast.

Their peculiar and uniform shape, as well as this prevailing orientation, some time ago led Profs. F. A. Melton and William Schriever of the University of Oklahoma to offer the theory that they had been caused by the fall of an enormous shower of meteorites, possibly the fragmented head of a comet, during or before the Pleistocene ice age. Single meteorite falls are known to have great explosive effects, scooping out elliptical pits with raised rims. The Oklahoma geologists boldly extended this principle to a wholesale application on the South Atlantic coastal plain, and thereby started a very lively scientific discussion.

Prof. Johnson points out several objections to this theory. The rims of the "bays," he says, are not composed of material thrown out of the bottom, but of clean, fairly coarse sand, such as

might be blown up off a lake beach. Furthermore, he states, geological evidence indicates that the force that formed the "bays" acted in one direction, while the force that formed the rims acted in another. Despite the prevailing northwest-southeast orientation of the depressions, some of them are practically straight north-south, and there are a few at least that lie northeast-southwest. This would be practically impossible if they had been caused by a shower of rock or iron fragments all flying in the same direction.

Furthermore, Prof. Johnson continues, the area is underlain with thick beds of limestone; on which underground water acts to form caverns that in turn cave in and form sinks of various sizes. Bottom deposits in the "bays," and their association with these geological cave-ins, have persuaded him that they probably started as lakes in sink-hole basins, that subsequently drained, leaving their old sand beach-ridges where the prevailing winds had piled them.

Science News Letter, July 25, 1936

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isms that are called "filterable viruses." A curious fact was recently discovered. Rabbits that have recovered from an attack of fibroma can not be made to catch the deadly myxoma, just as cowpox vaccinates against smallpox.

But when Dr. Berry and his assistants tried the experiment of killing with heat some myxoma virus, mixing it with active fibroma virus and injecting it into rabbits, the animals fell ill and died of myxoma, not fibroma. The harmless disease had been converted into the deadly one, despite the fact, as control

experiments showed, that the dead myxoma virus alone had no effect. Not once but thirty times was the experiment performed and scientists at the Rockefeller Institute for Medical Research have repeated and confirmed the discovery.

With one virus disease that can be made to evolve into another one, scientists may be expected to turn their attention to other virus diseases, some of which like infantile paralysis and encephalitis are human killers.

Science News Letter, July 25, 1936

METEOROLOGY

"Robot" Weather Apparatus On Balloons Proves Worth

ROBOT" weather instruments, carried high aloft on small unmanned balloons, proved their worth during the Seventh Annual National Soaring Contest. Each one automatically reported by radio the altitude of the balloon, relative humidity and temperature every minute throughout its flight into the upper atmosphere.

The information secured in this way has been added to the periodic meteorological data collected for the use of soaring pilots in their annual assault upon world and national records in motorless flight. The radiometeorograph ascensions have been conducted by representatives of the Blue Hill Observatory, Harvard University, Milton, Mass., under the direction of Dr. K. O. Lange, who has pioneered in the development of this new type of medium for collecting meteorological data.

Great Altitudes Reached

The first ascension during the soaring contest was made from Harris Hill on June 27. The twin balloons needed to carry the tiny apparatus rose to an altitude of 68,000 feet and signals were heard for 64 minutes from the take-off time, 4:10 in the afternoon. During the second ascension, made on the following day, the balloons carrying the instruments reached an altitude of about 80,000 feet and the signals were heard for 1 hour, 58 minutes.

The balloons reached an altitude of about 100,000 feet on June 29, the signals being heard from 12:14 p.m. to 2:57 p.m.

A specially interesting ascension was made on June 29. The balloons were released after dark in the evening and were followed to 13,200 feet. At that point the signals began to record a descent. They were followed to a point where the temperature was lower than at the take-off site, indicating that the apparatus had landed. The failure of the balloons to go higher in this flight probably was due to the bursting of one of the balloons.

Beginning in 1932, the soaring contests conducted by the Soaring Society of America have had the advantage of the most advanced meteorological service available. The soaring pilots were among the first in this country to be taught to use the air mass system of weather forecasting and interpretation.

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FISHERIES

Oysters Shuck Easily After Vinegar Anesthetizes Them

TIGHT-MOUTHED oysters can now be made to open up automatically by a novel method of putting them under "ether," which is described in a patent (No. 2,041,727) granted to H. F. Prytherch and Vera Koehring, U. S. Bureau of Fisheries workers, of Beaufort, N. C.

Before being put under the anesthetic, the oysters are given a "shock" treatment. This may be a good shaking up, an electrical shock, dropping them on a hard floor, or spinning them around in a centrifuge. Stupefied by such rough handling, the stunned oysters are then put into the "anesthetizing" solution which may be nothing more than water containing a small amount of acetic acid, well-known ingredient present in ordinary vinegar. Real ether, chloroform, alcohol, and salts of many kinds, may be also used for the purpose, however. Ten minutes to a half-hour in such a bath is sufficient to cause the oyster to open up automatically.

No Prying

There is no breaking, puncturing or prying open of the shell with knives as in the usual method of shucking

oysters. The inventors solve the problem by making the oyster relax the powerful muscles which keep the shells closed and make it so hard to shuck oysters in the usual way. Shock and bathing in the anesthetizing bath are the muscle relaxers.

When the muscles relax, the shell opens. It is held open by the hinge cushion, which, like a spring wedge, exerts considerable pressure on the shells, forcing them apart.

While open, the meat can be removed from the oyster. Or where the oysters are used in pearl culture, "seeds" can be planted in them and the oysters replaced in the sea water.

Science News Letter, July 25, 1936

SEISMOLOGY

Quake Center Located Near Walla Walla

SCIENCE placed a finger on the center of disturbance of the Washington-Oregon earthquake shortly after it happened. It was in a spot some ten or fifteen miles northwest of Walla Walla, Wash., in latitude (approximately) 46.2 degrees north, longitude 118.2 degrees west. This location was worked out by scientists of the U. S. Coast and Geodetic Survey.

Stations wiring data to Science Service were: St. Louis University, Fordham University, University of California, University of Montana, Pasadena Observatory, the Coast Survey observatory at Sitka, and the Dominion Meteorological Observatory, Victoria, B.C.

Science News Letter, July 25, 1936

● RADIO

July 28, 2:15 p.m., E.S.T.

GROWING UP—Dr. Paul H. Furfey, Psychologist of the Catholic University of America.

August 4, 2:15 p.m., E.S.T.

WORLD POWER CONFERENCE—Dr. Morris L. Cooke, Chairman, Executive Committee, World Power Conference.

In the Science Service series of radio discussions led by Watson Davis, Director, over the Columbia Broadcasting System.