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The Development Commission.[1]

THE periodical reports of the Development Commissioners, in so far as they are concerned with scientific research, possess an especial interest. Historically, the institution of the Development Fund was the first recognition by the State that the best chance of rehabilitating our outworn industries lay in the organised promotion of scientific research. It was fitting that this recognition should first be given to such vital industries as those concerned with the nation's food supply—agriculture and fisheries. It is, perhaps, not sufficiently recognised that the organisation of State aid for industrial research in Great Britain is still in the experimental, or evolutionary, stage. Fundamentally, the Development Commission is a purely advisory body : whereas subsequent authorities, such as the Department of Scientific and Industrial Research and the Medical Research Council, have been endowed with varying degrees of executive powers ; and the last-mentioned bodies differ *inter se*, also, in the degree in which laymen control executive and administrative decisions in relation to matters in which expert scientific knowledge is requisite.

There is another direction in which the experimental aspect of the relations between the State and science may be emphasised, and that lies in the extent to which research in pure science is aided. It is true, historically, that the great discoveries of science which have subsequently led to industrial expansion related to what is now known as pure science. When made, these discoveries, in lay opinion, would not have been regarded as "results" justifying the expenditure of the taxpayers' money in their further exploitation. Who could have foreseen that the severely academic researches of Clerk Maxwell would, in time, give birth to that wonderful means of entertainment and instruction—"broadcasting"? It is perhaps permissible to say, therefore, that the grant of State money to what may be styled *ad hoc* research, in so far as it tends to exclude, or to minimise the importance of, "pure" scientific research, is not an unmixed blessing.

Using the report under notice, as the authors proclaim it to be, as a "Directory to the activities of the Stations aided by the Development Fund," one can indicate some of the difficulties which hamper the scientific worker who endeavours to solve the "farmer's problems." The ultimate problem of the industrialist must always be—does this or that pay? This question often presents almost insuperable difficulties. Not only is it remote from the ordinary interests of the

[1] Development Commission. Thirteenth Report of the Development Commissioners for the Year ended the 31st March 1923. Pp. v+136. London: H.M. Stationery Office, 1923.) 4s. net.

scientific worker, but it also involves a consideration of the ever-fluctuating values of materials and labour, a subject which, in these post-War days, does not lend itself to scientific treatment. Owing to the superadded variations of soil, climate, and markets, in the case of agriculture, this difficulty is more pronounced. Thus, on an early page of the report we find that an Institution is "investigating the precise effects of electrical discharges on plants and the possibility of adopting electrocultural methods *commercially*." On the other hand, in reading the long list of publications issued by the workers of the Rothamsted Laboratory, one notices a number of papers on subjects which, so far as can be judged by their titles, relate to matters of fundamental scientific importance rather than of directly practical interest.

Turning to matters of less speculative interest, one finds indications of that careful attention to questions of principle which always distinguishes the reports of this department. In general outline, agricultural research follows a carefully-thought-out scheme, or plan, of which one unique feature is the provision of a link between research and the practitioners for whose benefit it is undertaken. There is now a staff of thirty-five investigators of the second order, "Advisory Officers," specialists who are called in to assist when problems arise which require investigation or a specialist's knowledge of scientific results.

It would be impossible to notice, in any detail, the multitude of topics of scientific interest which this report brings to the surface. They can be discussed more appropriately in reviews of the various scientific periodicals in which specific publication of results takes place. In regard to the finance of the Fund, some comments perhaps may be made. The original conception, due to Mr. Lloyd George, was to create a Fund from which moneys could be expended without subjection to the annual scrutiny of Parliament with its inevitable clamour for "results." It would appear that the Old Fund has now been exhausted, and that so far as the upkeep of existing schemes is concerned, the Commissioners are dependent on an annual Parliamentary Grant limited to actual requirements. But there is now a Special Fund created by the grant of 850,000*l.* under the Corn Production (Repeal) Act, 1921. In the year 1922–23 the expenditure from the Old Fund amounted to 289,246*l.* and from the Special Fund 110,056*l.*, and the latter now has a balance of 748,843*l.* It would appear that the Commissioners have successfully conquered the antinomy created by the fact that while they are enjoined by the Treasury to practise Geddesian economy with the Old Fund, they can open the purse-strings of the Special Fund without reproach!

Science for the People.

(1) *Atoms and Electrons.* By J. W. N. Sullivan. (People's Library.) Pp. 188. (London and Toronto: Hodder and Stoughton, Ltd., 1923.) 2*s.* 6*d.* net.

(2) *The Atom and the Bohr Theory of its Structure: an Elementary Presentation.* By H. A. Kramers and Helge Holst. Translated from the Danish by R. B. Lindsay and Rachel T. Lindsay. Pp. xiii + 210. (London, Copenhagen and Christiania: Gyldendal, 1923.) 10*s.* 6*d.* net.

SCIENCE is steadily becoming severely specialised. The proportion of amateurs (in the restricted sense of the word) among original workers of all ranks decreases slowly but surely. The average "educated" man of to-day knows less and cares less about the natural world in which he lives than did the average "educated" man of the Victorian era. A scientific event, such as an eclipse of the sun, which in the 'seventies claimed day after day several columns of newspaper space, is now dismissed in a few short paragraphs. When, as occasionally happens, science emerges for a brief interval above the welter of political and commercial intrigue, it is by virtue either of some achievement which may be used for practical ends, such as wireless telephony, or of some sensational development, like the theory of relativity, which provides entertainment and a passing relief from the stress of more attractive matters. The keen, active interest of the amateur in science for its own sake, though happily still conspicuous in some quarters, is unmistakably on the wane.

This is a tendency which must arouse deep concern in the minds of all true lovers of science. The causes are probably very intricate, and are not to be found in any one direction. The rapid multiplication of human interests, the increasing complexity of scientific conceptions, the popularising of other departments of thought, the quickened sense of urgent responsibility for social evils—these and many other factors doubtless contribute in greater or less measure to the comparative neglect of pure science as an instrument of culture. The appearance of the two books under consideration turns our thoughts to another possible factor: have our expositors lost the power of inspiring enthusiasm in their readers for the subjects to which they themselves are devoted? To some extent we believe they have, though for clearness of expression and accuracy in matters of detail, some modern popular scientific treatises could scarcely be improved upon. The occasion is perhaps opportune to set on record a few principles which we believe to be particularly applicable to the circumstances of our own time. The inspiration of genius, which more than compensates