

BOOK REVIEWS AND LITERARY NOTES

THE DESTINIES OF THE STARS.

By Svante Arrhenius (authorized translation from the Swedish by J. E. Fries). Putnam's Sons, New York. xvii+256 pp. \$1.50.

A century ago astronomical speculation hardly extended beyond the confines of our solar system and attention was largely directed to explaining the motions of the planets and their satellites in terms of Newton's conception of universal gravitation. It is true that Kant and Laplace had advanced their remarkable hypotheses in an attempt to explain the origins of our solar system, but methods of observation had not yet advanced sufficiently to enable astronomers to extend these speculations to the stellar universe.

The last quarter century has witnessed remarkable developments in astronomy, comparatively few of which have become known to the general public. The problem of planetary motions may now be regarded as completely solved. The modern telescope has enabled us to plumb the universe to its outermost limits. The permanent records of the heavens made possible by the introduction of photography have furnished us with material for constructing a theory of the entire stellar universe and of the probable origin of our own solar system.

The story of these remarkable developments is related in popular style in the work before us, "The Destinies of the Stars," by Dr. Svante Arrhenius, President of the Nobel Institute, Stockholm. After a preliminary chapter on the "Origin of Star-Worship," the writer embarks on a discussion on "The Riddle of the Milky Way" in the light of most recent astronomical investigation. The writer considers the Milky Way to have been originally an immense spiral nebula resulting from the collision of two gas-clouds. In the course of time most of the gaseous matter condensed into the innumerable stars which the modern telescope reveals. Of special interest is an account of the probable climatic condition of the planets. The case of the Earth is first dealt with and the relationship of climate and topography is discussed at considerable length. From our knowledge of the effect of the terrestrial atmosphere and water vapour on radiation from the Sun, the author makes important deductions as to the climatic conditions prevailing on the various members of the planetary system. It appears necessary to entirely revise our ideas of Mars and the possibility of its being inhabited by intelligent beings. The mean summer temperature at the equator is deduced to be about -17°F . The so-called "canals" are cracks or fissures in the Martian crust. Water exists on the planet, as the presence of polar ice-caps indicates—also in the form of shallow seas interconnected by the above-mentioned fissures or "canals" of small depth. Seasonal changes in the appearance of the