

ence was also had with Professor Ayrton, which served to clear up points of uncertainty. The committee of the British Board of Trade, however, preferred to adhere to the test-tube form of cell and proceeded to secure the legalization of their own specification without reference to the finding of the international committee. The work had all been done by the committee before the death of von Helmholtz, except the drawing up of a formal report. Upon the appointment of the committee of the National Academy of Sciences, all the information in the hands of the writer and the conclusions reached by the majority of the international committee were communicated to the chairman of the new committee, and they are embodied in his report (see *Mis. Doc. No. 115*, 53d Congress, Senate). I take pleasure in adding that the specification relating to the Clark cell, which was reported to Congress by the Academy committee, meets my entire approval and has some points of superiority over that legalized by the English 'Order in Council.' It is not likely, however, that any discrepancies between the E. M. F.'s of the two will be found to exist.

It seems necessary to add that the volume now under review is somewhat seriously marred by many typographical and other errors. The proof should certainly have been read by more than one person and by some one familiar with the details of the Congress.

HENRY S. CARHART.

*The Alps from End to End.* BY SIR WILLIAM MARTIN CONWAY. Westminster, Constable. New York, Macmillan & Co. 1895.

Sir William M. Conway, who has gained distinction among explorers of high mountains by his expedition to the Himalayas, made a rapid scramble over the Alps from end to end in the summer of 1894, and now presents a simple narrative of his excursion in a rather large book of four hundred pages with a hundred full-page plates; the latter being notable for the high average elevation of the points of view. Having taken Swiss guides to aid him in the Himalayas, Conway now brings two Gurkhas—natives of Nepal—to go with him over the Alps, at the same time advancing their mountaineering education, and thus enabling them better to

assist in Himalayan exploration on their return to the East. The use of a compass, an aneroid and a good contour map to find the way in the clouds is ingenious and worth learning. There is extremely little physiographical or geological matter in the book, but it abounds with the minutiae of personal incidents. For example, opening the book at random, we read: "On calling for provisions we found that the men had devoured all the fresh meat at breakfast, and that the day was to be a bread-and-butter one. Fitzgerald and I purloined the end of a sausage in revenge. It was easily secreted, but the straits to which we were put to eat it secretly," etc., etc. Of a day opening with rain it is frankly recorded: "We were delighted to hear that the morning was one for bed rather than mountains;" the glory of trips at headlong speed being apparently in having done them rather than in the doing. The book records a redoubtable athletic experience, but almost any one might write a volume if such shadowy substance is worthy of permanent record in large pages with open type. The only chapter of scientific value is on Mountain Falls; this being based chiefly on the account by Buss and Heim of the landslide of Elm, Canton Glarus, in 1881. W. M. D.

*A Handbook for Surveyors.* By MANSFIELD MERRIMAN and JOHN P. BROOKS, of Lehigh University. New York, J. Wiley & Sons, 1895. 16 mo., pp. 242.

This little book is at once text-book and field reference book for students and for surveyors in the field. It contains, in compact and systematic form, the information, the principles and the methods of surveying, so far as required in advance of the subject of railroad location—those of land and town surveying, leveling, triangulation and topography. It is given the pocket-book form in order that it may be conveniently used in the field, where its tables are likely to be at any moment useful, and where reference to the text-book is sometimes found advisable by the old practitioner as well as by the student and novice. Special attention is given to the testing of instruments and their comparison, and standard methods with some excellent new processes are described with the