ues. "If this were also the cause of the later disappearance, a few forms may have lingered on in some localities, but not for any appreciable length of time.

"None of their bones have so far been found associated with the earliest basket-maker remains of the Southwest nor with the earliest Indian artifacts of the central North American region. The Indians of the Plains may have belonged to an entirely distinct and later migration from Asia or perhaps the people whose ancestors had lived with the mammoth and horse, returned to their former land when the climatic conditions became normal again.

"But if this latter did happen, evidence points to the fact that considerable time had elapsed between their departure and their return, probably 10,000 years or more."

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ARCHAEOLOGY

Pharaohs in Museums Not True to Life

IT'S NO USE trying to visualize famous Egyptians from their stone portraits.

Egyptian sculptors never had any idea of showing the world that a certain conqueror had a large nose, or that one queen was beautiful and another just medium. If the statue bore the name of the person represented, that made a definite individual of him, to Egyptian satisfaction.

This warning, that Europeans and Americans may as well cease expecting Egyptian art to be like ours, is sounded by Prof. Alexander Scharff of Munich University.

A pharaoh's portrait showed the ideal ruler of that era, Prof. Scharff maintains. The sculptured torso was healthy and vigorous. We can rarely judge age from a king's face.

Prof. Scharff cites a clever experiment, which proved that two statues did not truly picture the same man in youth and old age. A plaster cast was made of a "young" Egyptian's wig, and placed on the "old" Egyptian's bald pate and presto—the two faces were practically the same.

It reminds us of the illusion created at our own National Museum at Washington, where White House ladies' costumes are displayed on figures with identical faces. Rarely do visitors realize it.

Prof. Scharff knows only three Egyptian sculptures that are portraits in modern sense. This, however, leaves out three interludes in Egypt's long history when sculptors did break away to portray real faces—as when Pharaoh Akhnaton encouraged artists to show his curious profile.

Egyptian statues in museums are of two kinds—both religious. Some were hidden in tombs to keep the dead alive. Others, placed in temples, primarily honored a god, even when they boasted the individual's fame.

In either case, says Prof. Scharff, neither craftsman nor patron was interested in a good likeness.

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PALEONTOLOGY

Dinosaur Footprints Traced To Ancient Reptile Bones

Giant Tracks in Solid Rock Lead Scientists to Dig For Bones of House-High Prehistoric Monster

ENORMOUS footprints, not in the sands of time but in the solid rock of the everlasting hills, have at last led Dr. Barnum Brown of the American Museum of Natural History to the place where lie the bones of the house-high dinosaurs that made them. Dr. Brown has gone West, to Rock Springs, Wyo., where with a steamshovel borrowed from the Union Pacific Railroad he is digging for the remains of the giant reptiles.

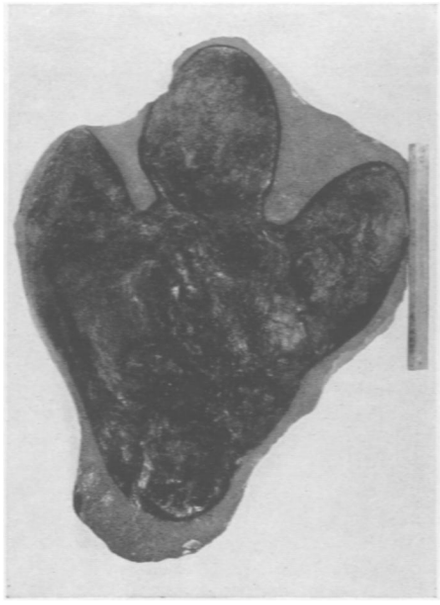
The makers of the great tracks were dinosaurs related to the Iguanodons whose fossils have been found in Belgium and Britain; but the Iguanodons, big as they were, ranked as dwarfs beside their huge American relatives. Their yard-size footprints have been found spaced 16 feet apart, nearly double the stride of the 18-foot-tall Tyrannosaur. It is therefore inferred that the big beasts towered some 35 feet above the ground —higher than a three-story house.

Their tracks were left in the peaty soil of the swamps that were their pastures. Subsequently, floods carried fine sand over the swamps. In time, the buried peat became solid coal, and the fine sand hardened into sandstone. So now when miners in the West take down the coal from the roof, the sandstone casts of the great footprints "hang heavy, heavy over their heads."

The great Iguanodons now being resurrected by Dr. Brown died and were buried back in Cretaceous geologic time, some hundred million years ago. But if you are inclined to give thanks that such monsters do not live today, your sentiment may be tempered by the fact that they were exclusively plant-eaters, and probably no more dangerous than elephants.

Iguanodons and their relatives were a peculiar type of dinosaurs, that habitually went about on their hind legs, with their thick tails to act as balancers, after the fashion of kangaroos. It is not likely that they did as much lively leaping as present-day kangaroos; giant animals of any kind are not much given to that kind of athletics. But they could do some very tall striding—in a literal as well as figurative sense.

The name Iguanodon was given to



FOOTPRINT

The length of this giant track is 44 inches, and it is 32 inches wide. Printed in solid rock, such tracks have led Dr. Barnum Brown, of the American Museum of Natural History to the resting place of the great dinosaurs that made them.

this group of reptiles because of certain resemblances between their teeth and those of the modern tropical lizards known as Iguanas, though there is no close kinship between ancient dinosaurs and modern lizards.

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PALEONTOLOGY

Insects Were Giants When Coal Was in the Making

See Front Cover

GIANTS were in the air as well as in the earth, in the remote days when coal was in the making. Probably the most striking of them all was a genus of tremendous dragonflies, with a wingspread of about a foot, though their body diameter was not much greater than a leadpencil. The scene shown on the front cover of this issue of the Science News Letter is a detail from a restoration of a Coal Age forest, in the Field Museum of Natural History, Chicago.

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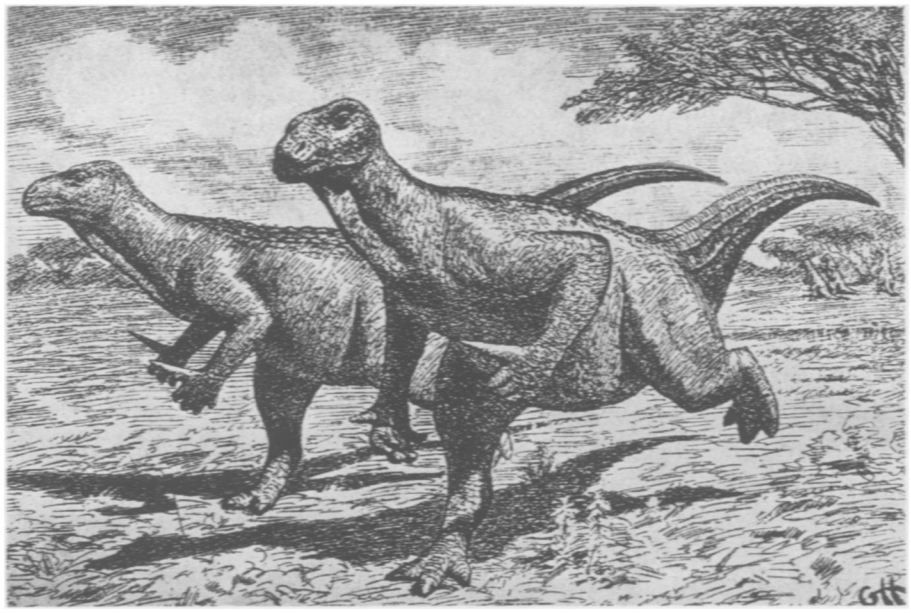

WHAT THEY LOOKED LIKE

Something like these restored Iguanodons, but very much larger, were the 35-foot giant saurians that made the enormous fossil footprints found in the Chesterfield Coal Mine, Utah, by Dr. Barnum Brown of the American Museum of Natural History.

PHYSICS

New Radium Refining Plant To Be Started in Canada

Ontario Refinery Will Make It Possible For Hospitals In U. S. To Obtain Precious Element More Readily

A NEW radium refining plant, that will make over $2,000,000 worth of this rare cancer-treating element available to hospitals yearly, is to be constructed at Port Hope, Ontario.

The new plant will supplement the present refinery of the Eldorado Gold Mines, Ltd., where radium is now being produced in pure form at the rate of two and one-half grams a month. The new plant, however, will have three times the present production capacity.

The new radium refinery will permit the sale of Canadian radium to hospitals in the United States. Up to now almost the entire output has been distributed within the British Empire, according to Dr. Marcel Pochon, French scientist and former pupil of Pierre Curie, who directs Eldorado's processing and refining laboratories.

A recent survey of the radium needs of hospitals in eastern United States alone revealed that about 1.7 ounces is needed, with a cost at current values of $1,187,500. Eastern U. S. hospitals now have 51,895 milligrams of radium and want 47,470 milligrams more.

All the radium ever recovered in the world, says Dr. Pochon, is less than one and one-half pounds and would not make a cube two inches on a side. Because it takes a million pounds of the rich, Canadian pitchblende ore to yield one gram of radium, the cost of the final radium has ever been high. At one time radium cost $125,000 a gram. Then the price fell to $75,000 a gram when the Canadian ore deposits were found in 1929 near Great Bear Lake. Currently the price is $25,000 a gram.

At $25,000 a gram, declares Dr. Pochon, the cost of using radium for cancer therapy compares favorably with X-ray treatment, for with radium the high initial cost is almost the sole one. There is no costly apparatus to wear out and replace, and radium itself has a half life of some 1,600 years. That is, in 1,600 years one gram of radium will have disintegrated to one-half gram.

Source of the Canadian radium is from the mines of the Eldorado Company at Radium City, on the eastern shore of Great Bear Lake, just south of the Arctic Circle and 500 miles east of Alaska. The radium-bearing ore consists of a mixture of uranium compounds of which 50 per cent. is uranium, heaviest of all known chemical elements.

Outside of being the "mother" element from which radium comes by spontaneous disintegration, uranium is used in the ceramics industry as a base for brilliant yellow, orange and black pigments.

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ENTOMOLOGY

Chiggers Attack Hoppers But No Real Harm Done

CHIGGERS are attacking grasshoppers in midwestern states but there is no hope that this minor war among the insects will seriously affect either kind. Entomologists report that red mites or chiggers often become parasites upon grasshoppers with the 'hoppers surviving the experience. The brilliant coloring of the chiggers often attracts the attention of observant farmers.

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There are over a billion elm trees in the United States—all threatened unless the Dutch elm disease is checked.