

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 dis-

integrated 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.