

they have many features in common with lizards, yet their eyes are so little like those of their reptilian kindred "that no one would suspect, from the eyes alone, that a snake is any more closely related to a lizard than a cat is to a frog."

To account for this discrepancy, Dr. Walls suggested that the remote ancestors of snakes were once subterranean creatures, living in total darkness, until their eyes degenerated almost to the vanishing point, like the eyes of many cave animals now living.

"Later, the snakes emerged above ground and fought their way back to 'respectability,'" Dr. Walls explained. "To help accomplish this, they had to invent one substitute after another within the eye, to take the place of lost lizard-eye features. The fact that the snake eye is such a bunch of 'Ersätze' thus sheds light, for the first time, upon the habits and history of the first serpents."

Science News Letter, January 13, 1940

Rust Resistant Pines

YOUNG white pines that are apparently resistant to the deadly blister rust disease that is sweeping the country have been found in Wisconsin, it was reported by Prof. A. J. Riker of the University of Wisconsin and T. F. Kouba of the U. S. Department of Agriculture.

The tree plague had swept through an unprotected area in Wisconsin, killing practically all young white pines. However, perhaps one out of 300 to 500 trees survived, free from infection. A search was made for cone-bearing specimens for possible use in propagation, and 163 such trees were found. They have been exposed to blister rust constantly for 15 or 20 years, and it seems reasonable to suppose that some of them may be rust resistant, and therefore the potential ancestors of new white pine forests for the northern states.

Science News Letter, January 13, 1940

Lime Cements Cells

CELLS lining the capillaries, the ultimate fine blood vessels of the body, depend on lime to stick together, no less than the bricks of a house. Prof. Robert Chambers and Dr. B. W. Zweifach of New York University told how they had tried out blood vessels from a frog, using synthetic blood-like fluids, one containing calcium, the other without that element. When the calcium-free fluid was used the lining cells lost their grip on each other and the capillaries became "leaky."

Science News Letter, January 13, 1940

MEDICINE

Crystals From Soil Bacilli Protect Against Pneumonia

Material So Powerful That Millionth of an Ounce Protects Mouse Against Infection Otherwise Lethal

PNEUMONIA protection by crystals of a chemical obtained from germs that prey on other germs was announced by Drs. René J. Dubos and Rollin D. Hotchkiss, of the Hospital of the Rockefeller Institute for Medical Research, New York, at the meeting of the Society of American Bacteriologists in New Haven.

So far, only mice have been given the new germ-killing crystals. Studies on other animals and other disease-causing germs besides the pneumococcus are under way but have not yet been completed. The material described is so powerful that one-millionth of an ounce is sufficient to protect a mouse from a pneumonia infection which would otherwise rapidly kill the mouse.

Another chemical compound was obtained in pure crystalline form from the same germ source, but this second compound is ineffective in mice. Studies of the chemical differences between the two compounds will, it is hoped, help to explain what is necessary to secure a protective action against infection within the body of the animal.

Discovery of the potent germ-killing and apparently curative material was the result of a deliberate search in which the Rockefeller scientists took advantage of the fact that certain species of microorganisms or germs are known to be antagonistic to other species of microorganisms.

Staphylococci, commonly found in boils, abscesses and flesh wounds, were the bacteria chosen as the prey. Bacilli able to live upon them were found in soil. When grown in artificial media free from other bacteria, the bacilli still retain the ability to kill staphylococci and grow and multiply in their presence. Furthermore the bacilli were found able to kill not only the one species, but also a large group of organisms having in common with staphylococci the property of being "Gram-positive" (meaning that they are dyed in a particular way by a much-used bacteriological stain). Some other Gram-positive bacteria which are also susceptible are streptococci, pneumococci, and diphtheria bacilli.

From the bactericidal organisms was obtained a non-living chemical agent which by itself was able to kill the Gram-positive microbes. This chemical agent has now been further purified and two pure crystalline chemical compounds have been isolated from it. Both of these bactericidal compounds are so active that a millionth of an ounce is sufficient to kill a few billion pneumococci in the test tube.

Science News Letter, January 13, 1940

BOTANY

Tree Rings Fallible As Records of Weather

TREE RINGS are not infallible records of the weather in the years when they were formed. It depends partly on the species of the tree. Such would seem to be the inference from records before the meeting of the Ecological Society of America by Prof. Charles J. Lyon of Dartmouth College.

Prof. Lyon's studies were made on a number of trees, of six different species, that had grown for years in the neighborhood of a regularly maintained set of weather-recording instruments. The 1938 hurricane blew them all down, which gave occasion for the study of correlation between their growth rings and past weather records.

Closest correlations between spring rainfall and ring growth was shown by white pine, Scotch pine and red oak, but

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