PALEONTOLOGY

Dinosaurs' "Farthest North" Found in British Columbia

THE "farthest north" of dinosaurs in the western hemisphere is represented by a large number of fossil footprints of these ancient animals recently discovered in the Peace River canyon, in British Columbia, at about 56 degrees north latitude. The find was reported in Toronto by Dr. C. M. Sternberg of Ottawa, at the meeting of the Paleontological Society.

Most of the tracks are preserved in ripple-marked sandstone or clay ironstone. They have been preserved throughout a vertical thickness of 400 feet. The longest trackway is over 100 feet in length and contains 33 tracks. Over 400 individual tracks, ranging from 6 to 25 inches in length, have been observed.

The tracks appear to represent five species, four of which were three-toed dinosaurs that walked on their hind legs only. The marks suggest that they had moderately sharp claws. The fifth species represents a quadruped dinosaur with four toes on the hind feet and three on the front. This animal seems to have been a plant-eater, and may have been an early form of the horned dinosaurs, whose highest development was reached many thousands of years later in Triceratops.

Science News Letter, January 3, 1931

ASTRONOMY

Astronomer Studies Composition of Comets

NEW light on the astronomical mystery of just what constitutes the head of a comet is given by the researches of Dr. N. T. Bobrovnikoff, of the Perkins Observatory at Ohio Wesleyan University. He spoke in Cleveland before the meeting of the astronomical section of the American Association for the Advancement of Science.

His studies have concerned what are called the "Raffety bands," in the comets' spectra, so named after the physicist who first produced them in the laboratory. He has found that certain of these bands, that appear in the spectrum when analyzed through the prisms of a spectroscope, are due to molecules consisting of an atom of carbon combined with one of nitrogen, in the proportion in which they occur in the poisonous gas cyanogen. Other bands, he believes, are due to molecules of carbon and hydrogen, a combination that does not normally occur in these proportions on the earth.

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ENTOMOLOGY

New Insect Pest Is Troubling Florida

FLORIDA has a new insect pest. This time it is the minor but very profitable crop of ornamental asparagus, frequently marketed under the name of "smilax," that is the victim. At the meeting of the Entomological Society of America in Cleveland, Dr. J. W. Wilson of the Florida agricultural experiment station told of efforts being made to control an outbreak of cicada nymphs that are feeding on the roots of the asparagus plants in the territory around Jupiter, Palm Beach County.

This insect is related to the so-called seventeen-year locust and to the harvest-fly or dog-day cicada, common over wide stretches of the United States. The adults puncture holes in the stalks of the plants and lay their eggs in them. The tiny young that hatch from them drop to the ground, dig down until they find a root, and then attach themselves and suck sap until they are grown up and ready to emerge. Too many of them in a given area will damage plants severely by their parasitic habits.

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PLANT PHYSIOLOGY

Liver Extract Makes Plants Green

LIVER extract, successfully used to check the course of pernicious anemia in human beings, has been used to check the analogous yellowing of plants placed in the dark, by Prof. Oran Raber of Immaculata College, Pa. Prof. Raber reported this research in Cleveland before the American Society of Plant Physiologists.

The activity of liver extract in checking this yellowing, or etiolation, of darkened plants, raises again the question of the possible physiological relationship between chlorophyl, the substance that makes leaves green, and hemoglobin, the stuff that makes blood red. Liver extract keeps red blood in the veins of the anemic, it now appears to keep green chlorophyl in the leaves of plants.

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IN SCIEN

MARINE ZOOLOGY

Strange Sea Flowers Blossom on Reef

See Front Cover

LONG ago some observant writer remarked that in the sea many of the plants look like animals and many of the animals like plants. Support for this view can easily be found in the strange sea urchin pictured on the cover of this issue of the SCIENCE NEWS LETTER. It grows on the Great Barrier Reef off the coast of Australia; the photograph of this specimen was supplied by Melbourne Ward, an Australian zoologist who has done much work in this naturalists' paradise of the antipodes. The species is known locally as the "slate-pencil sea urchin" because its thick spines are frequently used as natural slatepencils. More learnedly, it rejoices in the technical name of *Heterocentrotus mammalatus*.

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PHYSIOLOGY

Measures Circulation Rate By Injected Stimulant

MEASUREMENT of the rate of circulation of the blood, one of the most difficult feats of physiology, has been accomplished in a new way by Prof. Theodore Koppanyi of Georgetown University medical college. Prof. Koppanyi demonstrated his method in Cleveland before the American Society of Zoologists.

The method consists in injecting into the large artery of the neck a small quantity of epinephrin, which has the effect, among other things, of causing the pupils of the eyes to enlarge. Very soon after the injection the pupil of the eye on the same side of the head, supplied by a branch of the artery, becomes dilated. After about seven seconds the pupil of the opposite eye also dilates. The interval represents the time necessary for the blood to pass from one side of the head through the veins, back to the heart, through the lungs and back to the heart again, and finally out through the systemic arterial circulation once more.

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CE FIELDS

ENTOMOLOGY

Butterflies Taste With Their Legs

BUTTERFLIES taste with their legs, and their legs are 1,600 times as sensitive as the human tongue in detecting the sweetness of sugar.

These astonishing facts have been brought out by researches conducted by Almeda Anderson of the University of Minnesota, and reported in Cleveland before the meeting of the American Society of Zoologists.

Miss Anderson tested the reactions of 54 Monarch butterflies to plain water and to solutions of cane sugar and milk sugar. The legs of the insects were unresponsive to water and milk sugar solutions, but were very sensitive to cane sugar. They were able to detect concentrations of the latter only one sixteen-hundredth as strong as the weakest sugar solution a human being can taste.

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GENETICS

Chickens Bred Specially For Laboratory Tests

BREEDING chickens not for records in egg laying or speed in getting ready for broiling, but for use in the laboratory, is the unique task in genetic research undertaken by Dr. W. Franklin Dove of the Maine agricultural experiment station. Dr. Dove reported on his results in Cleveland before the American Association for the Advancement of Science.

The work of Dr. Dove has a very practical side. When dietitians or other physiological experimenters want to find out something about a new drug or food combination, they follow the ancient admonition and "try it on the dog"—or rabbit or rat or rooster. But chance-bred laboratory animals may not react evenly to the conditions under which they are placed. They may have inborn differences which will blur the record which would be clear and sharp if they were all really alike.

It was with the idea of getting some races of laboratory animals that would be as much alike as possible that Dr. Dove began his breeding experiments. Now he has strains of chickens that always grow fast, others that always grow slowly; some that always get big, others that always stay small; some that always develop an abnormal skeleton, others that remain normal. There are a number of other characters thus contrasted in these physiologically reliable chickens. Now it will be possible to proceed with feeding experiments, with much more assurance of obtaining fully dependable results.

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WOOD TECHNOLOGY

Aluminum Paint Combats Warping Wood

WINDOWS that jam, doors that stick, airplane propellers warped out of balance and shape and the other annoyances and hazards caused by the shrinking and swelling of wood are best prevented by coating the wood with aluminum leaf or by paints, enamels, and varnishes containing aluminum powder, or by impregnating the wood with sugar, George M. Hunt of the Forest Products Laboratory of the U. S. Department of Agriculture states in a report based on 15 years of researches.

Since the early days of the war, when much trouble was caused by the warping of airplane propellers, government chemists have been working on this problem, which is important alike to housewife, engineer, and inventor. Under the stress of war necessity, the aluminum-leaf process was devised and since that time no more effective process has been discovered. Aluminum paints have, however, been investigated as a substitute and are now recommended by the Forest Products Laboratory in preference to the aluminum leaf for general use. Suitable paints and enamels are nearly as effective and much more convenient to apply.

The secret of the efficiency of aluminum leaf and the various paints, enamels, and varnishes in minimizing the shrinking and swelling of wood lies in their power to exclude moisture. Moisture permeating wood has a tendency to expand its volume and coatings reduced this tendency in proportion to their water-proof qualities.

All-metal plate, perfectly riveted and without cracks or airholes, offers the perfect coating but there is little practical use for this sort of armored wood.

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ARCHAEOLOGY

Ruins of Early Pueblo Age Found in Northeast Utah

RUINS of eleven little villages dating back to the very dawn of the Pueblo age have been found in the Ashley Valley, northeast Utah, by Dr. Albert B. Reagan, of the U. S. Indian Field Service. These are the first house ruins of such antiquity ever found in this region. A very few ruins of similar kind have been discovered in other parts of the Southwest, and it has been estimated that they were inhabited in the first centuries of the Christian era.

The villages examined by Dr. Reagan each contained from ten to twenty-five houses, and every house had been leveled. Fire had destroyed them, presumably as a result of enemy attack, he reported. The earth walls were all burned to consistency of brick, and the fallen, burned-clay walls now form a mound which marks the site of each lodge.

The houses built by these Indians almost two thousand years ago were circular earth lodges, Dr. Reagan said. The floor was of earth with a fireplace in the center. The base walls were partly of cobbles, and above these there seems to have been a lattice of wattle-work plastered over with mud. The roofs were flat and made of the same mud-daubed lattice. Some of the arrow points, the milling and hammer stones, fragments of undecorated gray pottery, and other lasting possessions of the ancient Pueblos were found still in the ruins.

Dr. Reagan came upon the ruins by chance while he was photographing ancient Indian rock carvings for the Laboratory of Anthropology at Santa Fe.

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PHYSIOLOGY-PSYCHIATRY

Blood of Neurotic People Differs From Normal

NEUROTIC individuals, who are over-sensitive, self-conscious, moody, apprehensive and diffident, have less calcium in their blood, more sugar, and less hemoglobin which makes blood red, than have non-neurotic people who are well-poised, self-confident, and sociable. This physiological difference between neurotic and normal persons was reported to the American Psychological Association, in Iowa City, by Prof. Elmer Culler of the University of Illinois.

Science News Letter, January 3, 1931