

BOOK NOTICES.

THE NATURE OF GRAVITY. By Wm. Coutie.

Mr. Coutie is a manufacturer of steam engines and machine tools, in Troy, N. Y. He has devoted much of his leisure thought to the study of natural forces, embodying the results in a brief essay, in which he endeavors "to show that the force which unites an atom of Oxygen to an atom of Hydrogen to form an atom of water, is the same force which unites the sun and planets in their orbits, and that the ultimate atoms of all matter constantly give out those actions known as light, heat, force and gravity; that these are but different manifestations of the self-same thing, and that their combined action produce all the phenomena of Nature."

The conviction of an ultimate unity of force is as old as the days of Greek philosophy. The evidences which have been furnished by the thermodynamic, electric, and photo-dynamic investigations, in confirmation of such unity, have led to the system of absolute measurement, and to the introduction of a series of units based upon mass, length and time, which may be used in all kinetic measurements. Mr. Coutie appears to have gone over much of the ground which is covered by such measurements, without being aware of the extent to which his views had been anticipated.

He has displayed so much acumen in his investigations that he may well be encouraged to continue them. There is great need of many additional numerical determinations in the line of his studies, and there is some probability that if he will make such determinations, he may be led to new and important discoveries; but there will be little gained by attempting to attract public attention to the mere probabilities of a correlation of forces, which is already generally believed, although it can hardly be regarded as demonstrated.

P. E. C.

THE SOARING BIRDS. A Mechanical Problem. By I. Lancaster, Chicago, Illinois.

Mr. Lancaster has published a small pamphlet under the above title, and he also published an article in the London *Engineer*, in 1883, upon the same subject. His object in writing his paper is "to point out the direction in which effort will most likely lead to practical results; as an aid to those interested in working out the problem of artificial flight." He has a confident belief "in man's ability to navigate the atmospheric spaces at will, the only thing still remaining undone being a matter of mechanical construction, requiring neither great expenditure of money, time nor skill."

The author's views are not presented in such a form as to be satisfactory, either to mathematical or non-mathematical readers. The properties of parachutes and the direct action of atmospheric currents upon broad surfaces are correctly stated; but there are some views, in regard to the reaction of the air and a consequent propulsion against the wind, which are at variance with commonly accepted notions. It is claimed, however, that the correct-