GEOLOGY

Radioactive Potassium Is New 'Clock' to Check Age of Earth

K 40 Analysis Shows World Is Less Than 3,000,000,000 Years Old; New Estimate Agrees With Uranium Figure

A RADIOACTIVE potassium "clock," latest aid to scientists seeking to know the age of the earth, indicates that the world is less than 3,000,000,000 years old, Dr. A. Keith Brewer of the U. S. Bureau of Chemistry and Soils reports (*Science*, Aug. 27.)

Radioactive potassium, an isotope of the common variety with an atomic weight of 40 instead of 39, he also indicated, is becoming a "lost element," similar to radium, whose amount is also gradually diminishing.

Radioactive potassium, K 40, changes over long periods of time into the common variety of calcium, the metal that forms the basis for lime and limestone. Scientists can compute the age of the earth from their knowledge of how much calcium is to be found today and a knowledge of the rate at which radioactive calcium decomposed.

Results by the potassium "clock" method, Dr. Brewer reported, are in close agreement with estimates of the earth's age gained from another radioactive "clock", that of radium, uranium and lead.

Radioactive potassium, like uranium, was at one time much more common, he pointed out.

Caused Great Changes

Radioactive potassium, which Dr. Brewer reported last spring to be playing a vital part in life processes, particularly in the growth of plants, may have been partially responsible for the tremendous changes in plant and animal life that occurred during the Carboniferous age, some 250,000,000 years ago.

"It is interesting to note," he declared, "that the K 40 content (of the earth) during the Carboniferous era was from four to fifteen times that existing at present; this may have had an important influence on mutations and rampant growths during that era," he pointed out.

The potassium clock has also aided in setting a date approximately one and a half billion years ago when the earth's crust began to solidify, thus making life possible. Calculations based on the potassium clock fix the time as 1,430,000,000 years ago, as compared with 1,500,000,000 years ago for the uranium-radium-lead clock.

Radioactive potassium is today comparatively rare, most of it already having disintegrated into calcium. Potassium's ordinary variety, K 39, is 8,300 times as common as the radioactive isotope, K 40, Dr. Brewer reported.

At the present time, indicated Dr. Brewer, the amount of radioactive energy liberated by potassium, uranium and thorium is of the same order of magnitude. A billion years ago, however, the supply of energy liberated by the radioactive form of potassium, K 40, was far in excess of that from uranium and thorium.

His results, the chemist concluded, "also show that in early geological times, radioactivity was far more prevalent than it is today.

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ORNITHOLOGY-RADIO

Shortwave Radio Aids In Recording Sea-Birds' Chorus

CULMINATING an expedition on which the voice of a bird was for the first time recorded on film by means of radio, ornithologists at Cornell pronounced successful the first records ever made of the voice of Atlantic petrels.

Albert R. Brand of the laboratory of ornithology at Cornell, and pioneer in bird-song recording, did the field work in cooperation with the Bowdoin College department of zoology. Taking Harold Axtell of Cortland, N. Y. along as his assistant, Mr. Brand travelled in his sound truck to northern Maine, ferried across to the island of Grand Manan, and arrived within six miles of

TO TAME WILD NOTES

Paul Kellogg and Albert R. Brand, Cornell University ornithologists, with part of the radio-aided recording equipment used to write the notes of wild birds on sound film.