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'U' GEOLOGISTS DISCOVER EVIDENCE OF LIFE 3 BILLION YEARS AGO

(FOR IMMEDIATE RELEASE)

Minneapolis---Further evidence supporting the theory that life has existed on earth for some 3 billion years was reported recently by a team of geologists from the University of Minnesota.

The results of the Minnesota study form the second biochemical report of specific organic compounds in Precambrian rocks, and confirm the presence of carbohydrates in rocks up to 2.8 billion years old. Carbohydrates (sugars, starches, celluloses) are formed by green plants and their presence in rocks of this age strongly suggest the presence of life at that time.

F. M. Swain, professor of geology in the University's Institute of Technology, reported the presence of sugars (glucose, galactose, and arabinose) and several unknown carbohydrate-like components in rocks found in Minnesota, Ontario, and the Northwest Territories. The original source of the carbohydrates was probably microscopic plants. Swain presented a paper on the study at the Third International Meeting on Organic Geochemistry, in London in September. Co-authors of the paper were Mrs. Judy G. Bratt and Mrs. Gunta V. Pakalns, senior laboratory technicians at the University.

Swain's findings are the second report of organic substances from rocks of this age that could logically come only from living organisms. W. G. Meinshein, a Standard Oil chemist, in 1964 found hydrocarbons (isoprenoid hydrocarbons pristane and phytane) which occur commonly in living organisms in the billion-year-old Nonesuch Shale of northern Michigan.

(MORE)

Previously, fossil remains dating back approximately 3 billion years have not been considered conclusive proof of life at that time because fossil remains did not provide enough material for biochemical analysis. Whole-rock analyses of rocks containing fossils have, however, given some proof of organic compounds.

The carbohydrates discovered by Swain and his associates were extracted with acids from about 2 pounds of each of the rock samples, and were separated from the extract by separation processes (chromatography) and reaction with specific enzymes. The reaction process is of direct application to the search for early forms of life because one glucose-oxidase enzyme, for example, is specific for D-glucose, found only in living organisms.

The rocks were taken from the Coutchiching, Soudan, Thomson, Biwabik, and Rove Formations of Minnesota and Ontario, and the Wynniatt and Killian Formations of Victoria Island, Northwest Territories. The youngest rocks are from the Wynniatt and Killian Formations (questionably about .7 billion years old) and the oldest from the Coutchiching Formation (about 2.8 billion years old).

Samuel Kirkwood, professor of biochemistry, and M. A. Rogers, Esso Oil Company Research Laboratory, Houston, Texas, also aided in the analyses of the rocks.

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