course which both keeps down the damp and ventilates the ground-floor. Proceeding to fire-proofing methods, Mr. David Hartley's simple but little known contrivance for protecting dwelling-houses from fire by interposing sheet-iron or copper between the floor boards and the joists is mentioned. The plan described a little farther on, p. 46-47, would probably not be so effective as Hartley's.

In pp. 48-58 fire-grates are mentioned, and with a decided preference (perfectly justified in the experience of the writer of these remarks) for Mr. John Taylor's smoke-consuming grate; but the author should hardly have left Dr. Arnott's smoke-consuming contrivances unnoticed; and when at pp. 61-66 he speaks of ventilation, he should have mentioned at greater length Dr. Arnott's ventilating valve. Boyle's ingenious ventilators, however, quite deserve the praise given them in p. 63.

It would be interesting to have had some references given to sanction our author in claiming the authority of the Duke of Wellington, together with that of Aaron and the High Priests, his successors, for the practice of placing their beds nearly north and south so as to be in the line of the magnetic current. The theory no doubt has its advocates, but can hardly be of universal application, as there are many sound sleepers at all degrees of orientation.

Chapter iv. contains some good suggestions respecting London street improvements and the Sanitary Recipes at the end will be found deserving attention.

OUR BOOK SHELF

Natural Philosophy. Part I. Mechanics. By J. Alfred Skertchley. Pp. 168. (London: Thomas Murby, 1873.)

THIS work belongs to a series of small manuals which the publisher calls the "Science and Art Department Series of Text Books." It is designed for students who possess but little mathematical knowledge, and each of the theorems discussed is explained in very simple language. In some respects the work keeps pace with modern text-books, in others it lags behind them. Thus while we have chapters on Kinetics and Kinematics, and on Actual and Potential Energy, we find some of the units as primitive as possible, and the Metric system is ignored. The unit of length is given as the yard, and the unit of weight as the grain. The definitions leave much to be desired: thus Mechanics is defined as "the Science which treats of the laws of motion and force, especially as applied to the construction of Machines;" Hydrostatics "the science treating of the pressure of water." Again we find the following very loose definition of the force of gravity: "Every particle of matter has a tendency to draw to itself every other particle, and this tendency is called the force of gravity." The other attractive forces are here ignored, the student is left quite in ignorance as to whether the force acts through a sensible or insensible space, whether it acts between particles or masses, whether such particles or masses are necessarily of similar or dissimilar substances. A screw is defined as "an inclined plane *revolving* round a centre." "Any body capable of moving freely about a fixed axis is a pendulum." The chapter relating to Energy requires to be carefully revised, as, indeed, does much of the work so far as accurate and logical definition is concerned. The examples are useful, and the questions at the end of the book will be found of service in teaching elementary Science, but the book can scarcely be recommended until the definitions are more precise and absolute.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. No notice is taken of anonymous communications.*]

The Dutch Photographs of the Eclipse of 1871

IN the account of the proceedings of the meeting of June 13 last of the Royal Astronomical Society, as published in Vol. viii. p. 175, of NATURE, I read the following:—

"Mr. Ranyard remarked that the paper copies of the Dutch photographs which he had seen had been printed from enlargements on glass, in which the moon had been stopped out with black paper or some other material. On measuring he had found that the body of the moon, as given in the photographs was by no means circular, and Mr. Davis had pointed out to him that the irradiation under the prominences was perfectly sharp at the edges, as it would be when printed through paper. It was therefore unfair to institute any comparisons as to the amount of the irradiation in these and in the other photographs."

I beg leave to state, in opposition to Mr. Ranyard's and Mr. Davis's remarks, that no stopping out with black or any other paper has taken place. I enclose hereby copies on paper of the originals and of one of the enlargements. In the first-mentioned everyone may see that the moon is sufficiently dark to render unnecessary every artifice before making a good enlargement. In fact I have seen the enlargements myself, and in them, too, the moon was as dark as the surrounding sky.

I think Mr. Dietrich's merit to be especially this, that he has directed the attention of astronomers again to a method, as it seems already wholly abandoned, if ever earnestly tried, viz. that of taking an image with a photographic lens of short focus but great force, so that a very short exposure might be sufficient. As to the profit his photographs brought to our knowledge of the sun, Col. Tennant says, almost every depression of outline of the Indian photographs could be recognised in the Java ones, and thereby it is proved that in the interval of time needed by the moon's shadow to make the traject from India to Java, say 50 minutes, almost no change whatever took place in the solar corona.

Of course the method could be improved by moving the camera by clockwork. Then the exposure could last a little longer, *e.g.*, one second, and the exterior outline would reach farther; a larger camera, with photographic lens of the same force would without doubt give more details.

As to the not-circular (in fact elliptical) form of the moon in the photographs, I think it pleads more against than in favour of Mr. Ranyard's remark, for if a disc of paper were to be used to stop out the moon, of course a circular one would have been made, and not an elliptical one. The fact is that the copies of the original *cliché* present the same peculiarity, the difference between the longest and shortest diameter being about $\frac{1}{20}$th of a millimeter, as is easily recognised with a lens and a measure of half-millimeters. In the accompanying diapositive the difference $= \frac{1}{4}$ mm. As in other photographs of total eclipses, the diae meter corresponding to the poles of the sun is the longer. This phenomenon is in our case only partially explained by the moon's motion during the time of exposure; perhaps a stronger impression at the equatorial regions of the sun, or a trembling of the camera-stand has done the remainder.

In the glass photographs, of which I have sent a pair to Lord Lindsay and to Messrs. Lockyer, Huggins, Warren De La Rue, and Main, the details are finer and sharper than in the paper ones.

J. A. C. OUDEMANS

Batavia, Sept. 10

[We have no doubt from an inspection of the photographs sent, that no stop was used.—ED.]

Elevation of Mountains and Volcanic Theories

THE accompanying letter from Captain Hutton is in acknowledgment of my paper on "The Elevation of Mountains by Lateral Pressure," which I read at Cambridge in 1869. I sent it to him in consequence of seeing his lecture on Mountains, in the *Geological Magazine*. He could not have received my critique on that lecture at the time of his writing this letter. In accordance with his suggestion I forward it for publication in NATURE without comment.

OSMOND FISHER

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