

really originated there, and were not derived from the pollen."

Equally deplorable would be the result of affirming with Dr. Brown (p. 230) that "Turnip leaves contain 3 to 10 per cent. [of silica], oat 11 to 58 per cent. (especially in the stem), lettuce 20 per cent., oak-leaves 31 per cent., and beech-leaves 26 per cent."

It is unjust to the memory of Grew to assert that he ever disputed the discovery of the sexuality of flowering plants with Millington. Anyone who will refer to Grew's "Anatomy of Plants," p. 171, will see that he does perfect justice to Millington.

We had noted down a number of other passages equally open to criticism, but it is sincerely to be hoped in the interests of real botanical study that the specimens of this book which have been given will have some deterrent effect upon its possible readers. It is in vain that the author assures us that he has perused, for the purpose of his book, no less than 1,200 papers in almost every European language. A tithe of this literature properly selected and properly digested would have produced a manual of some value, instead of a mere chaotic dust-heap of all kinds of views belonging to all kinds of authors, as if scientific literature were in a way canonical, and the date of an author's views made no sort of difference, a common authenticity—like inspiration—embracing them all.

The blunders in the names of plants all through the book are quite as remarkable as the statements about their structure. *Chamaeparinus* (p. 101) is something more than a misprint for *Chamaecyparissus*, and it is astonishing to read about the "Brownonian" movements in a book whose author bears the honoured name of Robert Brown.

OUR BOOK SHELF

Telegraph and Travel. By Colonel Sir F. J. Goldsmid, C.B., K.C.S.I., &c. (London: Macmillan and Co., 1874.)

DURING the time of the late Bengal famine we were familiarised with seeing in the morning papers telegrams that had been despatched from Calcutta on the previous evening. Ten years ago telegraphic communication with India was but just completed *via* Constantinople, the Persian Gulf, and Karāchi: but it was some years after that before rapid through communication was arranged. The delays occurred mostly between Persia and England, and much organisation of European lines was needed before it was possible to converse with Teheran as the Shah did on his arrival at Buckingham Palace.

Those who are interested in the subject of telegraphic communication with our Indian Empire (and who is not?) will find much information in Sir F. J. Goldsmid's "Telegraph and Travel." He gives an account of the origin and development of the schemes, the troublesome diplomatic delays, and the physical difficulties that had to be overcome, as well as the arrangements that had to be made in some districts to protect the overland lines from destruction by wandering tribes. An officer of experience among Turks of Europe and Asia expressed his opinion at the outset that every convention with the Arabs in the interest of telegraph companies would be uncertain of execution, and that all wire within reach would be torn down from the poles to make heel-ropes for their horses. Instances of wilful damage unhappily were found by experience to be not rare, so that in some districts

mounted guards were needed along wide tracts, adding, of course, considerably to the working cost of the lines.

The first part of the book the author feels is likely to be "found painfully practical and matter of fact, overburdened with official details and wanting in the zest which keeps the eye willingly open and the hand steady to the book," and he pleads in excuse "the necessarily monotonous character of the subject." The accomplishment of such a communication between the two countries, however, is so momentously important an event, that the history of its progress is of interest, however it is told. Sir F. J. Goldsmid's arrangement of his materials certainly does make it rather difficult to follow the thread of the history, but then it is enlivened with many interesting little sketches, descriptions of Persian diplomatists, their manner of conducting business, and so forth.

The first part of the book is illustrated with two maps which indicate the route of the different telegraphic lines between England and India, the dates being affixed to the different sections. Sir F. J. Goldsmid writes from his own experiences and from blue-books, and gives a mass of information which could not well be compiled by anyone not practically acquainted with the work.

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.]

Sir J. Herschel on the Endowment of Research

THE following extract from a letter from Sir John Herschel bears so directly on the distinction between the needs of theoretical and practical science insisted on in your recent leading article (vol. xi. p. 301), that I need offer no apology for communicating it. As the present value of the opinions which it expresses is intrinsic, it is unnecessary to particularise the circumstances under which the letter was written more than thirty years ago. But I may remark that it is supported by many passages in other letters in which the distinction in question, and that between research which *can* and research which *cannot* be readily effected by private means, is dwelt on (with all the scrupulous care of one than whom no responsible guardian of the public purse was ever more opposed to dependence on State aid as a principle), in a sense emphatically favourable to the demands of science for help in certain clearly indicated directions. I am sorry that I have not the papers at hand to quote from, but one instance in particular occurs to me, in which the extending and perfecting of various Physical Tables in a thoroughly satisfactory manner is declared to be altogether outside of the field of work of the individual investigator, and to be labour to be *paid for* by the community.

J. H.

Biarritz, Feb. 22

"... There is a remark which possibly it may be deemed presumptuous in me to make, relative to the general subject of scientific expenditure touched on [in your letter], but which I trust may be pardoned, as I have reason to believe my impressions on the subject are those of the whole body of British men of science, with hardly an exception. Large as the sum expended on objects officially classed as 'scientific' may appear it would not, I think, be considered as excessive if devoted to the prosecution of scientific objects in the highest and strictest sense of that word. I mean such as would be recommended for prosecution by men of science the most eminent, each in his several department, and responsible for their recommendations to the opinion of the public and of the scientific world. Under such objects I should certainly not include hydrographical, industrial, or military surveys, experiments merely technical, or many other objects, which, however indisputably necessary and