

ASTRONOMY

Telescope "Tranquilizer"

Clear, short-exposure photographs of the planet Jupiter have resulted through the use of a device that is attached to the telescope, stepping up its sensitivity 100 times.

► A "TRANQUILIZER" for telescopes to stop a planet's dancing image for detailed photography is in successful operation at Vanderbilt University's Dyer Observatory, Nashville, Tenn.

The device, which uses a commercially available television camera pick-up tube plus other electronic circuits, steps up the telescope's sensitivity 100 times.

The first scientific report on its design and use for obtaining very clear, short-exposure photographs of Jupiter and its moons was made to the American Astronomical Society meeting in Cambridge, Mass., by Dr. Carl K. Seyfert of the Observatory. Dr. Seyfert, Dr. Robert H. Hardie and John H. DeWitt, president of WSM-Television, Nashville, developed the apparatus, which they call a "seeing compensator."

Mr. DeWitt explained its operation to SCIENCE SERVICE. He said the increased contrast available through use of the television system made faint detailed markings of the planets more easily visible with the apparatus than by the unaided eye at the telescope.

Astronomers have long known that, in

MEDICINE

Drug Protection for Home Contact of TB

► A NATION-WIDE study of the potent anti-TB drug isoniazid to see if it will protect people exposed to the disease in the home was announced by Mrs. Shirley Ferebee, Frank W. Mount and Dr. Carroll E. Palmer, Public Health Service, Washington, D. C., to the National Tuberculosis Association meeting in Kansas City, Mo.

Members of a household in which a new case of tuberculosis has been found are known to be particularly vulnerable. Some small scale studies have shown 15 to 17 out of each 1,000 household contacts come down with the disease, Mrs. Ferebee reported.

This is in contrast to less than one person per 1,000 who is discovered in community-wide chest X-ray surveys, she added.

All those who participate in the studies will be followed for one year, and then given another chest X-ray and tuberculin test. If a significant decrease in the rate of tuberculosis among household contacts receiving isoniazid is found, the drug may offer a simple and easy means for preventing TB in a particularly vulnerable group, she concluded.

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planetary observing, fine details can often be clear in the very rare moments of good "seeing," but become blurred when attempts are made to photograph them.

"Seeing" is the scientists' term for the same effect that causes stars to "twinkle"—the dancing of the earth's atmosphere resulting in the blurring of stellar images on a photographic plate. This air turbulence is greatly magnified by a telescope, and the larger its field is, the more the effect is magnified.

The apparatus developed by Drs. Seyfert and Hardie and Mr. DeWitt overcomes these atmospheric disturbances by compensating electronically for the movements and by permitting exposures only one-hundredth as long as without it.

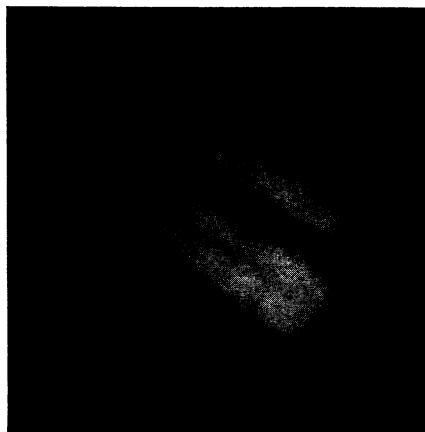
The trick used for image compensation is to divide the planet's light in half as it leaves the telescope. One image is fed to the orthicon's cathode. The second goes through two slits placed at right angles to each other, then falls on two photocells. The currents caused in the photocells by the light hitting them is amplified and used to control the telescope's motion.

Mr. DeWitt said they had found "shaking" the telescope by hand was the best method of adjusting the currents to make the image in the TV tube stand still.

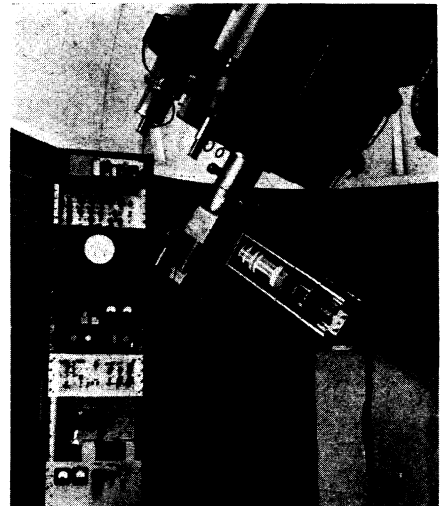
The same method of image steadying can also be used with other kinds of image amplifiers, Dr. Seyfert reported at the astronomical meeting.

Project for development and improvement of the seeing compensator is sponsored jointly by Vanderbilt University and WSM-Television.

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JUPITER—A detailed photograph taken with the new device showing distinct markings and the red "spot."



SEEING COMPENSATOR—The device, designed to overcome disturbances in the earth's atmosphere, is shown here with the monitor kinescope on which the planet image is projected.

MEDICINE

Serotonin in Blood May Cause Asthma

► SEROTONIN, an as yet poorly understood body chemical that contracts muscles and may even play a decisive role in mental illness, has been implicated as one of the causes of asthma and other allergic respiratory disorders by scientists at the National Heart Institute, U. S. Public Health Service in Bethesda, Md.

Studies of allergic reactions in rabbits show serotonin is released into the blood along with histamine, Drs. Herbert Weissbach, T. Philip Waalkes, and Sidney Udenfriend of the Heart Institute reported.

Serotonin, like histamine, can constrict bronchial tissue although it has not previously been found in the tissue of the lungs.

Previously, histamine has been thought to be responsible for nearly all allergic reactions, and antihistamines have been the main treatment for allergy sufferers.

But the discovery of serotonin in the lungs of allergic animals suggests that both serotonin and histamine are involved, the researchers explained.

The lungs of some animals, such as mice, showed much serotonin and little histamine. Guinea pigs, on the other hand, showed the opposite relationships, with little lung serotonin but much histamine.

This may help explain why antihistamines are effective in guinea pigs but not too helpful in mice.

The effects of lung serotonin on human allergies are still unknown. At the present, the scientists are limited by their analytical apparatus and have not yet demonstrated serotonin's presence in the human lung, although they expect to do so soon.

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