

remote enough from the pulse of France all round it. The author, aided by well-chosen views, shows us how the volcanic masses have controlled the higher features of the landscapes, and how the Loire stream-system has cut through the lava-flows, while, on the side of the Allier, lavas of the same age have descended into a pre-existing waterway (p. 326). Full justice is done to the phonolitic mass of the Mézenc, explored by Faujas de Saint-Fond in the middle of the eighteenth century (p. 294). We miss the name of this great investigator from the bibliography on p. 14, although Scrope's work in 1827 is mentioned. The users of this guide will become such good geologists that they will surely like to turn the pages of Saint-Fond's admirable folio. It may be hoped that M. Boule will send many lovers of unspoiled country to the strange and broken slopes of the Cévennes. "J'ai composé ce guide," he writes, "avec un rare plaisir." He has transferred this pleasure to the reader.

G. A. J. C.

*The Pronunciation of English by Foreigners: a Course of Lectures to the Students of Norham Hall on the Physiology of Speech.* By Dr. Geo. J. Burch, F.R.S. Pp. x+110. (Oxford: Alden and Co., Ltd.; London: Simpkin, Marshall and Co., Ltd., 1911.) Price 3s. net.

THIS is a delightful book. Works on phonetics are usually dry and uninteresting except to those who are willing to face the technical difficulties of the subject. But Dr. Burch, who is well known in other departments of science, invests the discussion with both wit and humour, while, here and there, he gives an amusing anecdote which is always appropriate and telling. He deals with the difficulties experienced by foreigners in catching the correct pronunciation of some of the sounds of the English language. The book is founded on lectures delivered at Norham Hall, Oxford, to foreign women students, and during the past ten years or so Dr. Burch has kept records of the chief difficulties in the pronunciation of 1305 persons of many different nationalities. He gives an excellent, although a short, account of the general mechanism of speech, and minutely describes the movements necessary for the articulation of the speech sounds of consonants, diphthongs, and vowels. There are also excellent remarks on the breathing apparatus.

It would seem that individuals of different nationalities have different methods of using their nervous and muscular mechanisms for articulate speech, so that if one wishes to reproduce the sound in any given language, one must learn how to train the articulating mechanism so as to obtain the required result. Dr. Burch gives minute directions, and it would seem that his system of teaching the correct tones of English to foreigners has had conspicuous success.

"During these ten years I have been greatly struck by the excellent pronunciation of the majority of those attending these courses. If I could speak those languages with which I am familiar with as good an accent as mine is spoken by them, I should have every reason to be proud. But this excellence has made a severer critic of me." (P. 59.)

Excellent, however, as the description of the movements of the tongue and other organs may be to guide the student in reproducing a given sound, an appeal to the ear is all-important, and those are fortunate who have had the instruction communicated by Dr. Burch's own living voice. We feel sure that if anyone takes up this little book he will not find it dry and wearisome, as its title might indicate. It is full of interesting information supplied by one who is an experienced and versatile teacher.

JOHN G. MCKENDRICK.

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*Praxis der Linsenoptik in einfachen Versuchen zur Erläuterung und Prüfung optischer Instrumente.* By Dr. W. Volkmann. Pp. vii+176. (Berlin: Gebrüder Borntraeger, 1910.) Price 3.50 marks.

THIS little book is one of a series composing a "Bibliothek für naturwissenschaftliche Praxis," in which the object of each volume is to provide an introduction to some branch of practical science by means of simple experiments which can be carried out with inexpensive and easily constructed apparatus. The optical equipment here described consists of some half-dozen lenses of different focal lengths, a number of simple wooden stands, some clips and lens-carriers, diaphragms, and screen, with a spirit lamp and strip of gas-mantle to serve as light source. Even with these simple means it is, of course, easy to arrange an interesting and instructive series of experiments to illustrate the properties of lenses and the formation and defects of optical images. With a pinhole and some fine gauze, one can go further, and study effects due to the fact that light is a wave motion. With but little increased expenditure the range of such experiments could readily be extended; but the apparatus described is sufficient to enable practical acquaintance to be made with nearly all the main defects of optical instruments: spherical aberration, astigmatism, coma, distortion, and chromatic aberration can all be examined, and even the theory of resolving power can be studied. The book concludes with chapters on the photographic lens, the magnifying glass, the microscope, and the telescope, in which application is made of the experimental knowledge acquired to the examination of the characteristics of a well-designed optical instrument.

To follow out the course of experiments here suggested would no doubt be for an intelligent lad an excellent introduction to the study of optics, and, though the book is not designed for school use, the German schoolmaster might find in it useful hints in experimental science teaching. For the English reader, however, it has no special interest; it shows no exceptional ingenuity in the devising of experiments, and, from its aim, novelty is not to be expected, nor, perhaps, desired.

*Rhododendrons and Azaleas.* By Wm. Watson. Pp. xi+116. "Present-day Gardening" Series, edited by R. Hooper Pearson. (London and Edinburgh: T. C. and E. C. Jack, n.d.) Price 1s. 6d. net.

THERE are certain prevailing ideas with regard to the constitution and requirements of rhododendrons which are only partially correct that have tended to restrict their cultivation. Thus the necessity for peat in the soil is an exploded assumption, although the presence of lime must be recognised as an effectual bar to success. Then again the tenderness of many attractive species is only too obvious, but it is fortunately possible to obtain hybrids of a more hardy character. Further, it may be mentioned that no good popular book on rhododendrons is extant; therefore the present work is eminently desirable, and the publishers are fortunate in securing the services of an author who is an ardent enthusiast, and is also thoroughly conversant with the different classes of rhododendrons and their special features. The classification in itself is tolerably complex. Botanists recognise a single genus which includes the true evergreen rhododendrons, a small group of Indian azaleas, also evergreen—comprising *R. indicum* and its allies—and deciduous azaleas or swamp honeysuckles of North America. The true rhododendron species are best developed in China, while Himalayan species, owing their prominence to Sir Joseph Hooker, are a favourite but tender group, and the North American