Experiments in dynamics succeed those on statics, in which velocity, acceleration, inertia, work, kinetic energy, and centrifugal force are measured. The properties of vectors are here developed, though not so fully as might be desired, and occasionally there is a vagueness of language which must give trouble to a student who tries to think clearly.

Remaining chapters deal with the efficiencies of simple machines; the application of the link polygon; the drawing of reciprocal figures for jointed plane frames; and the determination of Young's modulus and of moments of inertia. In addition to the examples appended to each chapter, the authors give, at the end of the book, more than three hundred miscellaneous examples, and copies of recent examination papers, both theoretical and practical. A good index is provided, and teachers will find this book very helpful indeed.

Air and Health. By R. C. Macfie. Pp. vii+345. (London: Methuen and Co., 1909.) Price 7*s.* 6*d.* net.

THIS is a very readable work, containing much useful information. As the subject is dealt with in a manner which renders it interesting and easy of comprehension, even to people who may have no acquaintanceship with chemistry and physics, it should appeal to a wide range of readers; but it will prove of special service to the medical student of hygiene and preventive medicine, and the medical writer doubtless had this end mainly in view. The subject of the CO_2 respiratory impurity in the atmosphere is treated at some length. In this connection the author states (p. 133) that "Anyone who compares his power of mental work in a pure and in a CO_2 laden atmosphere, even if the latter be dry and cool, will find in the latter a considerable diminution, showing that at least nerve metabolism is affected." This statement implies that the CO_2 in a badly-ventilated room (as ordinarily understood) is capable, *per se*, of producing results which more recent experimental work demonstrates to be due to the combined effects of the altered physical conditions of the air—the increased moisture and temperature, in a stagnant atmosphere. The important subject of the composition, &c., of sewer air is inadequately discussed in eight lines.

Mr. Spence's suggestion that all the smoke of a city should be conducted by the sewers to a few enormous chimneys, where it could be completely burnt (p. 155), appears to be commended by the author. Certainly Sir B. W. Richardson proposed to adopt this method in his model city of Hygeia, but it is inconceivable that it could be efficiently applied. The various methods of freeing air from trade dusts and gases might have been included with advantage in such a work, and the volume seems incomplete without some reference to analytical methods—even if the reference were confined to the more simple practical tests for the more important gaseous impurities of the atmosphere of dwelling and working rooms.

But notwithstanding these deficiencies, the matter is, generally speaking, so well dealt with that the work may be confidently recommended for study and reference purposes.

The range of treatment embraces eighteen chapters. These deal with the composition of air; the discovery of the atmospheric gases; respiration; air-pressure in relation to life; the temperature, humidity, and thermolysis of air, and health; air and solar radiation; electricity and radio-activity, and their relation to climate; impure and polluted air; dust and germs; ventilation, draughts, and "colds"; artificial atmospheres; the open-air treatment of consumption; and open-air schools.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

The Natural History Museum.

IN reference to the article on the Natural History Museum in NATURE of January 20 (p. 343), in which Sir Archibald Geikie is represented as saying that the questions put to him in the letter from the Speaker of the House of Commons "were entirely in reference to the relations between the Trustees and the Museum," historical accuracy demands that it should be stated that the questions of Mr. Lowther were two in number (see NATURE, December 16, 1909, p. 196). They were:—(1) "Whether the Board of Trustees, acting through its Standing Committee, is in your judgment the best authority for the government of such an institution as the Natural History Departments of the British Museum?" and (2) "Whether, under the existing statutes and rules, the scientific management of the Natural History Museum suffers any detriment from its association with the Museum at Bloomsbury?"

It is clear that in his communication to you Sir Archibald Geikie has overlooked Mr. Lowther's second question, with which alone (so far as these two questions are concerned) the present agitation has concerned itself. We have always admitted that "a system of control by Trustees is the best" (see NATURE, December 30, 1909, p. 254). You were therefore quite right in your impression that the main point of contention was the complete separation of the governance and administration of the Natural History Museum from the other collections in the British Museum. Mr. Carruthers's letter does not touch the point at issue, except in so far as it seems to show that Prof. Huxley was in agreement with our view that "a system of control by Trustees is the best." He says nothing to show that Prof. Huxley came to disagree with the conclusion to which he had twice put his signature, once after a prolonged inquiry by Royal Commission, that it was of fundamental importance that the governance and administration of the two Museums should be separate.

A. SEDGWICK.

2 Sumner Place, S.W., January 30.

Markings on Mars as seen with Small and Large Telescopes.

THAT large telescopes are liable to less accurate definition of planetary markings than small ones can easily be verified in the following manner, and tested for any given occasion. The spurious disc and rings made of a star by a telescope is a real image, due to the interference of the light-waves—as real an image, although produced by a different cause, as that of a planet's disc with its markings. If atmosphere and glass be perfect, the image consists of a round disc, encircled by concentric and continuous rings of light. The only difference in the image with different apertures is that the larger the aperture the smaller the disc, and the closer and thinner the rings. If this image assume any other form, it is either because the objective is poor, which is commoner with objectives than is supposed, as Hartmann's tests have shown,[1] or because the seeing is defective. In proportion as the seeing is bad the rings of the image begin to waver, then break up into fragments, a sort of mosaic, and finally end in an indiscriminate assemblance of points. In certain kinds of bad seeing the parts may seem quite steady, but that the mosaic exists is proof positive of poor seeing.

Now this image as made by different apertures may be compared either by observing with different telescopes at the same place and time or by diaphragming down a large objective. When this is done it becomes at once evident that the smaller aperture always gives the more accurate definition of the optical disc and rings in spite of the theoretical greater resolvability of the larger glass. If,

[1] The Lowell Observatory glass has been tested by this method, and proves to yield the best images of any yet examined. (Bulletin in preparation.)