

features of the East African coastlands—their labyrinth of creeks and backwaters, their miles of waterless scrub, or groves of *Hyphæne* palms, perhaps the most typical tree of a large part of their area. In the more northern districts traversed, on the borders of the Galla territories south of the Jub River, Mr. FitzGerald was actually breaking new ground, and the result of his journeys has been to modify considerably our ideas of the general character of the country, by showing that the vegetation is in parts of the interior much more luxuriant than has been generally supposed. Throughout his residence in the country he was in close touch with the native inhabitants, for whom he shows a genuine liking, and of whose life and customs many interesting details are given.

It is, however, in the treatment of the agricultural capabilities of the country that the chief value of the book will be found to exist. During the whole of his travels, the author devoted his constant attention to this subject, so that the information collected was unusually varied and complete, and the picture presented of the various aspects of life in the African "shambas" (plantations) is full of interest. The general reader may, perhaps, find the mass of details on agricultural subjects hardly to his taste; but to all who require a trustworthy guide to the capabilities of British East Africa in such matters, the book will prove of sterling value. A special weight attaches to Mr. FitzGerald's views from his wide experience of agriculture as carried out in Southern India, and he has done good service in calling attention to what he considers the great possibilities which lie before British enterprise in this direction in the East African coastlands. Much of the country is, in his opinion, eminently adapted for the growth of cotton and coco-nuts, while other products, such as fibre-plants and india-rubber, would also repay attention. Much apposite information regarding all these, drawn from sources not widely accessible, is printed in the form of appendices.

In the second part of the book, Mr. FitzGerald enlarges upon his report, made to the Directors of the East Africa Company in 1892, on the agricultural capabilities of Zanzibar and Pemba Islands. He treats exhaustively of the clove cultivation there carried on, describing minutely the requirements of the clove tree, the present methods employed in its culture, and various improvements which should be introduced. He also treats of other products to which attention should be paid, in order that the prosperity of the islands may not depend, as it does at present, on one crop alone. In the case of Zanzibar the ground has, it is true, been already covered to some extent by Dr. Baumann's useful monograph, but it is valuable to have also a professed agriculturist's views on the subject, which the German traveller approached rather from the standpoint of a scientific geographer. A point of special interest at the present time, when the slavery question seems to await its final solution, is the discussion of the sources of labour supply, into which Mr. FitzGerald enters fully. He holds that the introduction of Indian coolies will afford the best hope of a satisfactory solution of the problem.

A useful feature in the book is the lavish supply of maps (compiled by Mr. Reeves, of the Royal Geographical Society), in which the whole of the author's routes can

be followed, and which contain material not hitherto published. The index—also a point of special importance in a work intended, like the present, to be used for reference—is particularly full and well arranged.

OUR BOOK SHELF.

Notes on Observations. By Sydney Lupton, M.A. Pp. ix + 124. (London: Macmillan and Co., 1898.)

THE sub-title of this book describes the contents as "an outline of the methods used for determining the meaning and value of quantitative observations and experiments in physics and chemistry, and for reducing the results obtained." It is very important that students of science should be logical in their arguments and sound in their conclusions; and Mr. Lupton's concise description of the methods which must be followed before a scientific law or any general proposition can be established conduce to this end. The opening chapters of the book remind us of Huxley's inspiring little "Introductory" Science Primer. After these more or less metaphysical, but distinctly serviceable, statements as to ideas, premisses, and laws, come short chapters on units, averages, interpolation, the law of error, the method of least squares, the expression of results by graphical and by empirical methods, and many other subjects of interest to all who are engaged in quantitative physical and chemical experimentation. The treatment is but brief in most cases, and questions involving higher mathematics are not introduced. Sufficient is said, however, to show students how to apply to his own results the methods described; and for those who desire to go into the subjects more thoroughly, a list of references to standard works is appended to each chapter.

The book should find a place in the library of every physical and chemical laboratory, and all students of the laws and phenomena of nature should make themselves familiar with the principles described; for they will thereby learn the methods of sound reasoning, and be instructed in the art of computation for the purposes of science.

Prospecting for Minerals: a Practical Handbook for Prospectors, Explorers, Settlers, and all interested in the Opening-up and Development of New Lands. By S. Herbert Cox. Pp. xi + 239. With illustrations. (London: Charles Griffin and Co., Ltd., 1898.)

THIS little work forms the first volume of a new series of handbooks to be edited by Prof. Grenville Cole, and issued under the title of "The New Land Series." Although it can hardly be said that the title of the series is very happily chosen, it will be immediately admitted that the object of the series is distinctly good. The explorer or the settler in any new country needs, in most cases, some instruction as to the best means of discovering and developing its resources. Of all pioneers of civilisation, the mineral prospector is the most likely nowadays to lead the way; and the first volume of the series is, therefore, appropriately devoted to the subject of prospecting. The preparation of the work has been entrusted to Mr. Herbert Cox, a well-known mining engineer in London, who has in his day travelled widely and seen much of mines and minerals. Those who know the character of his professional work will feel no doubt as to his ability to lead the prospector in the way he should go; and an examination of the volume shows that its value is beyond dispute. Mr. Cox has furnished the prospector with a portable guide, which, while essentially practical, contains sufficient geology and mineralogy to explain the scientific principles on which the search for minerals should be based. The rough-and-ready prospector may probably think that the science is too much in evidence, and may grow impatient as he turns over pages about such things as "anhydrous silicates of lime