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ROCKETING THROUGH SPACE.

To be flung from the earth at a speed of seven miles a second so as to see that other face of the moon which is forever hidden from us, to inspect the canals of Mars at close range, to perch on an asteroid and behold celestial glories that no telescope can ever disclose—all this is implied in what the French novelist J.-H. ROSNY has happily called "astronautics." The possibilities were strikingly presented in a film which was directed by OBERTH, the leading German astronaut, and which was exhibited a few days ago before two thousand spell-bound spectators in the American Museum of Natural History. Fantastic as it may seem even to romance about a voyage through space, astronautics is so respectable a discipline that Professor R. H. GODDARD, a pioneer who has built rockets several times faster than a rifle bullet, has received from the Daniel Guggenheim Foundation a grant which enables him to pursue researches which he began twenty years ago. Already there is a five-foot shelf of technical books that deal with every phase of a voyage to another planet, not to mention a score of novels of which the earliest was written by no less a person than CYRANO DE BERGERAC, and of which the best known is JULES VERNE'S "From the Earth to the Moon."

No military explosive can tear a vehicle from the earth's gravitational clutch. Hence the astronauts dismiss VERNE'S lunar vessel, half villa and half shell, fired from a colossal cannon. A new explosive must be found, perhaps a combination of oxygen and alcohol or of oxygen and hydrogen in cartridges which are successively discarded after explosion to reduce the load. Only a rocket can drive itself through airless space. The acceleration required to attain a starting speed of seven miles a second is enough to hurl unbound passengers against bulkheads to certain death.

Soup, meat, sauces and coffee floating in from the kitchen in midair, free from gravitational influence and pursued by hungry passengers without

weight—for such sights JULES VERNE prepared us. Similarly we accept the possibility of donning an oxygen suit and of stepping out into the vast universe to behold the solar corona, confident that if we wander off, the recoil of a pistol shot will drive us back. But when OBERTH, HOHMANN, VALIER and others boldly propose that, after rocket ships are perfected, fifteen or twenty years be spent in creating artificial satellites to serve as filling stations on the course to Mars and Jupiter, it is evident that the novelists are hopelessly outdistanced by the physicists in imagination.

Men now living will never see a terrestrial wagon thus literally hitched to a star. Yet out of this splendid dreaming and experimenting technical principles may come which will give transportation a new impetus. Even conservative aeronautical engineers are beginning to discuss the possibility of crossing the Atlantic in a few hours, and sober power-house designers, struck by GODDARD'S high efficiencies, are wondering whether our present engines represent the best that can be done in generating energy.