

tically the sole factor in determining the intensity of the reflected light."

In chapter v. the distinguishing characteristics which separate surface-colours from other classes of colours are noted. The following kinds of colours are treated: (1) body-colours; (2) the colours of turbid media; (3) the prismatic dispersion colours; (4) the spectral colours of the diffraction grating; and (5) the colours of thin plates. With reference to the latter, the author calls attention to the fact that if one changes the polarisation of the incident light used in producing the colours of thin plates, the result is simply a change in the *intensity* of the colours, no change in their *tint* being thereby caused; whereas with surface-colours proper, under the same circumstances, *both intensity and tint* are thereby changed. The body of the work concludes with a sixth chapter, dealing with the occurrence of surface-colours in the animal and mineral kingdoms.

E. H. B.

OUR BOOK SHELF.

Studies from the Biological Laboratories of the Owens College. Vols. i. (pp. 328), ii. (pp. 268), iii. (pp. 286), 1886, 1890, and 1895. (Manchester: Cornish.)

THERE is growing up among us a habit of collecting and publishing reprints of memoirs as "Studies" from this laboratory or from that; and a very excellent habit it appears to us to be. We have known for some years the "Studies from the Morphological Laboratory" of Cambridge; we have seen "Reports" from the Physiological Laboratory of University College, London; "Transactions" from Dundee, edited by Prof. D'Arcy Thompson, and quite recently we referred to the youngest of such publications, viz. the "Linacre Reports" of the zoological work at Oxford, edited by Prof. Ray Lankester.

All such collections serve the useful purpose of indicating the character and amount of work carried out at the various important teaching institutions of the kingdom, and of emphasising the fact that the best teaching work is performed by those engaged in research. It may be objected that the memoirs contained in such "Studies" can be found elsewhere. This is, in general, true; but, nevertheless, such collections help to associate more readily in our minds the workers with their masters and the institutions to which they are attached; and oftentimes it brings together, in a compact form, a series of contributions undertaken with some special object, by different workers it may be, or by one man.

The first volume of these "Studies" from Manchester was published in 1886, the second in 1890, the third during the present year; the last is under the editorship of Dr. Sydney Hickson, the two former by the late Professor. These volumes contain several valuable memoirs, some of which are already classical, such as Marshall's "Segmental Value of the Cranial Nerves," Beard's account of the Branchial Sense-organs, and Melland's contribution to the Histology of Striated Muscle; and to these will have to be added, no doubt, the researches of Marshall and Bles on the Development of the Vascular System, and of the Kidneys in the Frog, Robinson's observations on the Development of the Optic Nerve, Paterson's account of the Origin of the Nerve-plexus of the Limbs, and other embryological papers undertaken at the suggestion of the late Professor.

In addition to these developmental memoirs, those by Fowler on the anatomy of Corals, and by Garstang and by Gamble on the Fauna of the British Coasts, have a

permanent value. In the last volume, Milnes Marshall's interesting "Address" at the British Association, dealing with "Recapitulation in Ontogeny," is reprinted.

The absence of botanical research in the later volumes is the more noticeable, as Prof. Marshall Ward contributed to the first volume. We hope that botanical research is not dead in Manchester.

Palæontology is represented by Dr. Hurst's account of *Archæopteryx*.

The quality and extent of ten years' work brought together in these three volumes, bear witness to the energy and influence of the late Beyer Professor; and we may echo Prof. Hickson's prefatory remark, that "his influence will long be felt in the writings of his pupils and successors."

Studies in Economics. By William Smart, M.A., LL.D. Pp. 341. (London: Macmillan and Co., 1895.)

DR. SMART is favourably known in the economic world by his admirable translations of the writings of the Austrian school; and in these "Studies" the characteristic doctrines of that school furnish no small part of the theoretic apparatus. The exclusive emphasis laid on that side of the theory of value, the elaboration of which is connected in this country chiefly with the name of Jevons—the side of demand, that is, with its controlling factor of marginal utility—is faithfully reproduced by Dr. Smart; and, like the teachers, whose disciple he frankly acknowledges himself to be, he is disposed to treat as "secondary" and "derivative" that influence of cost of production as governing supply, and, through supply, determining value, to which the older English economists, such as Ricardo and Mill, assigned predominant stress. He describes the Austrian theory as the "current" and "dominant" theory; and, while he sometimes accords a hesitating recognition to conceptions which seem to conflict with this exclusive emphasis, his attitude even here appears to be in reality one of doubtful acceptance rather than hearty concurrence. To the writer of this review the later, like the older emphasis, seems mistaken; and the comprehensive attitude of Prof. Marshall, who treats the two sides of supply and demand as mutually determining, appears to be more closely in accord with the facts; and in this impression he is strengthened by the difficulties encountered by Dr. Smart in some of these "Studies" from an unwillingness to allow to cost of production a coordinate influence with that of marginal utility in determining value. On Prof. Marshall's hypothesis the facts seem to fall naturally into their place, but by the Austrians and by Dr. Smart they appear to be forced artificially into a strained position. To this theoretic equipment Dr. Smart has added the valuable qualification of a first-hand acquaintance with the facts of business life; and the advantage of this intimate knowledge is evident in many parts of his book. It consists of three main sections, one devoted to studies in wages, the second to studies in currency, and the third to studies in consumption. Of these the first seems to us the most valuable; and the reason consists in the fact that Dr. Smart's business experience brings a strong admixture of practical sagacity to bear on such matters of concrete interest as a "living wage," the "sliding scale," and "women's wages." He owns in his preface to a proneness, not unnatural in a business man, to "lose himself in the fallacy of the particular instance"; and we are not sure that he has in the course of these "Studies" always avoided this fallacy. But he never fails to be interesting and suggestive, and he is, with rare exceptions, uniformly lucid; and these are qualities as admirable as they are rare in combination. The economic student and—in a more especial degree—the practical man, will find material for profitable reflection in the careful perusal of these interesting "Studies."