Earth and Environment Notes

GEOLOGY

A Glimpse of Earth's Mantle

The earth's mantle—the layer underlying the surface crust—may consist of a wider variety of minerals than suspected up to now, according to a report in the March 24 SCIENCE.

The report is based on a study of samples from the St. Peter and St. Paul Rocks, a series of barren islets just north of the Equator in the mid-Atlantic. It has long been suspected that the rocks, which are not volcanic, are an exposure of mantle material.

Among minerals identified in a study of samples from the islets and from dredging near them, the four authors observe, are brown hornblende mylonites (highly sheared rocks), "characterized by abundant brown alkali-rich hornblende and a large and complex suite of associated minerals."

The brown hornblende mylonites were previously undescribed in reports on the rocks, they note.

The minerals, their diversity and their juxtaposition are "consistent with movement of a relatively hot (but solid) plastic rock mass through the suboceanic mantle," they report.

The report was written by William G. Melson and Eugene Jarosewich of the U.S. National Museum and Vaughan T. Bowen and Geoffrey Thompson of the Woods Hole Oceanographic Institution.

SOIL MECHANICS

Water Repellent Soil

Organic substances in brush (chaparral) on southern California watersheds make the soils beneath the brush water repellent, according to a study by a Forest Service scientist.

The water repellency increases considerably in soils under burned brush, according to Leonard F. DeBano of the Forest Service Experiment Station, Berkeley, Calif. But unburned watersheds covered with chaparral, oakgrass, conifers or grass also develop the "non-wettable" layer, usually two to three inches below the surface.

This, DeBano suggests, helps explain excessive erosion of watershed areas after wildfires. Rain water, unable to soak quickly into the earth, runs off in large quantities, carrying the soil with it.

OCEANOGRAPHY

Manganese Nodules Grow Slowly

Two theories have been proposed to explain the formation of manganese nodules in the ocean; reaction of volcanic products with seawater and slow precipitation of manganese from the water.

Measurements made by two scientists at Scripps Institution of Oceanography now indicate that slow growth seems most likely.

S. S. Barnes and J. R. Dymond report in the March 25 NATURE that ratios of isotopes of thorium and uranium found in nodule samples support the slow growth model.

Potassium argon dating of the centers of the nodules, they note, indicates "a very old age." That the samples were found exposed on the ocean bottom, therefore, invalidates the argument that slowly accumulating nodules would soon be buried in sediment, they write.

PESTICIDE RESEARCH

Michigan State Sets Up Center

A $741,000 center for the study of pesticides is under construction at Michigan State University under a grant from the Department of Health, Education and Welfare.

"Completion of the center will make it possible for scientists from 17 MSU departments to join forces at a moment's notice to battle pests and measure pesticide side effects on animals, crops, soil and water," said Dr. Gordon E. Guyer, chairman of the department of entomology. "This combination of facilities and scientific talent may well make MSU the hub of pesticide research in the Midwest."

SEISMOLOGY

Man-made Quakes Rock Denver

Deep well disposal of liquid wastes at Rocky Mountain Arsenal may have been responsible for more than 800 small earthquakes detected in Denver between April 1962 and February 1966.

During this series of quakes, 75 were strong enough to be felt and cause minor damage, according to a report in the March, 1967 EARTHQUAKE INFORMATION BULLETIN.

The bulletin is published by the National Earthquake Information Center, Rockville, Md., a part of the Environmental Science Services Administration.

One of the 800 recorded quakes registered 4.2 on the Richter scale, the report notes. That is only a tenth of a magnitude smaller than the largest earthquake ever recorded in Denver.

PEST CONTROL

Agriculture Seeks Layman's Help

The United States was invaded by a dozen new insect pests last year—enough to arouse the Agriculture Department to try to set up an early warning system.

Home gardeners, farmers, campers and hikers are asked to serve as volunteer eyes for the Department, reporting to county agricultural agents any unusual insect damage to crops, shrubs or trees.

The damage could mean that a new pest has smuggled itself through quarantine barriers, or that the population of a native bug has reached dangerous numbers.

ENTOMOLOGY

Termites Lured by Their Own Scent

Termites may be lured to destruction by their own smell if a way can be found to synthesize it in large quantities, according to Dr. B. P. Moore of the Division of Entomology, Canberra, Australia.

Dr. Moore has extracted less than an ounce of the perfume from 25 million termites. The insects avidly follow a trail of it, he reports.