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CONTENTS.

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The Scientific Worker in State Service.

THE not wholly admirable human instinct for individual self-preservation has given to the technical expert in medicine and surgery an impressively high status in the community. A corresponding instinct for communal self-preservation has combined with still less admirable instincts to maintain a high status for the technical expert in the warlike arts. It is significant of the haphazard organisation of the human community that these emergency experts, concerned with the pathological processes of individual or political life, should hold a status not generally accorded to those technical experts who devote their not inferior knowledge and skill to the daily 'non-pathological processes' of a modern civilisation.

The British Science Guild has added to its considerable public services by publishing the report of a committee which has, since 1927, been inquiring into "the functions of the scientific and professional staffs in the Public Services and Industry from the point of view of efficient administration and national development".* The report is, perhaps necessarily, restricted to conditions in Great Britain, and to the special classes of scientific and professional staffs which might have been more closely described as physicist, chemist, and engineer classes. There is no reference to the biologist, whose claim to improved status has been conceded only in 'pathological emergency'—the entomologist, for example, has climbed to power by the ladder of fear which served the warrior and the medicine-man. The restriction of the field of survey to particular professional classes does little harm, but the most superficial knowledge of conditions in Germany and the United States suffices to suggest that the other restriction should be removed by extending the survey to these countries. "The Engineer who became a Bank Vice-President" is an American story, with a moral for the British reader, which might profitably be written by the Guild; it is far more significant than the better known story of the engineer who became Federal President. If no other assault on the British art of improvisation avails, the fear motive will eventually be effective in widening the sphere of influence opened to the technical expert. When pathological processes are sufficiently obviously established in the industrial organism, the 'industrial pathologist' will be given the wide powers which should have been his as a

* A Report on the Scientific and Professional Staffs in the Public Services and Industry. Prepared by the Committee on the Position of the Technical Expert in the Public Services and Industry. Pp. vi + 62. (London: British Science Guild, 1931.) 1*s*.

directing physiologist, powers which are already accorded in the competing industries of other countries.

The committee indicates its awareness of this international contrast in a single sentence: "It can hardly be doubted that the contrast admittedly existing between the high *average* modernity of industrial plants in America, Germany, and France and the number of relatively obsolete plants in this country, is attributable in no small degree to the fact that British technicians in many undertakings have been denied the opportunity to influence policy to the same extent as in the countries mentioned".

The report surveys the position of the scientific and professional worker in the local government service, the Civil Service, the forces of the Crown, and in industry, not from the point of view of conditions of service as affecting the individual, but from that of efficiency in the services and in industry. It is concluded that neither in industry nor in the public service are the requirements fulfilled, in every case, for close collaboration "on the part of the scientist or the technologist, the financial adviser, and the administrative chief", nor for "the proper presentation of the various technical, financial, and other considerations involved in every problem, in such a manner that those ultimately responsible for making decisions may be put in a position to weigh the several considerations in their bearing upon questions of general policy". The local government services are regarded by the committee as making better use of their scientific and professional staffs than do the other organisations considered; the Civil Service, with few exceptions, is regarded as the least satisfactory part of the field surveyed.

This criticism of the national services is opportune. The provision for the very wide range of scientific and technical work now undertaken by the State has been subject to intense criticism and investigation throughout the last few years. A sub-committee of the Committee of Civil Research was appointed, in 1926, "to consider the co-ordination of research work carried on by or under the Government, to report whether any further measures should be taken to prevent overlapping, to increase economy and efficiency, and to promote the application of the results obtained". In a report published in 1928 this 'Ormsby-Gore sub-committee' discussed the scientific services of the Government from the point of view of function and organisation without including recommendations for their improvement. That recommendations were made, although not published, may be inferred from the report for the year 1928–29 of the Committee of the Privy Council for Scientific and Industrial Research ("In due course the sub-committee recommended, amongst other things, that . . .").

The recent Treasury committee on the staffs of Government scientific establishments had before it an outline, submitted by the Institution of Professional Civil Servants, for the radical reorganisation of scientific public services. That committee, however, stated in its report (1930) that "The respective functions of the establishments within our terms of reference have recently been set out in considerable detail in the Report of the Research Co-ordination Sub-Committee of the Committee of Civil Research . . . and we have assumed the first part of our terms of reference to be an instruction, not to criticise and report on those functions, but to take note of them as the basis of our investigation into the conditions of service of the staffs employed". The Association of Scientific Workers submitted a generally similar scheme of reorganisation in its evidence to the Royal Commission on the Civil Service, now sitting. The Commission, in turn, has declared itself unwilling to add to its herculean labours by considering proposals involving substantial modifications of departmental structure.

The British Science Guild's Committee finds that "The evidence which has been obtained by us shows that, as a general rule, the position of the scientific and technical staffs in the Home Civil Service is most unsatisfactory, and that, in the interests of efficient administration and national development, drastic reforms are needed in the organisation of many of the civil departments of the Government. In order that the scientific and technical staffs should exercise their function properly it is imperative that the position occupied by the Minister of a civil department should be altered to accord with present-day requirements; and, further, that the responsibilities of the scientific and technical staffs in relation to the Minister should be clearly and specifically prescribed. The heads of the scientific and technical departments should, it is submitted, be colleagues of, and be equal in status with, the permanent heads of departments, and not subordinates under a secretariat or similar body." The committee then proceeds to make suggestions for modernisation of the system.

It may be that this increasing body of constructive criticism is misdirected. It may be that Sir Holberry Mensforth's advice is of greater weight. It may be that "The thing to do with these men is to lock them up in a room and feed them through a pigeon-hole; you must not let them loose in your

organisation". But sentence of solitary confinement should be passed only by a balanced, fully informed, and fully authoritative tribunal; the full-bottomed wig would certainly be, the black cap might be, more appropriate head-dress for the occasion than are the cap and bells donned by Sir Holberry Mensforth.

It is to be regretted that the Ormsby-Gore recommendations, on which the scientific services of the State must be assumed to operate at the moment, have not been communicated to the scientific world at large; also that a relatively large amount of attention has been given and is being given to merely subsidiary questions of the labels and rewards attached to the conduct of the scientific work of the State. Examination of these matters was urgently necessary, and the recommendations of the Carpenter Committee are valuable and most welcome contributions to economy and efficiency. So long, however, as the major issue is shirked, so long as those responsible for the organisation of scientific work for the State fail to take the scientific world into their confidence, so long as full inquiry into the best methods for ensuring the most economical and effective conduct of the technical work of the State—without undue tenderness about departmental structure—is delayed, just so long will improvisation, sometimes inspired, continue to bear its meagre fruit.

The Charm of the Alps.

The High Alps: a Natural History of Ice and Snow. By Dr. A. E. H. Tutton. Cheaper edition. Pp. xvi + 319 + 48 plates. (London: Kegan Paul and Co., Ltd., 1931.) 10*s*. 6*d*. net.

DR. TUTTON'S book is written by a lover of mountains for those who desire to know more about the ice and snow which they meet on glacier expeditions, and about the nature and causes of the glaciers themselves. The first part of the book contains a good popular description of the physics and chemistry of water, snow, and ice. It leads naturally to a second part in which snow and ice are considered in the mass, as they occur upon high mountains. This second part includes an excellent, and not too long, account of the development of the theory of glacier movement (and interesting information concerning recent variations in mass of the glaciers); and a chapter on glacier phenomena—moraines, crevasses, and lakes—all treated in a simple manner. An account of scientific work upon Mont Blanc, and the story of the Mont Blanc observatories, which find place in the third part of the book, might perhaps have been more logically placed in the second part. The story of the Mont Blanc observatories is of particular interest, as it is abstracted from an account written for the author by M. Joseph Vallot himself shortly before his death. A topographical description of the chief mountain groups of the Alps might perhaps more logically have been placed in the third part of the book than in the second, which concludes with a brief historical sketch of the conquest of the great alpine summits.

Even if the reader had not already been warned by the profuse illustrations of mountain scenery (more than 150 in number, and to be criticised only on account of their small size—would that they had been larger!), he will find in the second part of the book that Dr. Tutton's real interest and enthusiasm lie in mountain expeditions and, particularly, in the views of the mountains which they afford. In this, Dr. Tutton carries on an illustrious tradition. It is curious how great has been the attraction of mountains for men of science both in Great Britain and abroad. H. B. de Saussure's encouragement of the first ascent of Mont Blanc in 1786, and his own ascent in the following year, are well known; but before that ascent he had spent many summers wandering in almost unknown alpine valleys. Of our own countrymen, Beaufoy (who climbed Mont Blanc a few days after Saussure) was a fellow of the Royal Society—as, of course, were Sir John Herschel (Breithorn, 1822) and J. D. Forbes. In later times, one in every twenty of the first three hundred members of the Alpine Club was, or was to become, a fellow of the Royal Society.

Forbes's "Travels in the Alps" is as much a record of mountain exploration as of his observations of glacier movement. It, and the "Tour of Mont Blanc" (1845), in which he republished the account of his expeditions, played a part in the development of mountaineering which is difficult to exaggerate. When Hudson and Kennedy and their companions made the 'guideless' ascent of Mont Blanc from St. Gervais, in 1855, they carried a map taken out of one or other of these books—and that ascent was the true commencement of modern mountaineering.

Modern climbing has developed a technique which would scarcely be recognised by the pioneers; but Dr. Tutton points out with truth the catholic nature of the attraction which mountains have for different men. If the great ice faces and steep ridges which are climbed to-day have their own strong attraction, that does not compete with