

clearly explained in Mr. Pendlebury's book on lenses, but that does not include other parts of the subject, and is somewhat needlessly long.

The book concludes with an account of some simple optical instruments, dispersion and achromatism, and the geometrical theory of the rainbow.

OUR BOOK SHELF

New Commercial Plants and Drugs. By T. Christy, F.L.S., &c. No. 9. (London: Christy and Co., 1886.)

THIS pamphlet of 73 pages treats for the most part of medicinal products, though some consideration is also given to fodder and food-plants, essential oils, india-rubber, and various others. The first article is devoted to the Doundake (*Sarcocephalus esculentus*), a West African Rubiaceous plant, which has attracted some attention of late in cases of nervous paralysis. The root has been analysed by Messrs. Heckel and Schlagdenhauffen, and their analysis is given together with a reproduction of the two plates which accompanied their paper. Two new perfume oils come under consideration, namely, from *Eucalyptus staigeriana* and *Backhousia citriodora*. The first is a Queensland tree, and is known as the lemon-scented iron bark. The odour of the leaves is said to be exactly like that of the lemon-scented verbena, and the oil yielded by them is identical in fragrance with that from *Andropogon citratus*, or lemon-grass oil, which is imported into this country both from Ceylon and Singapore, where the plants are very extensively cultivated. Mr. Christy says that "the odour of the oil of this tree is quite different from that of *Eucalyptus citriodora*, which resembles, and might be substituted for, citronella oil, so extensively used for perfuming soap." The *Backhousia* oil is described as being like that of *Eucalyptus staigeriana*, and upon being tested for scenting soaps it was found to answer well, and would probably find a ready market in this country if it could be imported at a price to compete with ordinary verbena oil. It might realise 1s. 4d. to 2s. per pound.

The Kava root (*Piper methysticum*) of the Fiji Islands, which is so well known for the disgusting ceremonies which, in former times perhaps more than the present, accompanied its preparation, has of late years been introduced amongst us for its medicinal properties. The active principle of the Kava root appears to reside in a resinous substance extracted with alcohol. From a series of experiments it seems that this principle is a substance of very great importance as a local anæsthetic, but that in larger doses it produces a scaly affection of the skin. From the Kava root a spirit or liqueur has been distilled, and this under the name of Yagona is on sale at the refreshment bars of the present Colonial and Indian Exhibition.

Another new drug which probably has a future before it is the Kombe of Central Africa (*Strophanthus hispida* or *S. Kombe*) which has been proved to be of considerable value in affections of the heart. The first communication relating to the physiological action of this drug was made by Prof. Fraser to the Royal Society of Edinburgh in 1870, which was followed in 1885 by a more elaborate paper at the Cardiff Meeting of the British Medical Association. There seems, however, even after this lapse of time to be a difficulty in obtaining the seeds in quantity, or even the right species, several forms having been introduced from the Gold Coast, Sierra Leone, and other parts of Africa; the chief difference lies in the seed, some forms of which are covered with long, fine silky hairs.

Mr. Christy's pamphlet, like its predecessors, is a useful record of newly introduced and useful plants.

Heidelberg gefeiert von Dichtern und Denkern seit fünf Jahrhunderten. Herausgegeben von Albert Mays. (Heidelberg, 1886.)

IT was a happy thought of the compiler of this volume to collect and publish on the five hundredth anniversary of the foundation of the University of Heidelberg a selection of what has been written about the city and the University by eminent men of various nations at different periods of time. A collection of all that has been written about the ancient city and its lovely situation would, Herr Mays says, fill a respectable library, for besides histories in verse of the Palatinate and its capital there are innumerable tales, novels, and the like based on incidents in its history, and lyrical and historical poems on Heidelberg by the hundred. In making a selection from this vast mass of matter, the compiler has only retained poems or descriptions which are of special poetical or literary value, or those which are of special interest on account of the author, or, finally, those which exhibit some special originality or peculiarity. But even when thus winnowed a handy volume is left. Needless to say, the vast majority of the writers are German; there are a few English, and one American (Longfellow). The list commences with an extract from the Bull of Pope Urban VI. of October 23, 1385, authorising Prince Rupert to found the University. This is followed by extracts from over sixty authors arranged chronologically. Herr Mays notices as a curiosity that not one of these is French. The English authors naturally dwell on the castle, "next to the Alhambra of Granada the most magnificent ruin of the Middle Ages," rather more than on the University; but indeed the German writers do the same. The book will show the good people of Heidelberg, if they lack such knowledge at this festive season, that they are citizens of no mean city. It should also prove an interesting memento to many in Europe and America who have passed a few years at the most impressionable period of their lives at the old University, which, with its sister at Bonn, has of late years drawn the British student away from Göttingen.

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 insure the appearance even of communications containing interesting and novel facts.]

Organic Evolution

FOR some time I have much desired to direct the attention of your readers all over the world to the two very remarkable articles on Organic Evolution, by Mr. Herbert Spencer, which appeared in the April and May numbers of the *Nineteenth Century*. I hope they will be separately published. They mark in my opinion a new departure in the Philosophy which has been built up by a certain school of writers on the Darwinian Theory. Let me explain what I mean.

From the first discussions which arose on this subject I have ventured to maintain that the successors of Darwin have run quite wild from the teaching of their master—that his Hypothesis, even if completely true so far as it went, offered no adequate explanation whatever of the multiform and complicated facts of Organic Evolution—that the phrase "natural selection" represented no true physical cause, still less the complete set of causes requisite to account for the orderly procession of organic forms in Nature; that in so far as it assumed variations to arise by accident it was not only essentially faulty and incomplete, but fundamentally erroneous; in short, that its only value lay in the convenience with which it groups under one form of words, highly charged with metaphor, an immense variety of causes, some purely mental, some purely vital, and others purely physical or mechanical.