

utility. The more elementary drawings reproduce the laurel, snowdrop, tulip, and oak; the buttercup, poppy, and wild rose are considered suitable for a higher standard, and the blackberry, narcissus, and marguerite daisy are selected for the most difficult studies. The representations of the plants are botanically satisfactory, except the beech-fruits, that fail in colour and shape. In a few of the adapted designs, while making allowance for conventional treatment, there is unnecessary departure from the natural arrangement. For instance, the opposite insertion of the leaves in the privet is natural and characteristic, and should be maintained; similarly with regard to the pinnate leaves of the rose. It would have been useful to include in the explanatory booklet a short account of such botanical facts as the forms and insertion of leaves, the parts of a flower, their cyclic and acyclic arrangements, and similar details. For the most part, however, the designs do maintain and emphasise the natural characteristics, thereby fulfilling the purpose of training students to derive their artistic conceptions direct from nature. The production of the charts is highly creditable, the drawings are bold, and the colour contrasts effective.

Problems in Surveying, Railroad Surveying, and Geodesy, with an Appendix on the Adjustments of the Engineer's Transit and Level. By Howard Chapin Ives and Harold Ezra Hilts. Pp. ix+136. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1906.) Price 6s. 6d. net.

WITH such a full-time-page this book fairly well describes itself. The authors have been engaged in teaching engineering and surveying, and have found this graded series of simple problems useful for sustaining the interest of their students in their work and for covering the course required by the faculty. The book is addressed to those who are professionally interested in such matters, or who wish to acquire the capacity to carry out certain operations in the field with facility, and with that amount of accuracy which the nature of the work demands. Consequently, there is little reference to theory. We have the ordinary methods of measuring by chain and problems connected with levelling. The compass, theodolite, and sextant come under review, and the mechanical adjustments of these instruments are described, but with no great minuteness. Greater care might have been bestowed on some of the formulæ given; those on p. 36 have apparently been misprinted. The railroad surveying problems are more satisfactory, and seem to be of practical utility.

A chapter on astronomical problems of a most elementary character has been added. In the preparation of this chapter the authors acknowledge the assistance they have received from a third authority. It must strike anyone with surprise that the authors should consider themselves competent to produce a book of this type, and yet feel it necessary to invite or to accept outside aid. W. E. P.

The Sense of Touch in Mammals and Birds, with Special Reference to the Papillary Ridges. By Dr. Walter Kidd. Pp. viii+176; illustrated. (London: A. and C. Black, 1907.) Price 5s. net.

HAVING in a companion volume treated of the direction of the hair in animals, Dr. Kidd, in the one now before us, turns his attention to the kindred subject of the structure and function of the papillary ridges on the tactile surface of their hands and feet. Although the subject is by no means new, the author has studied it in a fuller manner than at least most of his predecessors, and has a new theory with regard

to the function of the ridges in the Primates, in which alone these structures attain full development. In monkeys, at any rate, it has been generally considered that the main purpose of the rough surface produced by the papillary ridges is to ensure firm hold in grasping. Without denying that this may be a part of their function, Dr. Kidd is, however, of opinion that there are other important uses, which vary in different groups. In man, for instance, the papillary ridges in the hand alone exercise the function of discriminative sensibility, and those in the foot that of maintaining the equilibrium of the body, whereas in the lower Primates both functions are discharged by the ridges of the two pairs of limbs, although sensibility is less marked in the front pair than in the human hand. The most interesting part of the author's conclusion relates, however, to the papillary ridges of lemurs, which are much more complicated than those of apes and man, and are accordingly believed to be subservient to the necessity for special means of preserving the equilibrium in the case of nocturnal creatures.

R. L.

Zur Wirtschafts- und Siedlungs-Geographie von Ober-Burma und den Nördlichen Shan-Staaten. By Dr. H. J. Wehrli. Pp. 130. (Zurich: Lohbauer, n.d.)

THOUGH in completeness and fulness of illustration this popular handbook of the British province of Burma bears, of course, no comparison with Sir J. G. Scott's recent monograph, it contains in a short space all that a merchant or a traveller intending to visit the country needs. The physical geography, climate, ethnology, natural productions, and industries are clearly described in a series of chapters illustrated by four maps and twelve photographic plates. The book is frankly a compilation from the best authorities, of which a full bibliography is appended. The maps, like all German work of the kind, are good, but the political map would be more useful if the boundaries were marked in colours. Except some of the handbooks for emigrants issued by our more important colonial Governments, we have no geographical series in English which corresponds with this. The organisation which has just been started to spread a knowledge of the Empire among British schoolboys might well provide a series of handbooks of this class.

LETTERS TO THE EDITOR.

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International Investigation of the Upper Air.

THE International Commission for Scientific Aeronautics for some years past arranged that observations in the upper air by means of kites and balloons should be made on certain pre-arranged days, generally the first Thursday in each month. At the conference held at Milan in October last, M. Teisserenc de Bort suggested that better results would be obtained if a series of observations could be made on several successive days instead of on isolated days as hitherto.

It has accordingly been arranged that while the observations on the first Thursday in each month should be continued, some further days should be arranged for a more extended series of observations. The first of these series is to take place in the fourth week in July, and it is hoped that, besides the ordinary observatories that take part in the monthly ascents, as many meteorologists as possible should assist in order that observations may be obtained from a number of widely extended stations