

RADIO ASTRONOMY

Planets Emit Radio Waves

Radio astronomers at Naval Research Laboratory discover radio waves from Venus, the first planet from which those of thermal origin have been found.

➤ MERCURY, MARS and Saturn are expected to be heard from soon by the radio waves they broadcast.

So far only two planets, Venus and Jupiter, have been detected by radio astronomers, but many observations of radio broadcasts by planets are foreseen in the near future.

Besides reflecting light from the sun, planets can emit two frequencies of radio waves picked up here on earth by the giant antennas known as radio telescopes. One frequency results from the planet's heat, absorbed from the sun and radiated into space; the other from motions, possibly thunderstorm-like activity, in the planet's atmosphere.

Jupiter was the first planet discovered to be broadcasting radio waves. They are the type that probably result from large-scale atmospheric disturbances, scientists at Carnegie Institution of Washington reported. (See SNL, April 16, 1955, p. 243.)

Venus is broadcasting both types of radio waves, heat-caused and atmosphere-caused, scientists at the Naval Research Laboratory, Washington, and at Ohio State University have discovered.

Working with the 50-foot, saucer-shaped radio antenna at NRL, Cornell Mayer, Russell M. Sloanaker and Timothy P. McCullough picked up radio waves from Venus at 10,000 megacycles, or a wavelength of three centimeters.

Their measurements showed Venus has a temperature higher than boiling water, or more than 212 degrees Fahrenheit. Optical astronomers have measured Venus' temperature as about half that, but their observations are made of the top of the planet's cloud layer. The radio astronomers are probing deeper into the clouds, perhaps to the Venusian surface.

Using a spaced antenna array, Dr. John D. Kraus, director of Ohio State University's Radio Observatory, has detected crackling sounds from Venus somewhat similar to radio static from thunderstorms on earth. The planet, brightest object in the western evening sky, is now rushing toward the earth at the rate of 500,000 miles a day. By June 22, it will reach its point of nearest approach, 27,000,000 miles, then start to recede.

Soon thereafter, the Ohio and NRL scientists are expected to start searching for radio waves sent out by Mars, which will make its closest approach to the earth in more than 30 years on Sept. 7.

Saturn's radio noise, if detectable, is expected to resemble Jupiter's, resulting from atmospheric disturbances. Radio astronomers at Carnegie Institution are considering try-

ing to pick up Saturn's radio waves, but have made no definite plans as yet.

Scientists at the Commonwealth Scientific and Industrial Research Organization, Sydney, are in a better position to tune in on Saturn, since it is quite far south to observe from the Northern Hemisphere. In 1950, Arthur J. Higgs of C.S.I.R.O. predicted Venus might be detected at radio wavelengths, and radio astronomers there have long been leaders in the field.

Discovery of another planet, such as Mercury, Mars or Saturn, broadcasting radio waves might also be made at the National Bureau of Standards' Central Radio Propagation Laboratory, Boulder, Colo. There, Drs. Roger Gallet and Kenneth L. Bowles are now studying radio waves from Jupiter at two different frequencies simultaneously.

Science News Letter, June 16, 1956

MEDICINE

Hunt Leukemia Cause

➤ THE IDEA that leukemia in both mice and men is caused by a virus gained support from reports to the Third National Cancer Conference in Detroit.

A "viable (living) agent is responsible for the development of leukemia in both the leukemia susceptible mouse and in human beings," Dr. Steven O. Schwartz of the Hektoen Institute for Medical Research, Cook County Hospital, Chicago, reported.

Material from the brains of patients dying of leukemia, he reported, has shown an accelerating effect on development of leukemia in susceptible mice.

Certain immunologic similarities exist, Dr. Schwartz also found, between the leukemias of mice and those of humans. Leukemia, he thinks, represents the host response of certain tissues to an outside agent, "probably virus or virus-like."

The sites of this response, such as tumor tissue and lymph nodes, are the poorest sources of the inducing agent or virus, while the sites of least response, such as the brain, are the richest sources.

Discovery that mouse leukemia is actually transmitted by a virus was reported by Dr. Ludwik Gross of the Veterans Administration Hospital, Bronx, New York. This finding was described several years ago.

At the conference, Dr. Gross reported that some of the inoculated animals developed, instead of leukemia, tumors of the salivary glands or cancers under the skin.

When filtered extracts were prepared from these tumors and inoculated into

MARINE BIOLOGY

Naval War Declared Against Killer Whales

➤ KILLER AIRCRAFT are killing killer whales near Iceland.

At the request of the Icelandic government, U. S. Navy patrol aircraft have been dropping depth charges on the mammals, which last year did \$150,000 damage to Icelandic fishing nets from which they stole untold numbers of fish.

The killer whale has no commercial value. The only possible danger seen by commercial fish authorities is that valuable fish may be killed by the depth charges. Although the incidental killing of such fish is confined to Icelandic waters, if the valuable fish were allowed to live, they might migrate to the United States coast.

Killer whales, which are nine to 30 feet long, attack seals, little whales, dolphins and cod. When trawler fleets are out, the killers wait until the big nets are full, then pounce, destroying them and devouring their contents.

Killer whales migrate long distances, so any destruction of them would benefit fishermen over a large part of the world.

Science News Letter, June 16, 1956

the new-born mice, the same kinds of tumors or even typical leukemia resulted. Under the electron microscope, the filtered leukemia extracts were found to contain innumerable particles, possibly representing the virus.

Dr. Gross now is seeking to determine whether leukemia and the tumors are caused by the same virus or by different, though possibly related, viruses.

Science News Letter, June 16, 1956

INVENTION

Attachable Range Finder Receives U. S. Patent

➤ A RANGE FINDER designed to be clipped onto a camera of the twin lens reflex type has won patent No. 2,746,368 for Richard Weiss of Braunschweig, Germany. It is also designed to be used with the direct view finder, when the focusing hood is up.

The attachable range finder can be used when the camera is held either at waist level or at eye level, permitting the cameraman to focus even in dim light, Mr. Weiss says. If desired, by using the same principles, a range finder that can be clipped on or removed can also be made for other type cameras. Mr. Weiss assigned the patent rights to Franke & Heidecke, Fabrik Photographischer Prazisions-Apparate, also of Braunschweig.

Science News Letter, June 16, 1956