

ASTRONOMY

Distant Planet

Orbits of obscure double star point to existence of a planet among the suns outside our own solar system. May never be seen.

► **FIRST EVIDENCE** ever produced for the existence of any planet among the billions of suns that swarm outside our own little solar system was presented before the meeting of the American Philosophical Society by K. Aa. Strand, research associate at the Sproul Observatory of Swarthmore College, who has just joined the U. S. Army.

Nobody has ever seen the planet. Probably nobody ever will. Like many other things of whose existence we are fairly certain, this extra-solar-system planet manifests its presence by what it does.

Mr. Strand was making a study of a comparatively obscure double star in Cygnus, the Swan or Northern Cross. As with all objects of its class, the two stars that form the double star circle around and around each other in an eternal dance.

But Mr. Strand noticed on the many photographic plates he examined that the orbits of the two stars were not exactly smooth. Something caused irregularities in the star paths—perturbations, astronomers call them.

The only thing that could explain the irregular pattern of the twin-star dance was the presence of a third object, close enough and massive enough to drag one or both slightly out of orbit by gravitational pull. Calculations indicated that this dark third member of the stellar dance team must be an object far smaller than any known star—only one-sixtieth the mass of the sun, which is one of the smaller stars. This gives it a mass about 16 times that of Jupiter's, hugest planet in our own system. It swings around the star that is its sun once every 4.9 years, and has a decidedly lopsided orbit, contrasting strongly with the nearly circular paths of the planets of our own system.

Science News Letter, November 28, 1942

Dodder Transmits Virus

► **DEMONSTRATION** that the twining parasitic plant, dodder, can transmit a virus disease from one plant to another, and that heat can kill the virus, was presented before the Society by Dr. L. O. Kunkel of the Rockefeller Institute for

Medical Research at Princeton, N. J.

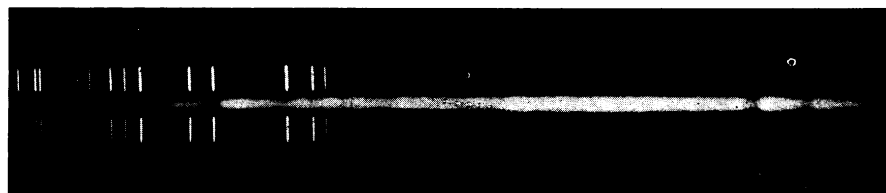
Since dodder does not stick exclusively to one plant, but may swing from one to another like any other vine, Dr. Kunkel made his experiment by letting it trail from sick potato plants to healthy periwinkles. The potato plants had witches' broom disease, which causes abnormal growths of bunchy, stringy branches. This symptom soon appeared on the periwinkle plants.

It proved possible to render the virus harmless to the periwinkles by heating them; but the potato vines would not stand high enough temperature to inactivate or kill the virus. However, further experiments proved that the witches' broom virus could be rendered harmless in seed potatoes by heating them.

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Earliest Saber-Tooth

► **THE EARLIEST** member of the remarkable saber-tooth cat tribe thus far discovered was described before the meeting by Prof. William B. Scott, veteran Princeton paleontologist. It is represented by a single specimen found in a formation in Utah, from which also came abundant bones of herbivorous animals, including long-extinct rhinoceroses, horses, camels and several other animal types that have no present-day representatives. The geologic age, Prof. Scott said, was intermediate between Eocene and Oligocene, which many



WHAT ASTRONOMERS SEE IN A NOVA—The violet-blue end of the spectrum of Nova Puppis taken at the Observatory of the University of Michigan on Nov. 12. Light from the star is shown in the center bordered by comparison lines of earthly spectra. Bright bands in the nova's spectrum are hazy and bordered on their sides of shorter wavelength by dark lines. Magnesium and titanium show only dark lines which are shifted toward the violet in the same direction as the lines of hydrogen and iron. (See SNL, Nov. 21, p. 324).

geologists set at some 50 or 60 million years ago.

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Finnish Woman Discovers Another New Comet

► **FOR THE** second time within the year, a Finnish woman astronomer, Miss L. Oterma of Turku Observatory, has discovered a new comet.

This one is in the constellation of Taurus, the Bull, and it is 13th magnitude, much too faint to be seen without telescopic aid.

Radiograms through international astronomical channels to Harvard Observatory, American clearing house for astronomical reports, brought to America news of the discovery. Patrol camera plates at Harvard when inspected by Dr. Fred L. Whipple verified the comet's existence and position.

The new comet is near the celestial equator and moving northward. It is not far from the famous star cluster, the Hyades, shaped like a V, which rises in the eastern sky early these autumn evenings. More observations and considerable mathematical computations will be necessary before it is determined whether the new comet will become brighter.

Two other comets were reported previously by Miss Oterma this year. One of these, discovered in February, was new, although news of it did not reach America until last month. The other report was of a comet spotted by Miss Oterma in September which proved to be a rediscovery of a comet previously known.

Since comets are named after their discoverers, there are thus two Oterma comets in the astronomical records. They are being numbered to distinguish them.

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