

On Buds and Stipules. By the Right Hon. Sir John Lubbock, Bart., M.P., F.R.S., D.C.L., LL.D. With four coloured plates, and 340 figures in the text. Pp. xix + 239. (London: Kegan Paul, Trench, Trübner, and Co., Ltd., 1899.)

THE new volume of the "International Scientific Series" forms a welcome addition to those already published, and it will be read with interest by all who are drawn to a study of the natural history of plants. For although accounts of bud-protection, &c., are to be found scattered through various journals, there existed no connected story of the numberless artifices by which plants shield their winter buds before the appearance of Sir John Lubbock's book. Naturally much of its contents includes matter of common knowledge to those botanists who care for the study of the living plant, but even for them there is much which will be probably found to be novel, and at any rate well worth reading; whilst the freshness and first-hand character of the recorded observations affords a pleasure which those who are acquainted with the author's previous essays in natural history will naturally expect to enjoy from a perusal of the work. It is refreshing to observe that Sir John has not allowed himself to be trammelled too much by orthodoxy—to find that, for example, he declares for the stipular nature of the outgrowths on the petioles of the early leaves of the flowering currant. In the account of the stipules in the genus *Tropaeolum*, however, there seems to be no mention of the interesting fact that the first two leaves (following on the cotyledons) in the common "nasturtium" are stipulate, whereas these structures are absent from the later developed leaves. Indeed, the whole genus seems worth a more extended treatment from the point of view of stipulation, affording, as it does, almost all transitions from complete development to a complete arrest of stipular formation, and these facts are of especial interest in view of the stipulate character of allied forms.

The tendrils of sarsaparilla and also the ligule of grass leaves are considered, and probably with justice (at least as regards the former), as of stipular nature.

The beautiful arrangements by which buds are protected by means of developments of the axillant leaf, as in the plane, maple, *Rhus*, *Kalmia*, &c., are described and well figured; indeed, the excellence of the numerous drawings forms by no means the least welcome feature of the book. Space forbids us to do more than thus briefly indicate a few of the points contained in the volume, which is a most valuable contribution to the literature of a fascinating subject.

J. B. F.

The Philippines and Round About. By Major G. J. Younghusband. Pp. xiv + 230. (London: Macmillan and Co., Ltd., 1899.)

IN this amusing and well-written book the author gives a very good description of the towns of Iloilo and Manila. The volume is the result of a short visit made soon after the Spanish-American war, of which we get an excellent account. The life and customs of the inhabitants of the Philippines are well described, and the reader cannot fail to be surprised at the slow progress civilisation has made in those parts. This fault is due, without doubt, to the bad condition of the Government. The only outcome of centuries of authority is an absolute want of national discipline. The Filipinos, far from being down-trodden by all the oppression and cruelty they have endured, are lazy and insolent; but, perhaps, this is not altogether surprising seeing that no wholesome authority has been used.

The author has been more interested in incidents of travel than in the natural history of his surroundings. There seems to be little domestic comfort in hotels or houses, and we, who realise so well the value of scientific appliances, cannot fail to be forcibly struck with

the descriptions of the primitive state of the sanitary arrangements of the towns.

The book is a valuable addition to works of travel, and will be found a useful guide when visiting the Philippines and their neighbourhood, for good descriptions of life in Java and in the town of Saigon are also given.

The Slide Valve Simply Explained. By W. J. Tennant, A.M.I.M.E. (London: Dawbarn and Ward, Ltd.)

THIS little pamphlet of sixty-five pages, forming volume No. 2 of the "Model Engineer Series," was originally intended to help the author's railway students towards the attainment of clear general notions upon the subject of the slide valve. The author conceived the idea of using on a base-board a rotary disc to represent a crank-shaft, together with the idea of obtaining concentric circular diagrams of results, by using a crank-arm marked on the disc as an index-finger, and recording on the base-board the beginnings and ends of the arcs swept out by the crank in the various distribution-periods.

For students with little or no geometrical knowledge the book should be most useful. We think, however, that a student's time would be better employed in acquiring a sufficient amount of geometry to understand the Zeuner diagram, by aid of which the action of the slide valve can be represented more simply, quickly, and conveniently than by the author's disc diagrams. A. S.

LETTERS TO THE EDITOR.

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Expansion of Solids by Heat.

THE following simple apparatus for showing the expansion of metals by heat may interest your readers. A cork rests on the table and is kept steady by two horizontal knitting-needles fixed into it. A third knitting-needle fixed in the cork stands in an upright position, and carries a second cork at its top. Another knitting-needle passes through this cork and projects vertically downwards into a glass of water, and carries a third cork at its lower end. This last cork carries a sewing-needle with its point projecting upwards just above the surface of the water. If one of the vertical knitting-needles is heated with a match, the point of the sewing-needle will disappear below the surface of the water; if the other is then heated, the point will appear again. These small movements can be easily seen by watching the reflection of a bright object in the surface of the water.

HORACE DARWIN.

The Orchard, Huntingdon Road, Cambridge, June 3.

Bessel Functions.

SO Mr. A. B. Basset (p. 101) interdicts all such expressions as *Armstrong guns*, *Whitworth lathes*, *Martini rifles*, *Boxer cartridges*, *Whitehead torpedoes*, *Cortiss engines*, *Siemens steel*, *Thomson galvanometers*, *Peltier effect*, *Röntgen rays*, hundreds of which are in common use among engineers, physicists, and