



WORLD RECORD HOLDERS

These ticks, carriers of relapsing fever, have lived without food for five years in the laboratory of Dr. Edward Francis at the U. S. Public Health Service in Washington, D. C.

of exterminating the ticks, Dr. Francis explained. The menace of relapsing fever will have to be fought by some other means.

Relapsing fever, which can also be spread by body lice, has been known for centuries in Europe, Asia and Africa, but has not been much of a problem in the United States. A few small epidemics were reported in this country in the last century but in these cases the disease seemed to have been brought in by immigrants. Until about six years ago there was no evidence of its occurring naturally in the United States. Then from Texas came reports of an outbreak following a camping trip made by a group of boys.

Lived in Caves

"The boys, of course, had to pick some outlandish place for their camp," Dr. Francis related, "so they chose some caves down there in Texas. Later, after they had returned to their homes they began, one by one, to get sick."

The symptoms were fever, chilliness, headache and other pains, followed by a rash and profuse perspiration, after which the patients seemed to recover, only to get sick again four or five days later. These relapses are what gives the disease its name. During the third relapse, the spiral-shaped germs called spirochetes were found in their blood and the disease was diagnosed as relapsing fever.

Seized by Fever

Some of the doctors started investigating the source of the disease and one of them, Dr. G. M. Graham of Austin, Tex., went into the cave where the boys had camped. He came out covered with ticks and six days later he had relapsing fever. Fortunately, the disease as it now occurs in Texas is not fatal. The patients recover after several relapses, even if untreated. But there is an effective medicine for it. Doses of arsphenamine, given a week apart, cured the boys after their ailment was diagnosed. It had at first been mistaken for malaria because of the similarity of the symptoms.

After Dr. Graham's investigation, some of the ticks were collected and shipped to Dr. Francis for study. They do not carry any other disease, he says, and apparently they live by sucking blood from men, possums, cattle, horses, pigs, gophers or other animals that wander into the caves where they normally live.

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The life of leather in books or furniture can be greatly lengthened, chemists have found, by using common salt in the tanning process.

The wasp's method of chewing wood into pulp to make paper for building his house is pronounced very similar to the paper-making methods of big factories.

GEOPHYSICS

Earth's Electric Currents Form Gigantic Crust Eddies

DISCOVERY of electrical circuits in the earth's crust that whirl around a number of points, both in the polar regions and in more temperate climes, was reported to the International Union of Geodesy and Geophysics in Edinburgh by O. H. Gish and W. J. Rooney of the Carnegie Institution of Washington's Department of Terrestrial Magnetism.

The crustal electric currents are believed to form 16 extensive eddies. Eight of these are located in the middle and low latitudes. Four in the Northern Hemisphere and four in the Southern Hemisphere form a symmetrical arrangement about the equator. The centers of these eddies are about equally spaced in longitude and lie near the tropics of Cancer and Capricorn, respectively.

Four other eddies also appear in high northerly latitudes with their centers near the arctic circle. These also are about equally spaced in longitude. A corresponding set of eddies presumably exists in high southerly latitudes, but data to establish the fact are not available.

"All these eddies follow the sun in such a way that eight of them are always on the sunlit side of the earth and eight on the dark side," the American scientists reported. "The current in the daylight eddies of middle latitudes is considerably greater than that in the corresponding night-time eddies. However, a contrast of this character is not a common feature of the circulations constructed from data obtained at high latitudes. The centers of the forenoon eddies in middle latitudes lie near the meridian for which the time of day is 9 a.m., while the afternoon eddies center on the meridian for which the time is about 3 p.m. This feature varies between stations by as much as two hours. The current circulation is clockwise in the forenoon eddy of the Northern Hemisphere and in the afternoon eddy of the Southern Hemisphere. The sense of the circulation in the other middle-latitude eddies may be ascertained by applying the rule that the sense of circulation is opposite in any two adjacent eddies of corresponding latitude. Thus circulations in the eight eddies of the middle-latitude belt are related in the same way as are the rotations in a series of interlocking gears when oriented in a manner similar to that of these eddies.

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