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Present State of the Dye Industry.

ON the occasion of the annual general meeting of the British Dyestuffs Corporation held on May 21 Sir Henry Birchenough, who has succeeded Lord Moulton as chairman of the company, emphasised the importance of a great dye-making industry as an instrument of national defence, pointing out that practically the whole of the poison gases used by the German Army in the war were made in the establishments of the German dye manufacturers, as well as large quantities of high explosives and synthetic nitric acid. Chemical warfare, in any future conflict, will no doubt be greatly extended, and its successful prosecution will depend on the equipment, skill, and experience of the dyestuff industry.

Scarcely less important is it in peace, for, as the chairman explained, "the group of textile trades of this country constitute the most striking and important single group of allied industries in the civilised world," and "the magnitude and very existence of a very large part of our export trade in textiles depend absolutely upon there being . . . a sufficient supply of dyestuffs available."

What is being done to establish a great dyestuff industry in this country? There is no doubt that progress has been very considerable, and it is a remarkable fact that the output of dyes in this country (given by the Board of Trade as 25,000 tons annually) exceeds the total consumption before the war.

The range and variety of these dyes are, however, admittedly limited, and, indeed, Mr. A. Hoegger, chairman of the British Cotton and Wool Dyers' Association, at the annual meeting

held on the same day as the above, stated that, had it not been for the importation of certain Swiss dyes during the war, and the arrival recently of certain "reparation" colours from Germany, some of the branches of the association would have been seriously embarrassed.

There are two rather important points that require comment here. Sir Henry Birchenough stated that "an unprecedented demand for finished dyestuffs prevents the creation of stocks, and thereby places difficulties in the way of the maintenance of uniformity in our products." This is no doubt a reply to complaints as to lack of uniformity in the dyes supplied. There are two ways in which this can occur, viz. as regards shade and as regards strength.

If the preparation of a dye has been properly worked out in the laboratory and in the small-scale plant (such as exists at Huddersfield), the large-scale manufacture should present few difficulties. Granted that the first few batches may leave something to be desired, succeeding batches made under careful scientific control should certainly be very close to the standard required, and the stock necessary to allow this difference to be adjusted should not be more than three or four batches—say a ton at the utmost. With regard to the strength of the dye sent out, Mr. Hoegger states that a great proportion of the 25,000 tons is not so highly concentrated as were pre-war German colours. Almost every dye coming from the drying chamber is stronger than the standard, even taking as standard the German pre-war dye, and it is exceedingly bad policy to reduce the strength below it. This cannot be other than deliberate, and is very objectionable, as the quality of the dye is thereby depreciated in the mind of the user, and in this connection there is evidence that the Canadians are not altogether satisfied with the quality of the dyes imported from this country.

"Why," it will be asked, "cannot we make here those dyes which are being imported from Switzerland and vicariously obtained from Germany?" The answer to this question is: First, lack of plant; and secondly, lack of raw material. The former is referred to by Sir Henry Birchenough, who points out the great delay in delivery of plant owing largely to the moulders' strike. The provision of the multitudinous variety of pans, autoclaves, and acid-resisting vessels required by the industry is proceeding only slowly, and especially is this true of enamelled appliances. Even

the refuse of the engineering shops, iron borings, was no longer forthcoming during this strike, with the consequence that the manufacture of aniline was seriously retarded.

How the lack of special plant prevents the supply of certain dyes is well illustrated in the case of rhodamine. The intermediate products required for this are diethyl-*m*-aminophenol and phthalic anhydride. The former is prepared from diethylaniline, for which, unlike dimethylaniline, enamelled autoclaves are required, and the latter requires special plant for the oxidation of naphthalene by means of a mercury catalysist. Although indigotin is no longer prepared by the Badische process from phthalic anhydride, the importance of this intermediate is still great, and as the English rights of the new process of the American Bureau of Chemistry, oxidation in the vapour phase in the presence of a catalyst, have already been purchased, it may be expected that this product will soon be manufactured here at a comparatively very low cost. It will readily be understood that, in view of the necessity of installing two special plants for the intermediates required, manufacturers both in England and in America have not succeeded in placing anything but insignificant amounts on the market.

With regard to the provision of other intermediate products there is still much to do, and at the present time the demands for such elementary materials as aniline and β -naphthol greatly exceed the supply. The latter is required for the manufacture of such important intermediates as γ acid and J acid, and when it is considered that β -naphthol was not made in England at the outbreak of war, it will be realised that it is necessarily a slow operation to produce these acids, involving as it does three distinct plants.

It must not, however, be concluded that British manufacturers have confined themselves to the dyes which are made with least trouble. The Solway Dyes Co., in particular, was first in the field with a range of important vat dyes, and this firm, as well as the British Dyestuffs Corporation and others, has placed a useful series of fast dyes on the market. The erection of a large works in Trafford Park, Manchester, by the British Alizarine Co. must lead to a greatly increased output of alizarine dyes, and there is little doubt that slow but steady progress is being made. The time should not be far distant when British manufacturers will not only supply all requirements for the home market, but also make their products known all over the world.

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Poetry and Medicine.

Philosophies. By Sir Ronald Ross. Pp. viii+56. (London: John Murray, 1911.) Price 2s. net.
Psychologies. 69 pp. (Same author and publisher, 1919.) Price 2s. 6d. net.

THESE slender volumes, by Sir Ronald Ross, deserve to be read with sympathetic interest for more reasons than one—not least because they reflect the mind, and throw light on the spirit which has guided the work, of a man whose services to medical science are great indeed. In the long history of medicine and of poetry we can call to mind many a physician who has been also a poet. No great physician has ever likewise been that rare and wonderful thing, a great poet, for the toilsome life of the one is not to be combined with the fine freedom, the careless rapture of the other. But there is a certain excellence which, though it fall far short of supreme perfection, is still a very fine and splendid thing, and to such excellence I think Sir Ronald Ross has certainly attained.

The poet-physicians whose names first cross our minds are men attached by but a slender link, a titular claim, to the profession of medicine; nevertheless, the profession is proud to have had enrolled among its brotherhood Dr. Oliver Goldsmith and the great apothecary whom a foolish critic bade "go back to his gallipots." In Goldsmith's footsteps follows Crabbe, bringing us his "Village" and his "Parish Register," bidding us, in lines scarcely less finished and less memorable than Goldsmith's own, "Behold the Cot, where thrives th' industrious swain, Source of his pride, his pleasure and his gain . . ."; or, moving quickly to sadder themes, "When the sad tenant weeps from door to door, And begs a poor protection from the poor." A little shred of Keats' great mantle (and more perhaps of Shelley's) fell upon that fine poet, and not unlearned physician, Thomas Lovell Beddoes, the friend of Blumenbach and Schoenlien and Frey—Beddoes of "The Bride's Tragedy." "Death is more a jest than life; you see Contempt grows quick from familiarity. I owe this wisdom to Anatomy"—so he wrote from Göttingen while he was a student of medicine there; and the same contemptuous familiarity lasted him to the end, when he used his physiological knowledge of a new and terrible drug—curare—to "creep into his worm-hole," to introduce him to that grim pageantry of Death which his verse had described with a fearful reality. "The power of the man," said Browning, "was incontestable and immense"; and in his happy hours he had written very lovely and most