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Maser Transmits 25 Miles

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PHYSICS

Maser Transmits 25 Miles

► **LIGHT PULSES** generated by a new device have opened a new method of communication, particularly for sending messages in space.

Light from an optical maser has been received 25 miles away, and also transmitted one-quarter of a mile through a two-inch circular wave guide, scientists from Bell Telephone Laboratories said.

The optical maser produces a very sharply defined light beam using atomic methods. Maser is an acronym for Microwave Amplification by Stimulated Emission of Radiation. (See SNL, 78:53, 1960.)

Because the light generated by the ruby maser is a very narrow beam, it can be transmitted in the desired direction with little loss, even without use of a lens. The light from a ruby rod one-quarter of an inch in diameter had spread to only 200 feet when it was received 25 miles away in Murray Hill, N. J.

Using the same maser and a lens only four inches in diameter Bell scientists believe they could beam light to the moon.

The optical maser system of communication is expected to be especially useful for space communications, because there are few dust particles and no moisture to scatter the light as they do in the earth's atmosphere.

The Bell experiments with the optical maser are in preliminary stages and are continuing. One possible application for the intense monochromatic light is to speed up chemical reactions.

The light pulses sent over the 25-mile distance lasted about half a thousandth of a second each. During each pulse there were several hundred peaks, indicating that information could be carried by the light beam.

The method was suggested early in 1959 by Dr. C. H. Townes, now a consultant for the Institute for Defense Analyses, Washington, and Dr. A. L. Schawlow of Bell Telephone Laboratories, who received a patent on it this year. Drs. R. J. Collins, D. F. Nelson, W. L. Bond, C. G. B. Garrett, W. K. Kaiser and W. S. Boyle of Bell helped to develop the ruby optical maser.

• Science News Letter, 78:245 October 15, 1960

PSYCHIATRY

Police Play Themselves In Film on Mentally Ill

► **POLICE OFFICERS** act themselves in an unusual film on handling the mentally ill.

The training film, shown for the first time at the meeting of the International Association of Chiefs of Police in Washington, D. C., stars members of the New Orleans, La., police force. It underscores the fact that most police stations and police are ill-equipped both in facilities and materials for handling emotionally disturbed people.

It was produced by the Louisiana Association for Mental Health under the Na-

tional Institute of Mental Health, community services branch, to accompany a widely used police manual "How to Recognize and Handle Abnormal People."

Time and patience are essential in handling most disturbed people. And while psychiatrists stress the fact that most mentally ill people are not violent, they also recognize the fact that those with whom police come in contact in the course of their duties often are.

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ROENTGENOLOGY

"Hidden" Spleen Seen By New Method

► **THE SPLEEN** now can be "seen" and studied by a new method developed at the University of North Carolina School of Medicine and reported to the American Roentgen Ray Society meeting in Atlantic City, N. J.

Commonly called a "hidden" organ, the spleen cannot be felt unless enlarged and, until now, could not be studied adequately by other known methods, including diagnostic X-ray. The large, glandlike ductless organ in the upper left side of the abdomen performs important functions, including setting free the hemoglobin in blood that carries oxygen from the lungs to the tissues of the body.

Dr. Philip M. Johnson, until recently at the University of North Carolina School of Medicine, Dr. Ernest H. Wood, professor of radiology, and Dr. Stewart L. Mooring, assistant in radiology, found they could cause a radioactive substance, chromium-51, to concentrate rapidly in the spleen, permitting them a "scan" of the spleen both in normal persons and patients with diseased spleens. A scan is a picture of a body part made with electronic equipment sensitive to radioactivity. The researchers have used their method successfully and safely on more than 30 patients.

Their research was supported by a grant from the U. S. Public Health Service.

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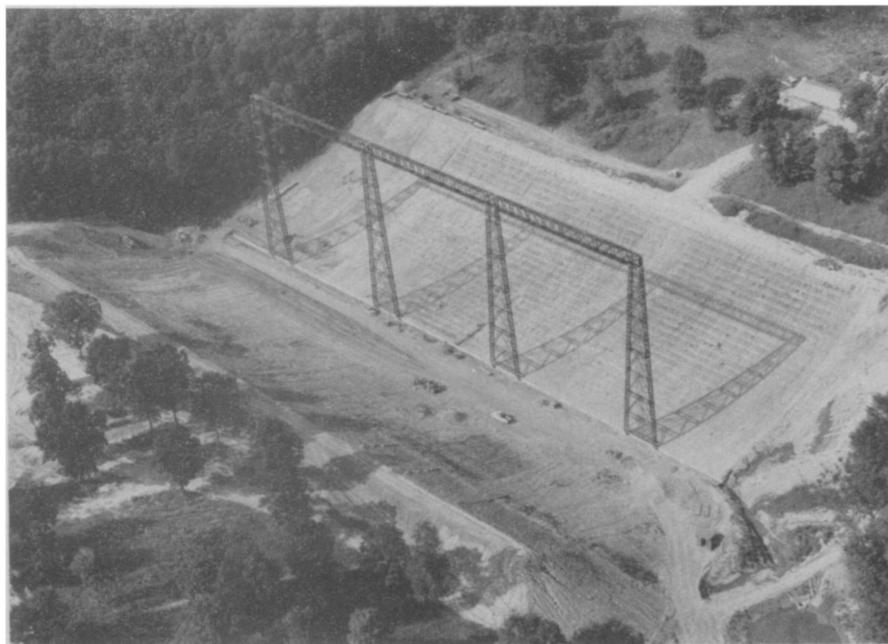
PHYSICS

Austria Gets Reactor For Research Center

► **FOR THE FIRST TIME** atomic scientists will be able to view their experiments directly during irradiation in the center of a reactor. This advantage is one of the unique features of Europe's most advanced nuclear reactor, built by American Machine & Foundry Company, now operating in Austria.

The reactor, Austria's first, is the heart of a new \$6,000,000 nuclear research center at Seibersdorf on the outskirts of Vienna, headquarters city of the International Atomic Energy Agency. More than 200 scientists will staff the 16-building center, conducting basic and applied research in physics, chemistry, metallurgy, biology, medicine, agriculture, isotope production, solid state studies and materials testing for industry.

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RADIO TELESCOPE—A "radio ear" as big as five football fields put together is taking shape along the Vermilion River southeast of Danville, Ill., where the University of Illinois is building a radio telescope. The project is being financed by the Office of Naval Research.