QUOTATIONS

BRITISH DYES

THE British Dyestuffs Corporation is something far more than an ordinary commercial enterprise; it is the practical manifestation of a deep-rooted determination of the nation to become independent of foreign sources for commodities as essential to commerce in peace as they are vital to self-preservation in war; the whole country through the Government investment in its capital has a stake in its success. In these circumstances the resignation of Dr. Green on the ground that he differs from the Board in regard to its adopted policy can not be passed over as a matter of private concern. Dr. Green thinks that the scientific side should be represented on the board, and he is not alone in his contention. On the other hand, the chairman announced at the annual meeting last year that in future the administration of the undertaking would be directed by a board of business men, who would retain the services of scientific experts at the head of the technical and research departments. That policy was endorsed by the shareholders and reaffirmed by them last month. Dr. Green, finding himself unable to agree with this view, has thought it right to offer his resignation, and the Board have accepted it. We feel sure that there will be general regret that so eminent a chemist should feel compelled to dissociate himself from the enterprise, but the personal aspects of the matter are of far less importance than the wider question of policy at issue.

During the four years ended last October the corporation and its associated companies spent over £400,000 on research. The sum is large, but the task of overtaking the German makers was extremely heavy. Before a maker is in a position to supply a dye to users on a commercial basis two things are necessary—its composition must be discovered, and its production on an economic basis must be ensured. Experience teaches that results in the laboratory alone are not by any means sufficient; there remains the task of the works staff in discovering how to produce the commodity in bulk of a quality at least equal to that offered by a rival concern and at a cost that enables it to be sold to the consumer at a competitive price. We understand that to-day the British Dyestuffs Corporation has established the constitution of colors available for commercial use, while Mr. Sutcliffe Smith, chairman of the Color Users' Association, declared last June that he had no reason for doubting the statement that British makers were now producing 80 per cent. of the color used in this country. That leaves a margin of 20 per cent. which British makers have not yet succeeded in producing on a commercial, as distinct from a laboratory, basis. To filling in the gap the Corporation is now devoting its energies, for the chairman announced at the annual meeting last month that henceforth the principal aim would be to utilize the research organization for the purpose of securing increased yields of products in actual manufacture and of introducing such new colors as are in steady demand by the consuming trades. In other words, the Board thought that the time had arrived when the effecting of economies in the cost of production and extending the range of dyes in demand by consumers were of greater importance than research prosecuted with a view to new discoveries. Justification for this view is to be found in the financial state of the Corporation's affairs and the urgency of the demand by consumers for reduction in prices. It must be remembered that the Corporation is only able to carry on because it is protected from underselling on the home market by Government restriction of imports. Such protection is absolutely necessary if the dye industry is to be established here; but it is impossible not to sympathize with the users' contention that they are bearing the burden of creating the industry and are placed at a temporary disadvantage through being compelled to pay a higher price than users who are in a position to import freely, and so to obtain the advantage of a depreciated exchange. On this ground alone the corporation is right to insist on rigid economy in all directions in order to cut costs to the lowest possible level.

There remains the question of finance, which is another vital factor in determining the policy of the board. When subscriptions were invited on the formation of the company, the inducement was offered that the government would protect the industry. It is true that the consumers have contributed their quota in assenting to the restriction of imports, and that the government has invested £1,700,000, but the shareholders are entitled to expect, under normal conditions, an adequate return on the capital they invested. In all they have received a sum equivalent to two per cent. on the average share capital employed, but last year they were faced with a trading loss amounting to more than the total dividends previously paid. In such circumstances, the prospect of raising further capital is remote, and as trustees for the shareholders the directors are bound to shape their policy with a view to establishing the enterprise on a sound commercial basis before their subscribed capital has been expended. If rigid economy is exercised there is good reason to believe that success will ultimately be won. At present, despite the restricted demand for its products, it is understood that the corporation is paying its way. With a revival of trade it should do better than that, and might prudently set aside larger sums for development work. Mean-

while, the first need is for greater efficiency in the commercial production of dyes in actual demand, and the second for the conservation of resources during an abnormal period. That is work for which men of business training are of greater value than men of scientific attainment, and the moment would not appear opportune for any change in the constitution of the board of directors.—*The London Times.*

SCIENTIFIC BOOKS

The Laws of Life: Principles of Evolution, Heredity and Eugenics. By WILLIAM M. GOLDSMITH, A. M., Ph.D. Boston, The Gorham Press, p. 441.

A LARGE, well-written and useful volume dealing particularly and most successfully with the problems of heredity in man and the conclusions based on our solutions of these problems.

Very many topics are treated by the author, in general sanely and accurately, with a wealth of illustrations and apt quotation. Much of this material ought to be part of the common knowledge of educated men and women, though at present this is far from the case. The main elements of eugenics especially should become as much a part of everyday knowledge as the causes of the succession of seasons—or even the multiplication table.

In the discussion of evolution, Dr. Goldsmith gives scant recognition to the theories and discoveries of Darwin. The conception of the formation of species largely, by abrupt mutation and Mendelian hybridizing, is not borne out in nature, and in nature our species exist. A species of animal or plant is a definable type of organism which has run the gauntlet of the ages and has *endured.* The extrinsic facts and factors of evolution should not be ignored or minimized. We know nothing of evolution *in vacuo,* and the even flow of life is modified, obstructed or split by conditions of environment. Separation and selection are elements in the formation of every species, the one preserving adaptations, the other permitting, by new conditions of selection, the persistence of variations.

In spite of the researches of mechanistic experimenters, our author does not believe that all phenomena of life can be summed up in terms of chemistry or physics. It may be that he takes too much pains to reconcile religious conceptions with the facts of nature. Science deals with truth so far as we can understand it, and it is one of its basal principles that we can never know the answer to any question until we find it out.

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SPECIAL ARTICLES

THE REST PERIOD OF SOLANUM TUBEROSUM IN RELATION TO AVAILABLE NITROGEN

EXPERIMENTAL evidence has been secured that the slow growth of potatoes planted during their rest period may be due in part to the deficiency of available nitrogen in the tubers.

On September 28, 1922, seed pieces, 25 grams in weight, from tubers in the resting condition were planted in pure silica sand. One half of the cultures were treated with a complete nutrient solution containing equal molal (.007 mol.) proportions of the following salts, KNO_3, $MgHPO_4$ and $CaSO_4$. The other half were treated with a solution of the same total molal concentration, but which was altered so as not to contain nitrates, the KNO_3 being replaced by KH_2PO_4. Six weeks later tubers which had passed through their rest period were planted in the same kind of medium. These cultures were treated like those above, *i.e.,* half received a complete nutrient solution and the other half a solution containing no nitrate. The cultures of both series, resting and non-resting tubers, that received a complete nutrient solution appeared above ground during the first week in December. The cultures from resting tubers that did not receive nitrate appeared above ground a week later than the cultures of the same series that received nitrate. An examination before the appearance of the first sprouts showed, however, that the time of sprouting was approximately the same in both cases. All the cultures of this series produced single sprouts. The outstanding feature of this series, however, was the rapid development of the sprouts in the cultures that received nitrate as compared with those that received no nitrate. At the end of several weeks the difference was still more striking, the cultures that received nitrate were large and healthy plants, while those that received no nitrate were barely above ground. The cultures of the second series, non-resting tubers, differed from the above in that four to six sprouts developed instead of one. There was no significant difference in the dates the sprouts appeared above ground due to the presence or absence of nitrate, and, furthermore, the plants grew equally well during their early growth phase whether or not they received nitrate.

It is evident that on germination the physiological condition of tubers planted during the rest period is not the same as in normal non-resting tubers. The results obtained suggest that the breaking of the rest period in potatoes may depend at least in part on the