

Enough has been said to show the extreme value of the book to the scientific botanist. May its teachings quicken sound study in England. MARCUS M. HARTOG

OUR BOOK SHELF

Manuel du Voyageur. Par D. Kaltbrunner, Membre de la Société de Géographie de Genève. (Zurich, J. Wurster und C^{ie}, Editeurs. Paris, C. Rheinwald und C^{ie}, 1879.)

A GREAT difficulty of writing a treatise for the use of travellers, on "What to Observe," lies in the impossibility of presenting to the imagination an ideal average traveller to address. If the great mass of intending travellers had much the same amount of scientific knowledge and were well grounded in the elements of science generally, a very useful and compact work might, no doubt, be composed. But as a matter of fact such persons are usually very ignorant, or variously ignorant, and a book fitted to instruct the whole of them must omit none of the more elementary considerations, and therefore would assume the shape of a collection of encyclopædic treatises. It is hard to find the level of previous knowledge to which "Kaltbrunner's *Manuel du Voyageur*" is best adapted. Every reader is sure to think it too diffuse for his own wants in some parts, neither deep nor full enough in a great many, and probably beyond his depth in others; but take it all in all, it is perhaps better adapted for persons of moderate culture than any similar book that could be named. It is beautifully got up, with abundant illustrations, and to say the least, would be often useful for reference and as a reminder. The range of its topics is wide enough to touch the interests of everybody, and it would be a capital present to give to a friend bound for foreign parts. Considerable space is allotted to subjects connected with social life and other anthropological questions.

There seems to be some irony in the fact that when the world is so nearly explored, manuals for the use of travellers should begin to appear. They were greatly needed many years ago, when the Admiralty Manual had the field nearly all to itself, but now that the need is less, these works are at last composed in abundance. The present one, however, is by no means intended to supply the wants of those travellers only who are exploring unknown countries, much of it being applicable even to home districts. It is less solid and more comprehensive than the recent German publication, "Anleitung, &c.," by Neumayer.

Pleasant Ways in Science. By R. A. Proctor. (London: Chatto and Windus, 1879.)

OF this book, which has been sent me for review, I can truly say that it is an excellent specimen of what has been well called (I forget by whom) *Paper Science*. A very few quotations will amply justify this verdict.

At pp. 8, 152, I find "heat" several times standing for "temperature." But the author (in these columns, vol. xvi. p. 227) insisted that

"What mathematicians call the moving force exerted by the earth on the moon is eighty-one times greater than the corresponding force exerted by the moon on the earth."

To put "heat" for "temperature" is after all not very strange for one who puts "moving force" for "accelerating force."

In the account given of the experiments of Andrews and Tait on ozone, the action of "iodine" is given as that of "mercury"; and the now-received idea of the nature of ozone—though twice mentioned in the paper referred to—is described as a "beautiful" and "ingeniously conceived" hypothesis suggested after the publication of the paper (pp. 351-2).

The following passage, which refers to friends of my own, I quote without comment:—

"... no one, I think, would believe so ill of his fellow-men as to suppose for one moment that advantage could be taken of the sympathies which have been aroused by the Indian famine, or which may from time to time be excited by the record of great disasters by sea and land, to advocate bottomless schemes merely for purposes of personal advancement. We must now, perforce, believe that those who advocate the erection of new observatories and laboratories for studying the physics of the sun have the most thorough faith in the scheme which they proffer" (p. 51).

From p. 194 I gather that I know nothing about the motion of waves, and p. 240 proves me equally ignorant of voltaic electricity. I cannot read any more.

P. G. T.

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. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

Receiving Telephones

I HAVE roughly tried two experiments which seemed likely to supply new forms of receiving telephones, and have had such partial success as seemed satisfactory in preliminary trials. As I have not time to continue the experiments I request the insertion of this note in the pages of NATURE, in the hope that some one else will follow the matter up.

In one experiment a spiral wire (I used German silver, but it may be of any material) was wound closely so that the spires were in contact, or nearly so. One end of the spiral was fixed and the other end attached by a thread to the middle of a small parchment drum-head, such as is sold by the toy-makers for thread telephones. A slight tension was put on the thread to draw the spires of wire slightly asunder. The spiral wire was then made part of a circuit, including one or two cells of Grove's battery and a line wire going to another room. By this apparatus such sounds as the scraping on a file were satisfactorily heard, although the spiral was only one coil of about an inch long. It will be observed that in this arrangement there are no magnets; the whole effect is produced by the varying induction of the current upon itself. The apparatus could obviously be rendered more efficient by using a longer spiral, or a coil consisting of a number of concentric spirals not quite in contact, so as to allow small motions to exist. The induction might be still farther increased by using a spiral of two wires, so that a powerful local current might be kept up in the alternate spires, while the varying line-current is passing through the intermediate ones. Another improvement would consist in using iron wire wound in a sufficiently loose coil. The self-magnetisation of this coil would co-operate with the electric induction to heighten the effect.

In the other arrangement an iron or steel spiral (in my experiment it was an ordinary steel spiral spring, of which the spires lay close) was placed inside a coil of copper wire in circuit with a battery and the line. The spiral, as before, was fixed at one end, and kept slightly stretched by a string connecting its other end to a drum-head. In this arrangement no current passes through the spiral, but it is the core of an electro-magnet, and becomes magnetised in a degree which changes with the alterations in the intensity of the line-current. This causes the spires to attract one another with varying intensity, and the tremulous motion so produced is propagated by the string to the parchment. By this arrangement singing, whistling, &c., were heard when a Reiss transmitter was used. Probably a soft iron coil would have been better than the steel spring I used, and the apparatus is susceptible of other obvious improvements which would add to its sensitiveness.

Before concluding permit me to thank Prof. Barrett for allowing me to make the experiments in his laboratory.

Dublin, November 25

G. JOHNSTONE STONEY