suspension of 30,000 to 40,000 feet. This is the equivalent of steel of about 100,000 pounds tenacity. Could the cast portions of the steam-engine be made in this material for our torpedo-boats or aëronautic and automobile machinery their weights would be reduced about one-half. It remains to be seen whether, the costs permitting, this change would be to any extent practicable. Dynamos have been constructed, in the shops of Sibley College, of aluminium and a gain thus secured for portable and automobile work of some importance, and it is possible that magnesium, with its higher tenacity and greater lightness, may prove the coming material for some such work. Costs will undoubtedly fall rapidly with increasing area of market.

R. H. THURSTON.

SCIENTIFIC BOOKS.

La constitution du monde. By MADAME CLÉMENCE ROYER. Published by Schleicher Frères, 15 Rue des Saints-Pères, Paris. Containing 799 pages, 100 chapters, 92 figures, and 4 plates.

This pretentious volume is claimed by its author to contain a new and satisfactory philosophy of nature including everything from the geometrical structure of molecules to a theory of the evolution of worlds. In a somewhat remarkable preface the author expresses in forcible terms her contempt for those philosophers who maintain that certain things are unknowable, and asserts that their speculations were advanced to enslave the minds of men and support the dogmas of theologians. The following quotations of remarks concerning scientific subjects will indicate her attitude of mind: "The kinetic theory of gases is certainly a romance conceived by the imagination of a German mathematician." The non-euclidian geometries "founded on sophistic generalizations of analysis * * * have for their result and their end, the clouding of the intellect in undermining the foundations of rational certitude, to the profit of those who are attempting to reduce mankind * * * to the *credo quia absurdum* of blind and unquestioning faith."

The ideas advanced upon scientific questions are not worth the space that it would require to enumerate them, much less to make any critical comments. They indicate, as is in reality confessed in the preface, that the author has read, though widely, with a mind strongly biased by preconceived notions, and they show at every point a lamentable lack of scientific training and spirit. The contents of the 99th chapter are sufficient to illustrate the statement. The author in her 'evolution du monde' supposes that at some remote time a planet from exterior space struck Saturn a glancing blow greatly accelerating its rotation; that the Saturnian oceans and portions of the solid crust were hurled off and formed the rings, which are ice, or perhaps aluminium; that the striking planet was broken up forming the satellites of Saturn, Jupiter, Uranus, Neptune, Mars, and the Moon, the asteroids, the meteor streams; that Venus and Mercury have no satellites because they were on the opposite side of the sun when the collision occurred; that the Moon and the satellites of Mars move with less linear velocity than those of the larger planets because they are so far from Saturn that the velocities of the flying fragments had largely died out before they reached their respective primaries; and that the second satellite of Mars 'by a remarkable exception does not fulfill the laws of Kepler.' The figure inserted in the chapter makes the theory very clear.

It is to be regretted, for the sake of the author who devoted so much time to writing the book, and for the sake of Madame Valentine Barrier who bore the expense of its publication, that it is impossible to say that the work is worth reading. F. R. M.

The Chemistry of Soils and Fertilizers. By HARRY SNYDER, B.S., Professor of Agricultural Chemistry, University of Minnesota, and Chemist of the Minnesota Agricultural Experimental Station, Easton, Pa. The Chemical Publishing Company. 1899. 12mo. ix + 277 pp. Price, $1.50.

This book is the outgrowth of courses of instruction given at the University of Minnesota