ASTRONOMY

Star Observed For First Time As Disc, Not Point of Light

Japanese Astronomer Observing Occultation Noticed That Distant Antares Took Four Seconds To Pass Edge of Moon

AN OBSERVATION of the star Antares as a round disc, not as the point of light that a star usually presents, even through the largest telescope, is reported by Prof. K. Nakamura, of the Kwasan Observatory at Kyoto, Japan. Though Professor Nakamura did not actually see the star in the sky as a disc like one of the planets, his observation is probably the first to show that the star is not a point, except for the indirect measures of its diameter with the interferometer.

Professor Nakamura was watching for Antares as it emerged from an occultation, or "eclipse," by the moon on January 15. As the moon passed on after hiding the star from view, he saw first the faint greenish companion that accompanies the star. Then, four seconds later, Antares itself, which is red in color, reappeared. As the moon has no atmosphere through which a star's grazing light must penetrate, the end of an occultation is usually very sudden, with the star flashing out more rapidly than any electric light when the switch is closed.

On this occasion, however, reported Professor Nakamura, it took the star at least a tenth of a second to come to full brilliancy. This is attributed to the fact that Antares has a very large diameter, though much too small to show directly as a disc in a telescope. Measures of the light and dark bands that appear in its light after being divided and reunited in the interferometer have afforded Prof. F. G. Pease, of the Mt. Wilson Observatory, the data from which to compute the diameter of Antares at four hundredths of a second. Though this is only one forty-five thousandth of the apparent diameter of the moon in the sky, it is the largest known diameter, large enough, if it were hollow, to contain the sun, together with the four inner planets Mercury, Venus, Earth and Mars, revolving in their usual orbits.

Therefore, as Professor Nakamura observed Antares emerge from occultation, he first saw one edge of the star beyond the moon, then, about a tenth of a second later, as the moon moved on about four hundredths of a second, the opposite edge was seen and the light came from the whole star. Only with a very large star could this effect be observed, for with one of average size the uncovering would be so rapid as to be practically instantaneous.

A similar effect can sometimes be observed by the naked eye with the brighter planets, like Venus, or Jupiter, now shining brightly in the western evening sky. If the planet is seen through the limbs of distant trees, a slight movement of either the eye or the trees may cause the planet to vanish, as a limb comes between. But the disappearance is noticeably gradual, quite different from the sudden extinction of the light of a bright star. The reason for this is just the same as for the gradual reappearance of Antares after occultation; to the naked eye the stars are point sources of light, but the planet has a small but appreciable disc.

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DO ANIMALS LAUGH?

Cats are preternaturally solemn, but their zoological cousins the canidae sometimes have facial expressions that make one wonder. This young fox, obtained for the trailside museum in Bear Mountain State Park, N. Y., by the American Museum of Natural History, was photographed in the middle of a "laugh" by W. H. Carr.

MEDICINE

Rheumatism Vaccine Promised By Minnesota Experiments

A VACCINE for rheumatism that holds promise of bringing to the medical profession a successful treatment for that common disease is now in an experimental stage of development, Prof. Benjamin J. Clawson of the University of Minnesota Medical School has disclosed in a report to the American Association of Pathologists and Bacteriologists.

Not for at least a year will it be possible for this new vaccine to be used by physicians generally. At present Professor Clawson is presenting his tentative results to his scientific colleagues, and his paper was entitled: "Experiments Relative to a Possible Basis for Vaccine Therapy in Rheumatic Fever."

Rheumatic fever, arthritis, or rheumatism as the disorder is variously known, in a very common disease. It is widespread through the world. Professor Clawson in making his vaccine takes the causative organism, *Streptococcus viridans,* which he has repeatedly isolated from the blood of patients having acute and chronic arthritis. This germ is heat-killed to make a vaccine in a conventional manner. This vaccine is not injected under the skin as is a common practice, since this method would tend to make the patient more hypersensitve. Instead it is injected directly into the blood stream.

In testing his vaccine upon actual patients, Professor Clawson is treating approximately a hundred sufferers from the disease. The vaccine will not be given general use until these tests prove its success.

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