



**TV FOR ATOM RESEARCH**—An experimental television microscope is being used at Britain's Atomic Energy Research Establishment, Harwell. It enlarges highly radioactive metal specimens on a screen and permits their examination without damage to the eyes. A demonstration image is shown here on the 15-inch screen of the TV microscope.

## GEOLOGY

## How Uranium Is Made

► THE CHEMICAL PROCESS that uranium undergoes in its own natural underground laboratory is being unfolded by Dr. Robert M. Garrels of Harvard University.

The complete picture of uranium's origin and evolution promises to help the prospector find new deposits of the atomic-age mineral.

Color and a coffee-like percolation are keys to nature's manufacture of uranium ore, Dr. Garrels and scientists of the U. S. Geological Survey and Atomic Energy Commission have found.

When uranium ores come in contact with air, their color changes. At depths where there is little or no oxygen, the scientists think, the ores will be gray to blue-black in color. However, as the earth's surface wears away and exposes the mineral to the air, the ores turn to the yellow color that every sourdough looks for when prospecting.

The scientists also think that they will be able to predict where uranium is most likely to be found. To learn about this, they are experimenting with many of the naturally occurring uranium compounds, such as those found in copper-uranium and vanadium-uranium ores.

They have learned, Dr. Garrels reports, that uranium ores dissolve in water best, when they are in the oxidized state.

When combined with vanadium, the Harvard scientist discovered, uranium does

not travel in water solutions. When combined with copper and other compounds, however, it does move with ground and stream waters and some of it is eventually carried out to sea.

The fact that uranium has a high chemical activity and can be dissolved means that it is widely distributed over the surface of the earth, Dr. Garrels states.

The highest concentrations, he says, occur in veins and replacement deposits. In unoxidized veins, uranium is found mostly as pitchblend.

In oxidized states, it is in replacement deposits such as the rich deposits found in the Colorado Plateau.

Geologists believe the uranium now being mined in the Colorado Plateau, richest in the United States, was formed in nature's underground laboratory in the following way:

1. The uranium was dissolved by ground water.
2. The ground water carried the dissolved uranium through rocks deep in the earth.
3. As it traveled through the earth, it came in contact with reducing agents such as fossil logs, leaves or twigs. This reaction precipitated the uranium.
4. When the uranium was then exposed to the air by erosion of the overlying rocks, it became oxidized and turned to the familiar yellow color.

Science News Letter, December 15, 1956

## MEDICINE

## Find Echo Virus in Cases Of Nonparalytic Polio

► A DISEASE that produces all the symptoms of polio but is gone within three to ten days appears to be caused by a type of virus found in the intestine.

This nonparalytic form of polio, generally known as aseptic meningitis, is now thought to be caused by a virus called ECHO, for enteric cytopathogenic human orphan, type 6 that has been found in the intestinal tract of patients suffering from the disease.

The ECHO virus is one of a variety of intestinal viruses and has been classified into 12 types. Type 6 has been found in victims of aseptic meningitis.

In seven reported cases hospitalized after an outbreak of the disease in New York in 1955, there was no rise of polio virus antibodies in the patients.

However, within five days they had all developed ECHO type 6 antibodies and recovered shortly after. Six months later this special antibody was still found in the body, the only after effect of the disease being loss of abdominal reflexes by two patients.

Isolation of the ECHO type 6 virus and its role in causing aseptic meningitis is reported in the *Journal of the American Medical Association* (Nov. 30) by Drs. David T. Karzon, Almen L. Barron, Warren Winkelstein Jr., and Seymour Cohen, of Children's Hospital, Buffalo, N. Y., University of Buffalo School of Medicine, and the Erie County Health Department, New York.

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## PSYCHIATRY

## Halt Seen in Increase Of Mental Patients

► A BREAK has occurred in the steady increase of mental patients, it was reported to the National Association for Mental Health meeting in Washington.

F. Barry Ryan Jr., president of the Association, said some state hospitals have reported that last year, for the first time, discharge of cured or improved patients was catching up with the intake of new patients.

In 1955, he said, mental patients increased by only 6,000, compared to an average annual rise of 12,000 over the last 10 years. Slowdowns like this have occurred before, he reported, but indications point to the beginning of a true break in the steep climb of the past 25 years.

He attributed this progress both to the effectiveness of modern treatment, such as psychotherapy, tranquilizing drugs and electroshock, and to the fact that more patients are getting treatment instead of custodial care.

At the end of 1955, Mr. Ryan said, there were a total of approximately 750,000 patients under mental hospital care, and the cost of treating and maintaining them was nearly a billion dollars.

Science News Letter, December 15, 1956