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ASTRONOMY

Earth and Sister Planets Born When Star Ran into Sun

Collision Theory Favored by Dutch "Universe Maker" As Most Plausible Explanation of Solar System

THE EARTH and its sister planets were born when, ages ago, the sun was struck a glancing blow by a passing star, Prof. Willem de Sitter, Dutch astronomer and "universe maker," affirmed in an address to the Washington Academy of Sciences and the Society of Sigma Xi.

An actual collision between the wandering star and the sun instead of a near approach is favored by Prof. de Sitter as the most plausible explanation of the way in which the sun obtained its whirling family of satellites. Dr. Harold Jeffreys, British scientist, suggested this collision theory of the planetary system's origin, in order to explain the way in which the sun and the planets rotate on their axes. The idea that the planets were thrown out of the body of the sun by the attraction of another celestial body passing at a very short distance dates back to 1861. Prof. de Sitter declared that the Laplacean nebular hypothesis that held sway for over a century has now yielded to the collision theory of the solar system's origin.

"The first result of an encounter would be that a filament of matter was drawn out from the sun towards the passing star," Prof. de Sitter said. "This filament, after the star had passed away, would break up into different fractions some of which would be large and constitute the planets, while a considerable part of the mass of the filament would either fall back on to the sun or be dissolved into a medium of gaseous molecular constitution, which would in the course of time partly fall down on the sun and planets and partly be diffused into space.

"The effect of this medium on the motion of the planets would be to make the orbits circular as the result of fric-

tion. Those parts which would fall back on the sun would impart to the sun the momentum acquired from the passing star and thus produce the rotation of the sun in the same direction as the revolution of all the planets. The orbits of the planets would be very elliptical in the beginning and only be reduced to circles gradually due to the effect of the resisting medium and only at first perihelion passage in the elliptical orbit, the satellites would be drawn out from the planet by the action of the sun in the same way as the planets were drawn out from the sun by the star."

Prof. de Sitter contended that this theory explains all the major features of the solar system, leaving only one difficulty, which assuming that the star actually collides with the sun does explain. The actual collision would produce the rotation of the sun and the planets.

Science News Letter, November 14, 1931

PHYSICS

Speeding Electrons Make Large Molecules Form

BY SHOOTING high speed electrons into vapors of various organic substances, some new substances with larger molecules than the original ones have been formed at the University of Toronto by Prof. J. C. McLennan and Dr. W. L. Patrick.

Grain alcohol, methyl alcohol, formaldehyde, acetaldehyde and acetone, simple organic substances, were used in these experiments, Gaseous hydrogen, methane and carbon dioxides were formed by the later decomposition of the yellow complex compounds formed under the direct action of the rays.

The initial clumping process, called "condensation" by chemists, is expected to assist in solving new problems of the structure of chemical compounds. Similar complex substances have already been formed by exposing organic vapors to the bombardment of radium gamma rays.

Science News Letter, November 14, 1931

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