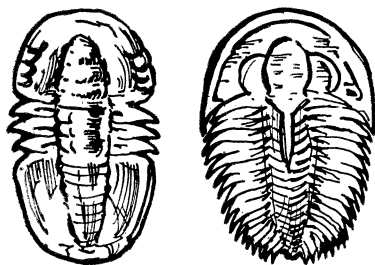


GEOLOGY

## NATURE RAMBLINGS

by Frank Thone



### When Erosion Was No Problem

**E**ROSION, one of the toughest problems confronting the new national program of a planned agriculture, was no problem half-a-billion years ago, when life on the earth was young. Lands then were broad but low; they did not have high mountains and steep hills to dash rivers downward in mad races to the sea, wearing their stony ribs away and piling the pebbly debris on submarine plains to form the type of rock called "conglomerate," filled with water-worn rolled rocks like raisins in a pudding.

So Dr. Charles E. Resser, Smithsonian Institution geologist, has decided after an exhaustive study of rocks of the Cambrian, remotest geologic period of which there is anything like a full fossil record.

The Cambrian yields plenty of rocks that were formed of bits of older rocks, but the vast majority of them are fine-grained sandstones, slates, shales and limestones. Their constituents were ground down fine, of sizes to be carried into the sea by gentler-flowing lowland rivers.

The climate of that remote time seems to have been as mild as the rivers were slow, for no sure signs of ice action have ever been found in the Cambrian. Some such indications have been attributed to the Cambrian, but Dr. Resser states that in every case investigation has shown them to belong to the pre-

ceding geologic period, the Beltian, in which no certain traces of animal life can be found.

As the lands were low, the seas were also shallow. No great deeps or valleys existed in their bottoms. Being shallow, and lying under equable climatic conditions, they were warm and favorable to the existence of abundant animal life. They did not, however, offer much encouragement to the development of active and aggressive new species. The highest forms of animal life known from the Cambrian were the trilobites, which looked a little like insects, but were really more nearly related to lobsters and crayfish. These creatures ruled the lazy seas for uncounted thousands of years.

If any life existed on land, it must have been scanty or without any fossilizable parts, for no fossil remains of either land plants or land animals have ever been found. It is not improbable that in those days the land was completely desert, and all life concentrated in the sea.

*Science News Letter, February 24, 1934*

CHEMISTRY

## Gibbs Medal Goes To Heavy Hydrogen Discoverer

**F**OR DISCOVERY of heavy hydrogen, Prof. Harold C. Urey of Columbia University is to be decorated with the Willard Gibbs Medal, one of the highest science honors.

Chemical laboratories throughout the world are now concentrating efforts on finding the properties of the double-weight twin of ordinary hydrogen and the strange heavy water made with it. Before Prof. Urey, captaining a research team of three, in 1931 discovered deuterium, as heavy hydrogen has been christened, hydrogen's duplicity was unrecognized.

Only 41, Dr. Urey is the youngest among distinguished scientists honored with the medal conferred by the American Chemical Society's Chicago section and named after the American scientific pioneer who contributed largely to thermodynamics.

*Science News Letter, February 24, 1934*

RADIO-ASTRONOMY

## Meteors Affect Reception Of Short Wave Radio

**T**HE RADIO "ham" may now add meteors to the list of natural phenomena affecting his reception of long distance signals along with sunspots and magnetic storms.

During the November shower of Leonid meteors, Drs. R. Minohara and Y. Ito, of the Japanese Naval Experiment and Research Establishment at Tokyo, were working on a series of experiments for determining the height of the Kennelly-Heaviside layer, the radio reflecting area of the upper atmosphere. It was an easy matter for them to determine, as a sort of side issue of their research, the effect of meteors on the transmission of radio signals.

Meteors speed through the upper air at the rate of 26 miles (42 kilometers) a second or more, the investigators stated in a report to the Radio Research Committee of the National Research Council of Japan. The friction caused by these objects hurtling through the atmosphere produces ionization in their pathways before the meteors are heated to incandescence and become visible.

Small meteors serve to ionize the upper atmosphere, while the larger ones penetrate to and ionize the air at relatively lower altitudes.

Air or any other substance is said to be ionized when through any cause the molecules, atoms or other particles of which it is composed have electrons knocked out of them, leaving them positively charged.

Even in the daytime, meteors affect radio waves, causing irregularities in reception, it is found. Those of relatively long wavelengths are affected comparatively little, because long wavelengths are reflected at the lower surface of the sun-ionized region of the atmosphere. Shorter waves penetrate farther and may be reflected by "ion clouds" formed by the meteors or by an upper ionized layer formed by the smaller meteors.

At night, when the ionizing effect of the sun is not so great, the effect of the meteors is relatively greater.

*Science News Letter, February 24, 1934*

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