

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

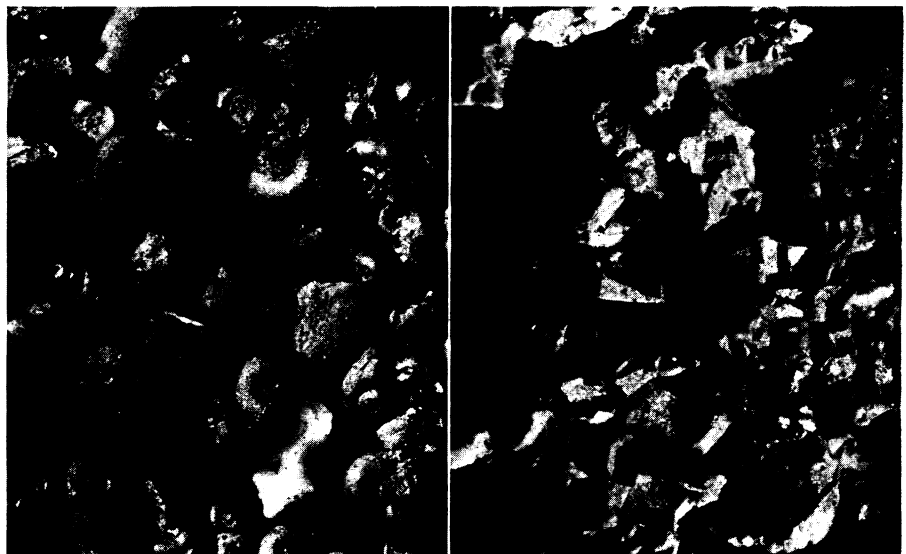
KEEPING records of every epileptic patient, every hour of the day and night, every day in the year is the arduous task undertaken at the Colony for

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.

ing, and after convulsive seizures. A decrease in the blood volume was found during the convulsive state, and a large number of other records have been made, which the physicians hope will give new information on the funda-

mental character of epilepsy. The understanding of the abnormal changes in the water content of the blood may also lead to better methods of dehydrating the epileptic patient, they reported.

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PSYCHOLOGY

Humor Saved Lincoln From Serious Mental Disease

Study Presented Before Psychiatrists Classifies Famous Civil War President as a Schizoid-Manic Type

LINCOLN'S famous sense of humor saved him from being swept away by the strong forces of his mental makeup, Dr. A. A. Brill, psychoanalyst of New York, declared in a paper on the personality of the great Civil War President. This paper was read before the American Psychiatric Association at Toronto in spite of protests from some members.

Dr. Brill declared emphatically that his study of Lincoln is entirely scientific with no thought of being derogatory to one of America's eminent statesmen. Far from implying that Lincoln was insane, Dr. Brill's conclusion is that Lincoln succeeded in maintaining his mental integrity in circumstances which would have dragged a less strong personality down into mental disease.

The psychoanalyst classifies Lincoln as a schizoid-manic type. Schizoid to the analyst means a shut-in, thoughtful type of personality. Manic means inclined to moods of buoyancy. Dr. Brill has studied George Washington's type, concluding that he was a schizoid, contrasting with Roosevelt, who was manic.

Such traits are conspicuous in mentally diseased persons, where the tendencies become exaggerated and uncontrolled. In normal persons the traits exist but less noticeably. Lincoln was pulled constantly in two directions by his conflicting shut-in and buoyant tendencies, Dr. Brill showed. He saved himself from being swept away by these strong forces by his famous sense of humor. The funny stories he told and his jesting attitude toward serious problems were his successful way of rising above an existence which he found so distressingly full of melancholy problems. Dr. Brill called Lincoln's jesting the safety valve which kept him from being torn apart by two distinct forces of his personality.

Dr. J. T. Moreno of New York suggested that Lincoln might have been playing an assumed role, when he jested at crises. He protests strongly that it is unfair for a psychiatrist to analyze the character of a man now dead. Dr. Brill had taken the position that when a noted man's friends and contemporaries leave stories about him, the generations that follow have a right to accept the record, using judgment as to the accuracy of the facts.

"Something is fundamentally wrong with the theory of psychoanalysis," Dr. Moreno states, "and the more unusual the personality, the more dangerous it is to apply the accepted formula as valid."

Most of the membership of the

American Psychiatric Association accepted Dr. Brill's carefully prepared study of Lincoln as a scientific contribution of merit. The president of the association, Dr. W. M. English of the Ontario Hospital at Brockville, said that he saw nothing in Dr. Brill's paper of which to complain.

Much of Lincoln's emotional difficulties with life can be traced to his father, who ill-treated him, Dr. Brill showed, pointing out that normality so-called depends altogether on a son's adjustment to his parents, especially the father.

"The whole future adjustment of the son to his teachers, employers, and the state depends on his early adjustment to his father," the psychoanalyst declared.

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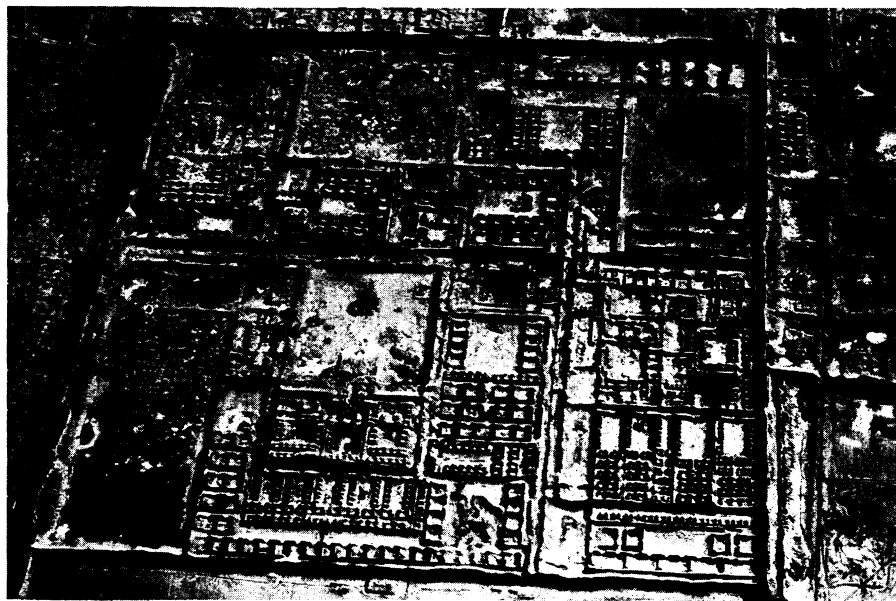
ELECTRICITY

Cost of Electricity Read Directly in Cents Per Hour

AN ELECTRIC meter which anyone can read at a glance and readily understand is being used by the National Rural Electric Project, College Park, Md. It reads directly in cents' worth of electricity consumed per hour as well as in kilowatt hours, the engineers' unit.

The meter is designed especially for use in demonstrations before farmers, to show concretely the cost of operating farm equipment by electric power.

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LIKE THE PLAN OF A MODERN CITY

Is the pattern made on the sun-baked wastes of Peru by the crumbling ruins of Chan-Chan, ancient capital of the Chimu people. This is a close-up aerial view taken by the Shippee-Johnson expedition of the walled palace of the Grand Chimu, whose kingdom was overrun by the Incas just before the Spanish conquest.