

MEDICINE

Tropic Diseases Declared Universal in Distribution

"TROPICAL diseases are rarely confined to the tropics or sub-tropics, but are rather universal in their distribution throughout the civilized world," Dr. Sidney K. Simon of New Orleans told members of the American Society of Tropical Medicine in his presidential address at the meeting of the society in New Orleans. The problems of tropical medicine are therefore of considerable interest and importance to physicians practicing medicine in temperate zones, he pointed out.

One tropical disease which occurs in all temperate zones and is common in the southern part of the United States is amebiasis, an intestinal disease caused by a parasitic species of the tiny, one-celled ameba. Dr. Simon discussed the treatment of this disease and stressed the value of the old-fashioned ipecac root, which is in danger of being overlooked at present, he said. Of the more recent medicines used to treat this disease he gave preference to yatren, a complex chemical related to quinine.

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PALEONTOLOGY

California Asphalt Pits Yield Bones of Great Cats

CATS, most mighty in hunt and battle, their bones preserved for thousands of years in the sealing asphalt of the La Brea pits in southern California, were the subject of a lecture before the National Academy of Sciences, by Dr. John C. Merriam of the Carnegie Institution of Washington.

The working out of the asphalt deposit, through the years since it was first recognized as a fossil "mine" of first importance, has given us an excellent picture of the fauna of the American West before the latest Ice Age, Dr. Merriam said. There is a disproportionate array of flesh-eating animals; but this may perhaps be at least partly explained by the gathering of the carnivores to devour the luckless beasts stuck in the oozy asphalt, for some of the great cats and dogs would naturally slip and themselves become victims of the viscous death about them.

The La Brea pits have yielded especially rich booty in the skeletons of the cat tribe. Both true cats, up to lion size, and the great saber-tooth tigers, with

eyeteeth half a foot or more long bared against the world, have been found in great numbers. As represented by the bones taken from the pits, big cats outnumbered the little ones, and extinct species were more numerous than those that are still living. The latter include both puma and bobcat, though their remains are not relatively abundant.

The mass of struggling animals trapped on the surface of the sticky asphalt as on a gigantic sheet of fly-paper must have been much more attractive to the saber-tooth tigers than it was to the great lions, for they outnumber the lions about thirty to one; whereas in fossil deposits elsewhere the lions are more numerous. There may be in this some indication of the respective hunting habits of the two great cats, Dr. Merriam thinks.

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ASTROPHYSICS

Theory Would Explain Peculiar Sunlight Colors

THAT shining atoms throwing light waves into the spectroscopes of scientists, quiver at a slightly different rate on the swirling, boiling surface of the sun than on earth because of different electrical states of the earth and sun, is the theory advanced by Dr. Fernando Sanford, professor emeritus of physics at Stanford University.

The light-emitting electrons within the atom are attracted to different extents by the central positive nucleus of the atom, according to the electric "field" in which they are immersed, says Dr. Sanford.

The difference in the electron vibration rates on the earth and the sun which produces a shift of color of spectrum lines, is then due to the fact that the electrical state of the neighborhood of the earth is different from that in the neighborhood of the sun.

The known fact that the electrical charge of a metal body changes as it is raised up in the air supports this idea. The electrical "field strength" is different at different heights.

Modern quantum physicists, however, will point out, in connection with Dr. Sanford's idea, that the vibrations of the light waves and the vibrations of the electrons within the atom are not necessarily in step. Classical physics of last century believed they were the same. Nowadays this is true only in special cases.

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IN SCIENCE

ENGINEERING

Coal Sent Through Pipe Lines at High Speed

AT THE Third International Conference on Bituminous Coal held in Pittsburgh, Friedrich Schulte, director of the Association of Supervisors of the Power Industry of the Ruhr District, described the transportation of pulverized coal through pipe lines at speeds as great as ninety miles an hour. The coal is blown along at this terrific rate mixed with air, as much as 10,000 cubic feet of air sometimes being needed as the wind-chariot for a ton of coal. Yet this is only six per cent. of the air that must be mixed with the coal to make sure that it will be completely burned in the boiler which is its destination.

"The intimate mixture of air and dust naturally increases the danger of explosion, especially with highly volatile and easily ignited coals," Herr Schulte said. "Consequently transporting installations for these coals use an inert gas such as flue gas. In this case a circulating system is adopted and the gas is used over and over again."

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PSYCHOLOGY

Scientists Called Fair, Forceful and Skeptical

"AMBITENDENCE, anancasm, and paranoia."

These formidable-sounding terms may be applied to the personality of the scientist, Dr. Eugene Kahn, of the Institute of Human Relations at Yale University, told members at the National Academy of Sciences meeting.

The scientists were not angered, however, for the terms are not as complimentary as they may sound. Quite the contrary. They mean that the scientist is able to see fairly both sides of any question; that he has a forceful personality; and that he is skeptical or suspicious of circumstances that may go unquestioned by his less thoughtful neighbors.

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E FIELDS

ARCHAEOLOGY

Find Reveals how Roman Culture was Absorbed

HOW Roman culture was absorbed by the Gallic and Germanic peoples who lived along the Mosel river in southwestern Germany is revealed anew in statues and sculptured reliefs found by Dr. Curt Hotzel, associated with the ruins of a small villa which he has just completed excavating, at the village of Erdorf north of Trier. These figures were grave monuments of persons of importance in the rich province developed under Roman rule in this famous wine country.

Many of the sculptures show clearly that their subjects were of countrified origin. One relief shows a man and his wife opposite each other at a folding table, seated in chairs of different shapes. A maid is shown placing a goose on the tablecloth. The couple are not wearing Roman dress, but garments provided with a cowl or hood, in the Gallic style.

In another relief a fine lady is shown seated in a wicker armchair, having her hair dressed. A thorough-going business man had his tombstone record the fact that he had been a wholesale cloth merchant.

The entire villa excavated by Dr. Hotzel was on a very modest scale, but it followed the Roman model of its time very faithfully. It had the usual central heating plant, a typical Roman bath and columned halls, and was embellished with numerous mosaics.

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CHEMISTRY-MEDICINE

Chemical Study of Hormones May Lead to New Medicines

HOW RESEARCH on the chemistry of the hormones, important glandular products of the body, may lead to the synthesis of new medicinal products of practical utility was indicated by Prof. Treat B. Johnson of Yale University at the meeting of the National Academy of Sciences at New Haven.

Prof. Johnson described his own

work along this line with the hormone epinephrin, which is secreted by the adrenal glands.

He and his associates started with epinephrin and certain chemically related compounds which occur naturally. By modifying the structure of these compounds, they were able to produce new combinations which had as much physiological potency as the original unmodified compounds and which were less poisonous.

Prof. Johnson's research was undertaken in the hope of opening the way to a better understanding of how certain combinations of carbon, oxygen, hydrogen, nitrogen and sulphur affect body processes. At the present time, pharmacologists and physicians must depend too much on the trial and error method of determining how such compounds will affect the body, Prof. Johnson pointed out.

His plan is to synthesize a series of related organic structures and to make a comparative study of their influence on physiological action. In this way he expects to learn something of the fundamental laws coordinating organic structure with physiological activity and to establish principles which may guide the chemist in his study of the new synthetic drugs and enable him to predict which ones will have a favorable effect on the body processes.

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ZOOLOGY

Python Turned Warm When Brooding her Eggs

SNAKES are cold-blooded animals, both traditionally and by actual scientific measurement always appreciably chillier than their surroundings; yet a female python in the National Zoological Park at Washington that recently laid a clutch of eggs and tried to hatch them literally warmed up to her maternal task by becoming measurably warmer than her environment. These observations were reported before the meeting of the National Academy of Sciences, by Dr. Francis G. Benedict and associates, of the Carnegie Institution of Washington, located at the institution's nutrition laboratory in Boston. An incubating python in captivity is such a rare phenomenon that special studies with electrical heat-recording instruments were considered desirable when the Washington python furnished the opportunity.

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ICHTHYOLOGY

Fishhook Digested In Stomach of Trout

A TROUT that digested part of a steel fishhook is reported to *Science* by Prof. C. T. Hurst of Western State College of Colorado. The fish, a twelve-inch Loch Leven beauty, was caught by one of his colleagues, Prof. C. E. Hagie. When it was cleaned, Prof. Hagie discovered that he had not been the first to hook his trout. A less lucky angler had got a strike at some unknown time previously, but the fish had broken the leader, got away, and swallowed the hook. The peculiar feature of the discovery was that the barbed point and curved part of the hook had worked their way through the stomach wall, leaving only the straight shank within. The shank was corroded away to a mere filament by the digestive fluids, but the part of the hook outside the stomach was about as good as new. Prof. Hurst conjectures that the hook had been inside the fish for about a year.

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PHYSICS

Magnetic Atoms May be Building-Blocks of Matter

THAT ATOMS a million times smaller than the ordinary chemical atoms are perhaps building blocks of matter is the suggestion made by Dr. P. A. M. Dirac of Cambridge University and Prof. O. W. Richardson of King's College, London.

Such atoms would be magnetic rather than electric like the present electron and proton of which all the chemical elements are composed. Recent developments of the quantum theory, Dr. Richardson points out in a recent issue of *Nature*, would require the existence of magnetic atoms.

The idea that matter, electricity and energy are grained, lumpy or made of irreducible atoms has been a very valuable one in modern science. Dr. Richardson concludes that these atomic magnetic poles are much less abundant than electrons and protons.

The discrete magnetic poles would need to have a strength of sixty-eight and one-half times the corresponding electron mass.

The frequencies of special lines emitted by the magnetic atoms, says Dr. Richardson, must be some ten million times those of the electronic spectra.

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