

mental shorthand, invented to increase man's control of his environment and his power to survive in the struggle for existence. We can never pretend that they represent ultimate reality, if such a thing is indeed thinkable. Or does Dr. Haldane believe that there is some great formula which will embrace the worlds of soul and body, and will replace, because including, the concepts which we employ in dealing with the objective world? If this were possible, we should indeed be as gods, and there would seem to remain little place for the last few pages of these lectures, in which the author, in accordance with the wishes of the founders, refers to "the presence of God in the natural and moral world." It is the teaching of biology, as of every religion or State code of ethics, that "we are not mere individuals, but one with a higher reality." No system of education is complete which does not inculcate this as its fundamental doctrine, but it is not given to everyone to make the further inferences drawn by the author of these lectures.

E. H. S.

THE PERENNIAL PROBLEM OF DYES.

Artificial Dye-stuffs: Their Nature, Manufacture, and Uses. By A. J. Ramsay and H. Claude Weston. Pp. ix+212. (London: George Routledge and Sons, Ltd., 1917.) Price 3s. 6d. net.

AFTER a concise historical introduction, the authors deal with the distillation of coal and the manufacture of direct coal-tar products. In referring to the very small yield from coal of the principal colour-producing hydrocarbons, the possibility of a new source of these products from petroleum is mentioned. A more general conversion of coal into coke before consuming it as fuel would also lead to a further supply of these valuable hydrocarbons.

It is an unfortunate feature of this text-book that the chemical foundations are unsound. This detracts considerably from its utility as an introductory manual to the study of the artificial dye industry. The only other *raison d'être* for the work, namely, that of an exhaustive treatise, is disclaimed by the authors.

The azo-group present in the largest class of artificial dyes is defined incorrectly as "a radical consisting of two atoms of nitrogen which can be substituted in a suitable substance for one atom of hydrogen." The consequences of this fundamental error are to be seen in the absurd formula for Bismarck brown on p. 63. The chemical mechanism of the diazo-reaction defined long ago with precision by Griess, the discoverer of the process, is apparently not understood clearly by the authors, who on p. 41 give the formula $C_6H_5.N_2HCl$ to diazobenzene hydrochloride (*sic*). This confusion is continued on p. 42 in the formation of aminoazobenzene. It is only fair to direct attention to these elementary details, because the authors attach importance to them, stating (p. 44) that "if the reader has thoroughly mastered the explanation in the foregoing pages . . . he will

be in a position to understand the nature and manufacture of almost any of the series of azo-dyes."

Pyrogallol or "*v*-trihydroxybenzene" is furnished with the structural formula of its isomeride, phloroglucinol. Salicylic acid is stated to be manufactured from anthranilic acid, but this can scarcely be the prevailing method. Confusion rules in regard to "1:8:4-dioxynaphthalenesulphonic acid," this dihydroxy-derivative of naphthalene being endowed with two atoms of univalent oxygen. Direct or "substantive" dyes are said to be formed within the fibres themselves. Phthalic anhydride is formulated as $C_6H_4(CO_2).O$, but the errant carbon atom returns to the molecule at phthalimide. On p. 111 the words "left" and "right" should replace "top" and "bottom" in the description of the quinonoid hexagon. If this formulation is accepted, it is incorrect to add that the hexagon is linked to chlorine as well as to an amino-group. The formula for *m*-tolylenediamine on p. 133 is incompatible with the constitutions assigned to tolylene red and blue on the same page.

These and other similar chemical errors mar the utility of a text-book which is much more satisfactory in its outline of manufacturing processes, and contains a series of informing diagrams.

G. T. M.

THE NEW REGIONALISM.

Can We Set the World in Order? The Need for a Constructive World-culture. By C. R. Enock. Pp. 198. (London: Grant Richards, Ltd. 1916.) Price 3s. 6d. net.

THE man of fact and the brooding thinker are rarely united in one to form a great leader. Here we have pre-eminently the man of fact. Few pages of this work but evidence the travelled observer richly harvesting facts with admirable zeal for social reconstruction; we therefore warmly recommend his labours to all who would ameliorate the gross and widespread inequalities of human lot.

The author pleads for a "science of human duty in moulding the earth that it may be the home of a high and universal civilisation" (p. 34): truly a lofty ideal. He advocates a co-operative world-survey of economic possibilities, and thereafter the development of a world-order, based upon federated units of industry so organised that every region shall become, so far as geographically possible, an "organism" (p. 41), "self-supplying and self-contained," within "its natural radius of action" (p. 40). A sense of "place-possibility," or "the culture of the locality," should teach us "to regard a place as an organism, capable of being brought to a flourishing and permanent state of life, just as we bring an individual to such a state" (p. 56). To this end, useful "Town-planning" should grow into "Industry-planning" Acts, together culminating in "country-planning," or "the economic consideration and control not only of urban but of rural areas, for . . . in the