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Science and Politics.

SOME months ago the British Science Guild committed itself to the important task of producing, on behalf of the scientific community, a volume which would assist the people of Great Britain, including its statesmen, politicians, administrators, financiers, and industrialists, to realise the value of the contributions which science has already made to our progress as a nation, and the potentialities of science in the evolution of a better order of society. This volume, when completed, will contain a survey of the results hitherto obtained by the application of science in all departments of national life: a survey of our existing industries and a comparison between them and the corresponding industries of certain other countries: a survey of the possible effects of the further application of science to our older basic industries and our newer industries; the possibility of creating new industries; and finally, how our industrial development is affected by legislative restrictions, our system of taxation, our banking and financial methods, the attitude of professional and manual workers' organisations towards the application of science, and political theory.

The compilation of such a work is a task to which those scientific workers who are conscious that they are also citizens must apply themselves, as much for the education of the scientific community as for the body politic. It cannot be denied that the scientific community has lost opportunity after opportunity since the War to take a more active part in the framing of national and imperial policy. The temptation leading its members into a narrow professionalism of outlook militates against their effectiveness in any sphere outside their own. They rightly charge others with the neglect of science, but the failure of the nation adequately to appreciate science and the scientific outlook is to some extent attributable to their own indifference to public opinion, to their own failure to make their work intelligible to the uninitiated, and to their scorn of, or at least indifference to, the efforts of some of their own fellow-workers to interpret their work to the lay community.

The pity is that this habit of mind is inculcated in most undergraduates studying science in our universities. Instead of being encouraged to regard a training in science as an indispensable qualification for the responsibilities of leadership in any field of national activity, they are led to believe that their studies in any particular branch of science unfit them for any occupations other than

those of teacher, research worker, or technologist in that branch. The consequence is that few graduates in science in Great Britain seek administrative or commercial posts with the large industrial and commercial corporations, take up posts with the banks, financial houses, or insurance companies; few apply for entry to the home or overseas administrative civil services: practically none find an outlet in the administrative services of local government bodies: they rarely turn their attention to the Bar or politics, or the diplomatic and consular services. In other words, although our civilisation is based on science, those trained in science leave to those who have not had this advantage most of the key positions in industry, finance, politics, and the various central and local government services of the Empire. May not this be the root cause of our present parlous economic position?

It will take time to remedy this state of affairs. Nevertheless, it must be remedied, and it is well that a start should be made now, when the nation is ready to listen to any authoritative diagnosis of its troubles and to give careful consideration to any suggested remedy or even palliative for them. It is dissatisfied with its statesmen, politicians, financiers, and industrialists. It has a religious faith in the efficacy of science. It is not impossible that the whole force of public opinion could be mobilised in support of a well-thought-out and comprehensive scheme, prepared by men of science, economists, and industrialists, for the effective utilisation of the resources of the British Empire. The first essential is that this scheme should be in the main the contribution of scientific workers with an interest in the economic and social implications of their work, and industrialists and others with a sincere belief in science and understanding of the scientific outlook. Another essential is that it should represent the collective views of the scientific community.

In his recent article on "National Needs" in *NATURE* of Dec. 26, "H. E. A." suggests that the Royal Society is the only body which can undertake this responsibility. We, however, do not hold this view. The Royal Society is not constituted to engage in the campaign required, or even to act as a focus. Having been consulted by the central Government for many years past, and being in receipt of Government grants, the Society is not in the position of independence essential for the consideration or criticism of public offices or affairs. Moreover, the fellowship of the Royal Society is not sufficiently catholic

to embrace many of those whose co-operation is essential for the production of a practical scheme for national and imperial reorganisation and reconstruction. Nevertheless, it is to be hoped that the Royal Society will be able to assist in this great task, whatever body undertakes it.

It is true that the British Science Guild by itself, because of the character of its membership, could produce a scheme which would command the attention of the country. But it is obvious that a scheme produced by and published with the authority of duly accredited representatives of all the various scientific and technical societies in Great Britain would carry more weight. The British Science Guild would welcome their co-operation, first, because it would show that the scientific societies had not lost all contact with the realities of modern life, and secondly, that they realised the need for a body to perform certain necessary and important tasks for which they lack both the funds and the machinery to undertake themselves individually. The industrialists have the Federation of British Industries as well as associations in each industry to safeguard their interests and, whenever circumstances demand, to express their collective views to Government and the general public. The same is true of the banks, financial houses, and trade unions. Industrialists, financiers, traders, and trade unions see to it that their interests are well represented in Parliament. Up to now, the scientific community has neither built up a strong representative body nor collectively assisted any of its members to enter the House of Commons, where the influence of ten or twelve members qualified to speak for science and backed by science would be disproportionately great in comparison with their numerical strength.

We suggest ten or twelve representatives of the scientific interest advisedly. One member cannot undertake the whole responsibility. On practically every subject of discussion in Parliament science has an important contribution to make, a point of view which should be expressed in the public way for which Parliament provides facilities, and which ministers of the Crown cannot ignore in the same way as they can ignore advice tendered through their departmental officials. Apart altogether from those matters which directly affect the scientific community, such as grants for research and for the training of research students, the efficiency of State scientific departments and the status of their expert staffs, patent law, the future of industrial research associations, where

the emphasis is on the duty of the general community to science, there is a wide range of subjects on which the emphasis is on the duty and service of science to the general community. These subjects include the effect of the maldistribution of gold and silver on our present trade and financial position, the question of the restriction of imports of manufactured goods and agricultural products, housing, health services, disarmament, imperial development (with which is linked the questions of emigration to the Dominions and the acclimatisation of whites in our tropical dependencies), the need for factory legislation in connexion with dangerous trades, and the development of our home resources, both industrial and agricultural.

When Parliament meets again in February, much of its time will be occupied in discussing the estimates of the various departments of State. Here, again, a critical survey by a group of representatives of science would be invaluable. That it will not be made is certain, first, because there is no such group in Parliament, and secondly, because the scientific societies have been slow to respond to the invitation of the British Science Guild to create a body competent to collect the necessary data as the basis of such activities.

Ant-Lions and Worm-Lions.

Demons of the Dust: a Study in Insect Behaviour.

By Prof. William Morton Wheeler. Pp. xviii + 378. (London: Kegan Paul and Co., Ltd., n.d.) 21s. net.

A STUDY of parallel development in behaviour between the worm-lions and ant-lions must be interesting and important. "A legless maggot and a six-legged Neuropteran larva equipped with powerful sucking mandibles, carry on, though by somewhat different methods, one and the same industry for the purpose of obtaining their food." These are termed respectively the worm- and ant-lions. Their feeding is predatory, craters being made in loose sand, a larva lying partially hidden at the basal point of each. Ants and other small wanderers which stumble into these pits, slide in the sand and are at once grasped and sucked.

The ant-lion is a classical beast and is probably identical with the Myrmecoleon of Job, being referred to in the medieval commentaries thereon. Albert the Great (c. 1250) gave a description based on his own observations, and Poupert an adequate account in 1704. The anthropomorphism evidently attracted authors, for Vallisneri brings into a dialogue between Malpighi and Pliny in the

Netherworld (c. 1700) the habits of the larva and its transformation to the imago. The Abbé Pluche in his "Spectacle de la Nature" also adopts the same form and humanises the ant-lion as combining "the traits of an expert huntsman, an able geometrician and a miscreant with barbarous and bloody inclinations". This gave the ant-lion a reputation, which attracted the great personalities of zoology of the eighteenth century.

Réaumur's memoir was followed by Bonnet's, both founded on the living insects; the latter described how the larva pushes pebbles, many times its own weight, out of its funnel, placing the tip of its abdomen under them and backing. The pit is made by the larva marking a groove of the requisite diameter by moving backwards and tossing the sand from the inner border of the same to the outside by means of its head and closed jaws. The direction is clockwise or counter-clockwise. A cone is left in the centre, the process being continued within the circle, usually in the same direction, until the crater is completed. But even in the same species a direct method of digging has been observed, so that "the insect cannot be regarded as a pure reflex automaton, especially as a like variability also characterises all the remaining activities of its feeding cycle". The prey is automatically precipitated to the almost hidden larva; it is seized, smothered in sand, bitten and paralysed, partially digested by the injected saliva, and its juices imbibed; lastly, its carcass is thrown out, and the crater is repaired before the ant-lion resumes its quiescent wait for the next prey.

The Mediterranean worm-lion is the maggot of a fly and was known to Poupert; it formed the subject of the last of Réaumur's memoirs. This together with a report by De Geer on specimens sent by Réaumur to the Queen of Sweden are advantageously reprinted (translated) in appendices to the present volume. The further accounts of the worm-lions are mainly a product of the present century and are largely illuminated by our author's own observations on the animals, which he reared himself. Here, as throughout the book, the advance made is shown to be due partially to wider knowledge, especially of the fauna of the sands, and partially to improved technique, backed by the broader considerations of modern biology. Wheeler obtained his insects in the Balearic Islands and, feeding them mainly on white ants, transported them to Boston, where the last flies emerged about a year later. The pupal period extends through two or three weeks, the insect lying below the bottom of its burrow; in this stage it is sticky,