

# NATURE

No. 4006 SATURDAY, AUGUST 10, 1946 Vol. 158

## VOCATIONAL GUIDANCE AND THE SHORTAGE OF MAN-POWER

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ONE corollary of the recognized shortage of scientific and technical man-power is the necessity of ensuring that the most effective use is made of the present limited resources. That problem has engaged the attention of the Barlow Committee, and from another angle has been considered by the Hankey Committee on Higher Appointments and by the University Appointments Boards themselves, as an article by Dr. C. P. Snow in the *Political Quarterly* and a recent report from the Cambridge University Appointments Board indicate. There are in fact two distinct aspects of the problem, quite apart from the question of the content of the training given in university and technical colleges: first, the question of ensuring that while the expansion of the universities and technical colleges is proceeding to a point commensurate with the demand, all that is possible is done to ensure that no potential students of outstanding ability are lost to the nation because economic or other reasons prevent their proceeding to the university; and secondly, that of placing them in industry and elsewhere and seeing that the most effective use is made of their services when trained.

The imperative need in the post-war world of increasing our industrial efficiency has stimulated widespread interest in Britain in technical education in the broadest sense. The concern which has been expressed at delay in reaching a decision regarding the period of call-up for service in the Armed Forces has largely been prompted by the wastage of trained man-power caused thereby. Such concern has not been entirely relieved by the latest Government announcement regarding the call-up of university students, welcome as some of the features of the new policy undoubtedly are. There is some difference of opinion as to whether in any event a period of national service should be taken before proceeding to the university or, if the period of service is no more than eighteen months, during the university course. Either proposal is likely to cause some wastage or inefficiency. But it could equally well be argued that for the scientific student, as for the engineer or the medical student, the policy most conducive to efficiency is to superimpose a shortened period of military training on the graduate at the end of his university training. Such a policy would appear to be more in accord with the increasing technical character of modern warfare and might avoid some of the uncertainty inherent in the present policy.

Meanwhile, however right it may be in present circumstances to reserve 90 per cent of the number of places in the universities to those who have served in the Forces, it is essential that such entrants should be of the requisite standard from the point of view of the university. To limit the new entries from schools to 10 per cent puts a high premium on the efficiency of our present methods of selecting the most talented

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Editorial and Publishing Offices

MACMILLAN & CO., LTD.,

ST. MARTIN'S STREET, LONDON, W.C.2.

Telephone Number: Whitehall 8831

Telegrams: Phusis Lesquare London

Advertisements should be addressed to

T. G. Scott & Son, Ltd., Talbot House, 9 Arundel Street, London, W.C.2  
Telephone: Temple Bar 1942

The annual subscription rate is £# 100, payable in advance, Inland or Abroad  
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student, and also as corollary demands that we should be careful not to exclude what may be a high standard of mediocrity in favour of a lower one provided by the Forces.

These circumstances enhance the importance of our present methods of selection for entry to the university, whether by the scholarship system or in other ways. While, however, a fair amount of attention has been given to the desirability of recruitment from as wide a range as possible to ensure that ability is not lost in whatever social strata of the population it is found, little attention has been directed to this particular aspect of the problem, or the consequences which may follow if our methods of selection and training are defective. The House of Commons, for example, has debated on at least two occasions during the present session recruitment to the higher posts of the public services, dealing with it from the point of view that such posts should not be limited to one social class or those with a particular outlook. While evidence was advanced by Government spokesmen that recruits are to an increasing extent drawn from a wide range of schools and also to the disappearance of class distinctions, the fundamental issues were scarcely touched.

This problem cannot be confined to recruitment and training for higher positions or for technical and scientific posts in Government service or industry and business. It is linked up with that of the quality and content of education generally, and with methods of recruitment and training within industry and the increasing range of services for which Government is assuming responsibility. Even the highest standard of leadership cannot achieve its full results unless it has efficient workers to carry out the operations required. In a State based on social security, with its corollary of full employment, industrial efficiency not merely demands trained and intelligent workers at all levels, but also mobility and a new set of incentives in which group relations may require special study.

On such grounds as these the whole question of vocational guidance and industrial psychology demands re-examination, and Pierre Naville's "*Théorie de l'Orientation Professionnelle*"\* is a contribution which deserves attention from the industrial psychologist and also from professional men in general. M. Naville does not indeed limit himself to the professions in the narrow sense: he is concerned with the factors which determine the choice and practice of an occupation, and the distribution of youth in the different occupations in the broadest sense. He submits the whole conception and practice of vocational guidance and selection to a close and critical examination in an endeavour to arrive at the fundamental issues.

The historical survey with which M. Naville starts leads him to insist that the occupational distribution of youth is not the result of chance or the expression of different natural aptitudes but the outcome of a given social regime. Substantiation of that con-

clusion in itself would warrant re-examination of our premises and practice in vocational guidance in the light of the needs of a new order, in which the distribution of skills may be widely different and new skills and greater mobility may be essential. Examining next the question of the direction of labour and its implications, the criteria of occupational success, the division of labour according to aptitude and the theory of aptitude, he challenges the subjectivity of personal judgments in professional notes, and discusses alike the limitations of statistical correlations in this field, the relation of aptitude to adaptability and the inheritance of professional ability. Finally, a discussion of the biological and social aspects of adaptation leads M. Naville to examine briefly some actual problems in orientation and selection, the diagnoses of adaptability, the place of the medical examination, the use of statistics, and the correlation of educational and professional selection.

M. Naville does not regard vocational guidance, in its present state of development, as more than a social technique; but this challenging and often provocative book, in which without being obtrusive the socialist outlook is never hidden, should be a powerful stimulant to the fundamental thinking and further investigations required to transform industrial psychology into something approaching a science. The programme of reforms which M. Naville advocates in conclusion, while primarily for the reform of French practice, are designed to improve technical efficiency in this field generally, and have points which will bear consideration also in Britain. Vocational guidance should be unified at all educational levels, from the primary to the university, and a university bureau of statistics should be attached to the centres of vocational guidance (and in France to the National Institute of Professional Orientation). Both the collective and the individual aspects of selection should receive attention in the preparation of plans to meet vocational needs; and it is recommended that the responsibility for the direction of professional orientation should be entrusted to the national Minister of Education assisted by a commission on which the Minister of Labour is represented. Other recommendations cover the co-ordination of the various centres of vocational guidance, public and private, the reservation to the State of a quasi-monopoly of guidance as a control of the movement of man-power, an organic link between centres of vocational guidance, statistical services, labour exchanges and health services, and the establishment of a body of medical men specializing in vocational guidance, and recruited in the first instance from medical inspectors of factories and schools. At least two years study should be required of those desiring to practise as advisers in vocational guidance, and the National Institute of Professional Orientation should become the focus of theoretical and experimental studies carried out by the centres of professional orientation and be adequately endowed for publication purposes.

Such are the practical measures which M. Naville advocates for adoption in France as a result of a stimulating and fundamental study, and which

\* *Théorie de l'orientation professionnelle*. Par Pierre Naville. Pp. 290. (Paris: Libr. Gallimard, 1945.) 135 francs.



appears to have strengthened a conception of education—akin to that which H. E. Armstrong untiringly expounded—much of which was arrived at during the Nazi occupation.

Although, as has been remarked, M. Naville's thesis is specifically directed towards conditions in France, it has implications which should be carefully considered in Britain and indeed in every industrialized country faced with the present-day problems of acute shortage of man-power. Somehow, within the confines of the democratic conception, ways and means must be found of relating man-power more efficiently to industrial and social needs; nothing less than the guidance of labour at every level from the manual worker to the university graduate is in question. Much fundamental and creative thought will have to be given to a critical re-examination of the basis of vocational guidance and selection, in order that the people at large may contribute of their best to the needs of a devastated world, and at the same time enjoy the satisfaction which is the goal of a civilized and progressive community.

## 10/6 RICHTER'S ORGANIC CHEMISTRY

### The Chemistry of the Carbon Compounds

By Victor von Richter. Edited by the late Prof. Richard Anschutz. Vol. 3: The Aromatic Compounds. Newly translated from the twelfth German edition by A. J. Mee. Pp. xviii + 794. (New York: Elsevier Publishing Co. Inc., 1946.) 15 dollars.

**I**N the course of chemical research it frequently happens that an investigator finds himself entering a field relatively unknown to him, for the exploration of which the ordinary text-book is necessarily too skimpy while, on the other hand, the massive detail of Beilstein's Handbook makes it difficult to carry out a rapid initial survey. At such times Richter-Anschutz's "The Chemistry of Carbon Compounds" is invaluable, and we particularly welcome, therefore, the publication of Volume 3 of the latest edition in English. It had been the intention of the publishers that this new edition, although based on the twelfth German edition of 1935, should be revised and brought up to date by Dr. T. W. J. Taylor and Dr. Wilson Baker. Unfortunately, however, only the first portion, some 50 pages of the present text, had been completed when the outbreak of war prevented the continuation of the project. In order to complete the English version, it was then decided to publish the remainder in the form of a literal translation of the German edition. This has been prepared and edited by Dr. A. J. Mee and Mr. M. F. Darken. The bulk of the material is therefore the same as that contained in the German edition of 1935, and for material published during the past ten or twelve years the chemist must necessarily seek elsewhere.

Nevertheless, there are several important changes to be noted in the present volume. For example, the opening pages, dealing with the general properties of aromatic compounds, the determination of the position of substituents, rules of substitution, etc., have been revised by a team of experts, and there is an entirely new account (pages 16–25) of the structure

of the benzene nucleus. This has been specially contributed by Dr. T. W. J. Taylor, and in it the reader will find a clear and concise account of this classical problem of organic chemistry treated in terms of the modern outlook. A further innovation of special importance to English readers is that literature references are now given to the original journal in which the information in question was published and authors' names are also indicated. This change makes a great improvement over the earlier editions, in which references were almost exclusively to the *Chemisches Zentralblatt*. So far as can be judged from various test cases applied by the reviewer, the selection of references has been carried out with discrimination, and the user of the book will readily be able to find his way to the most significant papers.

The formidable task of effecting translation has been carried out with conspicuous success, with the result that a clear account is presented of the many and multifarious divisions of aromatic organic chemistry. It is obvious, too, that considerable care and thought have been given to the matter of arrangement and setting out of the sections, with much advantage to the reader, who is thereby enabled to trace with minimum effort the information for which he is searching. The number of formulæ given is adequate and, in the great majority of instances, they have been printed, despite the need for saving space, in forms which display clearly the chemical structure of the molecules concerned—no mean feat in view of the magnitude of the work.

Some slight idea of the comprehensiveness of the book may be gained from the statement that the index alone comprises 80 pages of double columns and contains some 8,000 references. The present volume is clearly one which every research worker in organic chemistry will wish to have in his hands, and it is a pleasure to be able to accord to the high praise that it is indeed worthy of its dedication by the editors to the memory of August Kekule.

E. L. HIRST

## ELEMENTARY METEOROLOGY

### Meteorology with Marine Applications

By William L. Donn. Pp. xv + 465. (New York and London: McGraw-Hill Book Co. Inc., 1946.) 22s. 6d.

**T**HE weather touches our lives at many points, and had we been air-crew personnel or among those concerned with beach landings or, indeed, with many other operations during the War, the effect of weather would have been of great immediacy. The subject is therefore of wide interest, it has been widely practised in recent years, and in consequence has acquired a fairly large semi-popular, introductory literature. This literature is, however, very uneven in quality, as a result presumably of enthusiasm for the subject sometimes outstripping the understanding. Meteorology, if not a difficult, is certainly a very complicated subject, calling for a thorough grounding in the classical branches of physics, particularly of mechanics and heat, and it is to be feared that not a little harm has been done to its students, if not also to the subject itself, by some of its recent expositors. One meets so often a series of false or incomprehensible statements, or, little better, of half-truths such as "hot air rises", "the winds are a consequence