



**STISHOVITE CRYSTALS**—Tiny crystals as seen under a microscope in polarized light, magnified 110 times. The crystals were concentrated from sandstone by adding hydrofluoric acid.

## GEOLOGY

## New Mineral Discovered

➤ ANOTHER new mineral formed when a huge meteorite struck the earth has been discovered in Meteor Crater, Ariz.

The mineral, known as stishovite, was created when an intense shock wave generated by the meteoric impact hurtled through the earth's layers. Stishovite is the second new meteoritic-impact mineral discovered in the crater where coesite was found a little more than a year ago by a group of U. S. Geological Survey scientists.

A high pressure shock wave exerting a force probably greater than 1,500,000 pounds per square inch pushed through the surrounding rock, changing embedded quartz grains into the new mineral. The pressure needed to form the new mineral, almost as dense as metal, was equivalent to pressures found a few hundred miles below the earth's surface.

The mineral was discovered in rock samples from Meteor Crater debris by Dr. E. C. T. Chao, Joseph J. Fahey, Janet Littler and Dr. Daniel J. Milton. These scientists belong to the Survey's astrogeologic unit that also discovered natural coesite.

"The discovery of either coesite or stishovite in a crater definitely establishes the crater as being meteoritic in origin and not volcanic," Dr. Chao said. There has been considerable debate among scientists both here and abroad whether certain deep craters in Germany, Africa and the United States were gouged out by a meteorite or formed by a volcano.

Stishovite was synthesized artificially earlier this year by Russian scientists S. N. Stishov, for whom the mineral was

named, and S. V. Popova at Moscow State University's Institute of High Pressure Physics.

• Science News Letter, 80:413 December 23, 1961

## METEOROLOGY

## Center for Research On Atmosphere Opened

➤ A NEW NATIONAL laboratory to probe basic weather processes and other kinds of atmospheric behavior has been established in Boulder, Colo.

Known as the National Center for Atmospheric Research, or NCAR, the laboratory will be run by a 14-university corporation under the sponsorship of the National Science Foundation. The Center was established as a result of a report to the National Academy of Sciences calling for a major national effort in the atmospheric sciences.

This report urged that the national center tackle problems involving amounts of manpower and facilities beyond the capacity of individual universities to support.

The legal proceedings on Dec. 13 also marked the merger of the High Altitude Observatory, which has operated solar and astrophysical research facilities in Boulder and Climax for the past 15 years, with the university corporation. Dr. Walter Orr Roberts, director of the High Altitude Observatory since it was founded, was appointed director of the new National Center in June, 1960.

Among the practical applications to which the basic research of NCAR may lead are improved methods of weather prediction

over both short and long periods, and a realistic assessment of the potentialities of weather control on local, regional and continental scales.

The NCAR scientific mission includes not only the study of the earth's atmosphere but also the influences on it from the underlying ground and ocean surface, and from the sun and cosmic sources.

Universities that are members of the corporation running NCAR include: Arizona, California, Chicago, Cornell, Florida State, Johns Hopkins, Massachusetts Institute of Technology, Michigan, New York, Pennsylvania State, Saint Louis, Texas A and M College Systems, Washington and Wisconsin.

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## PUBLIC SAFETY

## CD Official Supports "Do-It-Yourself" Shelters

➤ THE GOVERNMENT has endorsed low-cost, self-built fallout shelters and may examine some proposed plans, including the \$36, four-by-six-foot "family" shelter designed and built by Dr. Willard F. Libby, Nobel prize winner and former member of the Atomic Energy Commission.

"We are in sympathy with very low cost 'do-it-yourself' shelters," Stuart L. Pittman, Assistant Defense Secretary for Civil Defense, reported. He said he had not yet examined the type of shelter proposed by Dr. Libby, but the Department of Civil Defense is preparing an instruction booklet that will make it possible for people with backyards and basements to build an adequate shelter for \$150.

Civil Defense officials now estimate that in the event of an attack, persons would have to remain in fallout shelters for two weeks.

When asked how a family of four could survive for that period in such economy-sized shelters as proposed by Dr. Libby, Mr. Pittman said confinement studies are being made.

He favors dual-purpose shelters that can either be converted to other uses in later years or serve both for survival and some other function now.

Sec. Pittman said that survival is both probable and possible in the event of a thermonuclear war. He admitted that it is logical to assume that the enemy in an attack would aim for complete and total destruction of the United States, but he insisted that there was some logic to estimates that attack would be more limited. When questioned further, he declined to reveal this latter logic.

He recommended that every person, including apartment dwellers, should have a plan for what he does and where he goes in a thermonuclear attack. This preparation includes stocking food and "having it ready when you go."

In the event of an attack, Mr. Pittman said it is "quite possible that half of the shelters would be wiped out."

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