GEOLOGY

Rocks Disclose Their Ages After Treatment With Acid

New Method Distinguishes Between Limestones That Look Alike and is Valuable in Mining and Oil Prospecting

ROCKS that cannot be told apart as they are dug out of the ground can be made to disclose their ages and geological kinships by dissolving away most of their substance with hydrochloric acid and examining what is left under a low-power microscope. This method of analysis by insoluble residues has been developed by H. S. McQueen of the Missouri Bureau of Geology and Mines, working under the direction of Dr. H. A. Buehler, State Geologist.

The development of the method was brought about by the presence of quantities of limestone rock from deep wells and other borings. All the samples looked pretty much alike, though it was known that they must be of very different natures and geologic ages. The masking similarity was due to the presence of the limestone matrix itself, in which there were none of the fossil casts that are the usual dating-tags which the geologist commonly uses in identifying his finds. Following hints given by earlier workers on the same problem, Mr. McQueen undertook to get rid of the featureless limy matrix by dissolving it in hydrochloric acid, so that he might concentrate his study on the bits of stuff buried in it that are not soluble in the acid.

The method has worked to perfection, he reports. Each type of limestone, indistinguishable to ordinary examination, yields an insoluble residue of particles that is absolutely characteristic for that particular type and unlike the residues of other types. One limestone will have fine sand particles in it, another will contain coarser sand particles of a different color, or perhaps bits of shale, chert, or tiny round pebbles known as oolites, or minute fossil shells.

A peculiar type of particles, whose existence has never before been reported, was found in some of the dolomites. These are thin walls of silica that have been built up around dolomite crystals, and when the latter are dissolved out by the acid a spongy or lace-like mass which shows the cast of the dolomite remains. Since these casts have the characteristic shape of such crystals, Mr. McQueen has given them the name "dolocasts." Dolomites from different beds have yielded different types of dolocasts upon treatment with acid, and these have helped in their identification.

Mr. McQueen has found his method of value in guiding various kinds of economic enterprises dependent on geological knowledge, such as mining, oil-seeking and deep drilling for water. He has also run cross-section lines in several directions through the state of Missouri, adding materially to the general geological knowledge of the region.

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MEDICINE

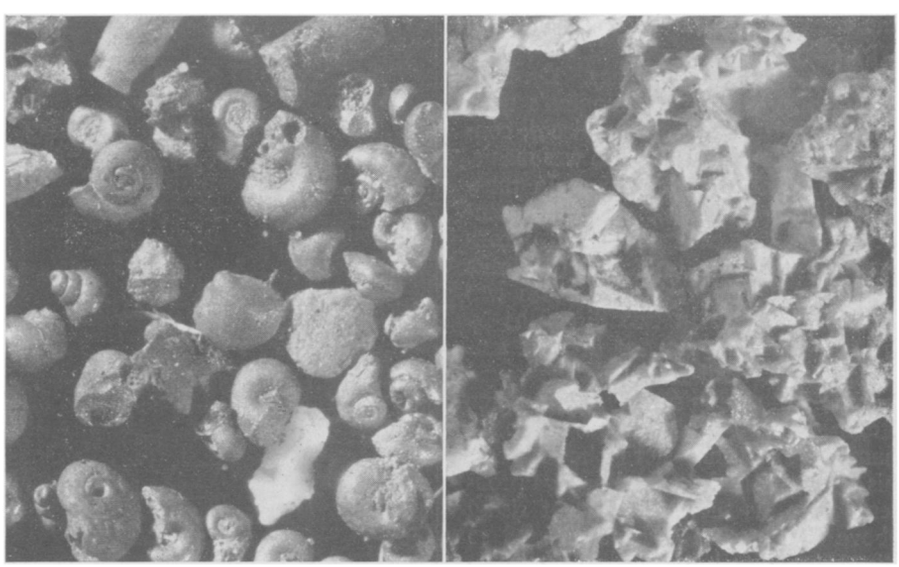
Coming Epileptic Attacks Predicted From Charts

KEEPING records of every epileptic patient, every hour of the day and night, every day in the year is the arduous task undertaken at the Colony for Epileptics at Cambridge, Minnesota. Dr. Theodora Wheeler, of Rochester, Minnesota, reported to the American Psychiatric Association in Toronto last week that for three years such records have been kept concerning one hundred patients, and now the program is to include a chart of this sort for every epileptic.

From these charts it is possible to trace the rhythmic cycle which many patients follow. It becomes possible to forecast attacks and to do whatever is possible to avert them. Some patients are attacked by convulsive seizures only in the day, others at night. Some suffer attacks at a certain hour, and in some the pattern of the disease alternates from one interval to another.

New investigations shedding light on the relationship of the condition of blood to epileptic seizures were reported by three Massachusetts physicians who have been working together. The physicians, Drs. M. B. Hodskins and Riley H. Guthrie, of Palmer, and Dr. J. Z. Naurison, of Springfield, stated that a low percentage of water in the bodily tissues is favorable to relief from epileptic attacks; various methods of treating epilepsy have this one factor in common, lessening the water content. It is interesting that in diabetes, a disease which favors dehydration, the incidence of epilepsy is surprisingly low, the physicians commented.

Because no one has heretofore investigated the problem, the three doctors have been studying the volume of the blood in epileptic patients before, dur-



AFTER THE LIMESTONE IS DISSOLVED

Insoluble residues, resistant to the action of hydrochloric acid, remain to tell the age and affiliations of the formation under examination. Through the microscope the geologist sees minute shells (left), lacy siliceous "dolocasts" (right), and sand grains, shale flakes, or other characteristic inclusions.