

ASTRONOMY

Interesting Delporte Object Keeps Astronomers Guessing

A SMALL point of light in the heavens is pronounced by Dr. Fred L. Whipple of Harvard College Observatory "the most interesting and puzzling body of the solar system since the discovery of Pluto." It is the Delporte object discovered by Prof. E. Delporte, Belgian astronomer, on March 9.

It has kept the astronomers of the world guessing as to whether it is a comet or an asteroid. Dr. Whipple and L. E. Cunningham, after computations of two sets of elements to determine its path in the heavens, are of the opinion that it is a comet and possibly identical with Comets 1858 III and 1907 III. Further computations of the influence of the earth upon the object must be made to determine whether the Delporte object is actually this older comet on a return to the vicinity of the earth.

"The very rapid motion, 2.5 degrees per day, and faintness indicated a very

close approach of a small object naturally suspected of being an asteroid because of its stellar appearance," said Dr. Whipple. "Its orbital elements were very difficult to determine accurately even from an apparent arc of fifteen degrees because its motion was nearly in a great circle. No comet or asteroid can move in this fashion for any length of time, but the peculiar coincidence of position in the sky and plane of orbital motion enabled the Delporte object to move fifteen degrees in a great circle with a deviation of only a minute of arc for about six days.

"The orbital elements when more accurately determined were on the borderline between asteroid and comet, appearing, however, more asteroidal than cometary. The eccentricity of 0.5 and period of approximately three years are distinctly those of an asteroid although the orbit plane and perihelion distance are very similar to those of the comets of

1907 III and 1858 III. A period of about three years as computed by Cunningham and myself would indicate that the body without being observed had passed perihelion seven times between 1907 and 1932, in case it is identical with 1907 III. This seems perfectly possible because at its opposition the body was rather faint (magnitude 13) when observed at a distance of only 0.92 astronomical units. The distance from the earth would have been much greater at other perihelion passages. It seems less probable but still possible that the object was not observed between 1858 and 1907, in spite of the greater brightness in past years, this possibility being due to the rapidity of its motion at opposition.

"Prof. Van Biesbroeck of the Yerkes Observatory states that on April 5 the object had decreased in brightness to the fifteenth magnitude from the thirteenth magnitude late in March. This behavior is characteristic of a comet and not of an asteroid."

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PHYSICS

Steel-Like Glass Permits Centrifuge Observations

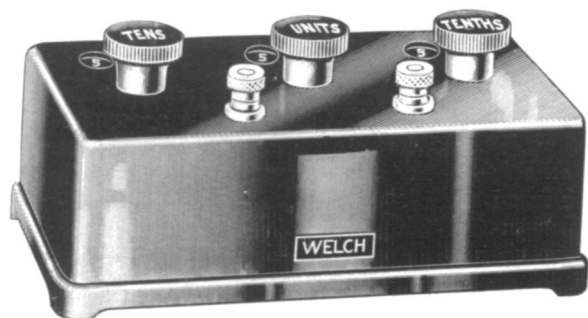
GLASS almost as strong as steel now makes it possible to observe what happens in the "ultra-centrifuge" invented by Dr. J. W. Beams and A. J. Weed of the University of Virginia. Hitherto this has not been possible because the instrument spins so fast that it would very quickly break any ordinary glass. The new glass was made by the Corning Glass Company.

The ultra-centrifuge with the new transparent top was described here today at the meeting of the Virginia Academy of Science. It is an improvement over the original models, which were made entirely of metal. The instrument consists of a hollow, top-shaped rotor with diagonal vanes on its conical under surface. It spins in a funnel-shaped cup, driven by a jet of air at high pressure admitted from underneath. This both whirls the rotor and lifts it free of the cup, so that it runs on a cushion of air. In this way it is possible to obtain terrific speeds of rotation. Most of the ultra-centrifuges thus far built have rotational speeds approaching a quarter of a million revolutions a minute; but one small experimental model has been constructed with which a speed of half a million revolutions a minute has been obtained.

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