

### ASTRONAUTICS.

Who can maintain that engineers are devoid of imagination, that Hephaestus astride Pegasus cuts a sorry figure? ROBERT ESNAULT PELTERIE offers through the Société Astronomique an annual prize of 5,000 francs for the best essay on what the novelist, J. H. ROSNY, the elder, felicitously calls "astronautics"—the art of voyaging from star to star. No mere day dreamer, this PELTERIE. He made a notable mark twenty years ago as a designer of light engines and streamlined airplanes.

If man can struggle successfully with gravitation hour after hour and fly from place to place on the earth, why may he not hurl himself to the sister planets? PELTERIE'S Gallic imagination has been aflame with the possibility for over a decade. Fifteen years ago he published in the Journal de Physique the first thoroughgoing mathematical study of interplanetary transportation. He is the father of the present school of astronauts. Professor HERMANN OBLERTH has written exhaustively on the conditions that must be faced and the energy that must be expended in escaping from the gravitational clutch of the earth. An Austrian, Dr. FRANZ VON HOFFT, would first cautiously ascend and discharge an exploratory "registration rocket" of Professor GODDARD'S well-known type before building an interplanetary vessel. And MAX VÉLIER of Munich talks and writes blithely of making 4,000 to 6,000 miles an hour, and to whom a journey around the world is but a pleasant excursion between breakfast and luncheon. Their highly technical discussions are much more exciting than VERNI'S "From the Earth to the Moon."

To these poets of the machine the solar system becomes a playground where man vies with the meteors. Venus, Mars, Jupiter are scarcely more distant to the astronomical imagination than was half-mythical Cathay to COLUMBUS. Widely as they may differ on the duration of their voyages in the cosmos—PELTERIE is content with reaching Mars in 90 days, but VON HOFFT dreams of 110 hours—they are agreed on the type of propulsion. Abandon your wings, engines and propellers, warn the astronomers. Interstellar space is airless. Undaunted, the astronauts draw plausible plans for reaction motors to kick hermetically sealed projectile-like cars off the earth on the rocket principle.

Being engineers, they are not completely self-hypnotized. There is almost a note of despair in PELTERIE'S conclusion that not even nitroglycerine could blow a man on his way to the moon. Not less than 414,000 horsepower would be required to project a half-ton ship into space, he decides. So he turns to radium and find that 200 pounds of it will do. Where is it to be obtained? How can a man live near that mass? How is the energy to be released and controlled? PELTERIE throws up his hands and leaves the answer to the chemists. Still he lives in hope, as his prize offer testifies.

Man's technical ingenuity cannot gratify his yearnings. Who knows what may not spring from these engineering flights? Out of alchemy came chemistry; out of astronautics may come at least the reaction engine, a new method of generating energy.