

On the whole, then, while we have not been able to find any statement which is certainly and distinctly wrong, we find a very great deal which is not only certainly and distinctly right but which is also exactly that concerning which a real student desires, but has hitherto been unable to obtain, information; and the whole is well and clearly written. We cannot therefore too strongly recommend teachers to adopt it at once as their text-book.

O. J. L.

OUR BOOK SHELF

The Tea Industry in India; a Review of Finance and Labour, and a Guide for Capitalists and Assistants. By Samuel Baildon, author of "Tea in Assam," &c. (London: W. H. Allen and Co., 1882.)

THE history of the discovery and introduction of what is generally known as Chinese tea, though often told, has a special interest to a very large proportion of the inhabitants of the civilised world. In every country, indeed, on the face of the globe, the people use some beverage which they know as tea, and which is prepared in a similar way to that in use amongst ourselves, namely, by infusion, and often, though made from the foliage of indigenous plants, having the same chemical properties as true tea. Considering the enormous money value the cultivation of the tea plant represents not only in this country, but in China and also in India, where it is continually extending, it follows that works on this special industry would meet with a wide circulation amongst planters, and managers and directors of tea companies, notwithstanding that books and papers on the subject are by no means scarce.

The work before us is one which, though containing a good deal of information on the practical working and financial aspects of tea planting is, moreover, written in a style that will be generally acceptable, especially among young planters, who have their way to make in the planting world, and who want the dry details or drudgery of a planter's routine of toil stated in a clear and at the same time easy manner.

We will not follow Mr. Baildon through all his chapters. A glance at the introduction will prove that his reason for writing the book has been to show that India is the country from whence we get the finest teas, and that it is also the country where we may look in future years for the bulk of our supply, holding out inducements, as many districts do, for the investment of capital and the application of bodily health and talent. In Chapter II., on "India the Home of the Tea Plant," quotations are largely made from the published works of well-known botanical authorities, to show that though cultivated from such a remote period in China that the plant is truly indigenous to India. The legends connected with the origin or discovery of the tea plant in China are told, one of which refers its discovery to the year of grace 510. The author points out that these legends do not prove that tea was discovered in a wild state in China. "The earliest mention," he says, "tells of people using it, and it may be inferred therefrom that they cultivated it. Precise and accurate information is obtainable as to the actual discovery of tea in Assam, away from habitations and in dense jungles far from 'cultivated grounds.' But similar information is not obtainable in connection with the first days of tea amongst the Chinese."

Referring to the altered character of certain districts in India now under tea cultivation, Mr. Baildon says, "Where once jungle and its deadly miasma concealed the riches and importance of the province, hundreds of thousands of acres of open land are now to be seen planted with tea. Compared with past times Assam is no longer a howling wilderness, and the change from hundreds of miles of waste into cultivated land has altered almost everything."

In proof of the superiority of Indian over China teas, the author advances many arguments and anecdotes of a powerful nature, which, however, may be summed up in the simple statement "that it is systematically used to fortify tea from China," and that there is only one case on record of anything approaching adulteration of Indian tea. It is stated that "every pound offered for sale in England can be guaranteed as absolutely pure," and this is its reputation with the trade. Mr. Baildon's statements on this head are, we believe, an honest record of facts, for it is well known that Indian teas are largely used in this country for mixing with inferior China teas. This system is well known as "blending," and is stated to be resorted to because the public taste has not yet become educated to the flavour of Indian teas alone. The English tea drinker, however, is rapidly assuming a taste for the Indian produce, and the demand for Indian tea is already very great.

On the question as to the kind of men likely to succeed as tea planters in India, Mr. Baildon has a great deal to say, and is very outspoken in what he does say. His estimate of a successful planter is evidently drawn from a thoroughly practical experience, and will no doubt serve to encourage some, as it will to discourage others.

The book has been carefully revised, and is unusually free from blunders, the author wisely omitting to go into the botanical character of the tea plants any more than a reference to the names under which the forms have been described.

A Treatise on the Theory of Determinants; with Graduated Sets of Exercises for Use in Colleges and Schools. By T. Muir, M.A., F.R.S.E. (London: Macmillan, 1882.)

THERE has been a tendency of late among some of our mathematical writers to specialise their labours; thus, Dr. C. Taylor has confined his work chiefly, if not mainly, to the geometry of conics; and our present author, to the subject of determinants. This is, we think, a good practice. Mr. Muir is no novice, and has done good work in this field, much of which is original. We have long desiderated some such work as this. Mr. Scott's is very able, but we cannot but think it is hard for junior students. Mr. Muir, we are disposed to believe, has made the introduction to the subject easier for this class, at the same time that he brings before the reader all that could be expected in a text-book. The work before us consists of three chapters, the two first of which do not err on the side of brevity; but this fulness serves a purpose, viz. "that the reader may become thoroughly familiarised with the definition," which, by the way, is too long for us to reproduce here. Though the enunciation is long, the idea is easily grasped, and when taken in connection with the illustrations, is not likely to give much trouble to the student to master it. These chapters, as indeed the remaining one also, are copiously illustrated by graduated exercises. The third chapter is much more condensed in style, and treats of determinants of special form, viz. continuants, alternants, symmetric determinants, Skew determinants, and Pfaffians, compound determinants, and determinants whose elements are differential coefficients of a set of functions, to wit Jacobians, Hessians, and Wronskians.

In a final chapter is given an interesting historical and Bibliographical Survey, from which the reader learns that contributions have been made to the subject from the publication of the germinal idea (long unfruitful) by Leibnitz in 1693, down to this present work. We may refer for further information to the chronological "List of Writings on Determinants" (1693-1880), published by Mr. Muir in the *Quarterly Journal of Mathematics* for October, 1881. This, the completest list we have seen, was to have formed part of the present work. Though we have carefully read the book through, with the exception of the exercises, we have detected but three or four