

NATURE

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MOBILITY OF MAN-POWER IN BRITAIN

THE broadsheet "Man-power Movements" (No. 276), which Political and Economic Planning issued in January, develops further a theme on which an earlier broadsheet, "Framework of Collective Bargaining" (No. 272), published in October, had touched slightly; a theme the importance of which has been accentuated by the growing seriousness of the economic situation of Great Britain. The existence of that crisis was not clearly recognized when the "Economic Survey for 1947" (Cmd. 7046) was issued, and even now the imminent risk of a further and still more serious reduction in our standard of living is not widely appreciated. Too little is still known, as this new broadsheet reminds us, about productivity; it is recognized that redistribution of man-power is essential in order to realize the projected investment and consumption programmes, but the point is clearly made that man-power movements alone are insufficient. Economic planning is equally a matter of management, machines, materials, money and, as the broadsheet says pointedly, ministries; and the value of man-power policy depends on its appropriateness in relation to other policies and to their general aim, which must contribute towards keeping the economy in balance.

What should be remembered in considering the Control of Engagement Order, 1947, is that no steps were taken in 1945-46, comparable with the measures adopted in war-time, to see that workers went where they were most likely to be needed. Serious political difficulties would have been involved in any attempt to guide more positively the flow of labour from the Armed Forces and from war industries. Various measures of control were, however, retained for a time over the movements of coal-miners, agricultural, building and textile workers, nurses and Civil servants. The real gravamen of the criticism of the policy then adopted is that the public was not made to realize that wider measures of control might be necessary, and nothing positive was done to correct the dangerous tendencies. The smoothness of demobilization was, indeed, partly due to the fact that workers were going where they wanted to go, irrespective of where they might be most needed; and even the Economic Survey for 1947, in noting the shortage of workers in coal-mining, textiles and agriculture, did not face the fact that transfer from, or restraint of expansion in, other industries might be necessary.

The *Planning* broadsheet maintains that neither the premature exhaustion of the United States loan nor the further deterioration in the terms of trade altered the situation so drastically between February and September 1947 that planning could not last year have been visualized as a problem of securing the acceptance of uncomfortable measures necessary to realize the plans. The main problems of man-power were recognizable two years ago, and very slow progress has been made towards solving them. The present requirements are, first to effect an immediate improvement in the 'bottle-neck' in-

dustries; next to expand production (as distinct from productivity) in industries devoted to exports, import substitutes and certain consumer goods; thirdly, to increase the output per man-hour so far as the concentration of investment on the second permits, and where necessary to increase hours of work; and last, to restrict production in those industries which compete for labour and raw materials with the industries already indicated.

In regard to the first, P.E.P. considers that it is doubtful whether enough has yet been done to solve the problems of 'bottle-neck' industries through a more efficient use of their products. There are two other methods of adjusting deficiencies in such industries without inter-industrial movements of man-power. Output per man hour could be increased by better organisation of production by managements, the use of more or better machinery or by a voluntary increase in effort due to improved worker-management relations, national appeals or material incentives—improved quality of the products could also help—but if these methods fail, the working of longer hours may be necessary as a last resort.

Dealing then with the size of the problem, the broadsheet maintains that the whole concept of an absolute, general shortage of labour is dangerous and misleading, tending to distract attention from the fact that the targets are too high and from the need to increase productivity. Furthermore, it points out that difficulties arise not from the fact that large numbers are required, but from the unattractiveness of the jobs, and from such problems as housing in areas where industries urgently need workers. It raises the question whether the Control of Engagement Order should ever have been imposed, even if it were certain that it would solve the immediate problem. Political and Economic Planning maintains that the present problem is exceptional only in degree, not in its nature, and that the maintenance of 'full employment' will always necessitate measures to combat the rigidity of labour distribution. Finally, it attributes the distortion of the labour structure from the pattern dictated by present needs primarily to the fact that for many years Great Britain has been enjoying a substantial proportion of free imports.

Nothing less than the whole future of 'full employment' in Britain is at stake. The broadsheet directs attention to the importance of the workers having complete confidence in the security of employment if mobility is to be secured; and it makes its most important point in insisting here that it is necessary to convince workers also that a degree of mobility between industries is permanently needed if full employment is not to prejudice the efficiency and adaptability of the economy. A fresh approach should be made by the whole Government public relations service, with which the National Joint Advisory Council should co-operate to the full. Labour controls cannot provide the answer to the long-term problem of distributing labour, and some method must be found which will be flexible, efficient, secure, and retain the confidence of both employers and workers, and make use of the natural motives

and incentives normally influencing the individual. Our lack of knowledge about these motives and incentives makes the need for research and experiment only the more urgent.

One field for research suggested in the broadsheet is a study of the high degree of mobility which appears to exist among the professional and managerial classes; such a study might yield valuable information for the basis of an incentives policy, which is as essential as some sort of wages policy. Again, the need for research into the statistical, geographical, industrial, social and psychological factors affecting labour distribution and mobility is urgent. The results of the research should be given the widest publicity. There may well be great scope in this field for the British Institute of Management, though official initiative is also important; *Planning* welcomes the recent establishment of a Scientific Committee on Industrial Productivity. One of the most urgent needs is for an inquiry to supply the data on the occupational distribution of the population which would have been provided by the Population Census of 1941. The public needs the fullest possible basis of knowledge to enable judgments to be made on the man-power problems of full employment, and no one concerned to see public policy guided by knowledge and reason rather than prejudice should fail to support P.E.P. in its contention or to press on the Ministry of Labour the opportunity it has there, since the control and co-ordination of the strategy of man-power planning must be centralized in its hands.

The account of collective bargaining which P.E.P. offers in its broadsheet on this subject (No. 272) as a contribution to public understanding is valuable, and forms one of a series of studies in British trade unionism being published. It is primarily factual and descriptive, and brings up to date material contained in the Industrial Relations Handbook published in 1944 by the Ministry of Labour; but it also covers certain subjects, such as wages councils, which are not included in that Handbook. It thus helps to fill the need for a comparatively simple guide to the main varieties of collective agreement and the way in which they have developed.

The broadsheet shows that nearly 90 per cent of the insured workers of Great Britain are covered by negotiating machinery of one kind or another, and of these about one third are in six great key industries, all of which have developed their own characteristic machinery on a voluntary basis. Another third are in industries covered by the Whitley system of national joint industrial councils. The admirable description of this system is the feature of the broadsheet of most interest to the scientific worker; although there is no discussion of the problems arising out of the association of the professional worker or manager with such bodies. The remaining third are covered by statutory wage-fixing machinery; this section of the broadsheet deals with the Wages Council Act of 1945, which renamed and reorganised the old Trade Boards.

Both broadsheets 272 and 276 emphasize the point made in an earlier broadsheet on "The Plan and the

Public", and which Sir Oliver Franks brought out so well in concluding his Sydney Ball Lecture, "The Experience of a University Teacher in the Civil Service", regarding the vital importance of public relations work in securing effective co-operation. Unless the generalities in which Government economic policy is contained can be effectively interpreted and communicated to those required to help in carrying out the policy, methods of reason may break down. The chief responsibility for setting policies before the public must rest with Ministers. But some responsibility must also rest upon Civil servants in their many dealings with the public, and on management. It will often depend on how they expound and administer a policy whether the conception of something 'we' are committed to carry through replaces that of something 'they' have ordained.

ORIGINS OF SPECIES AND MIGRATIONS OF FLORAS

The Genus *Crepis*

By Ernest Brown Babcock. (University of California Publications in Botany, Vols. 21 and 22.) Part 1: The Taxonomy, Phylogeny, Distribution and Evolution of *Crepis*. Pp. xii + 198. 3.50 dollars. Part 2: Systematic Treatment. Pp. x + 199-1030 (36 plates). 10 dollars. (Berkeley and Los Angeles: University of California Press; London: Cambridge University Press, 1947.)

THE appearance of Babcock's monograph after four years delay in the press, due doubtless to the War, is an event of considerable importance, not only to botany but also to the biological sciences in the widest sense. Familiar as are parts of it to specialists, through the publication of numerous papers during a period of over twenty-five years, the collation of all this work in monographic form should bring it into the hands of a far wider circle of readers.

Part 2, the larger portion, resembles at first sight a systematic monograph of the ordinary type. It contains the morphological background to the cytogenetic work obtained by the use of all the ordinary criteria available to taxonomy; for example, comparison of herbarium specimens, collation of literature, etc., illustrated by outline drawings to a uniform scale of almost all the 185 species which are described. It contains, however, far more than this. For the first time, in a work of this magnitude, cytogenetic information on a scale unknown in any other group of plants or animals, not even excepting *Drosophila*, is included. It is true that from the point of view of pure genetics individual species such as *D. melanogaster* or *Zea Mays* far exceed anything which has yet been attempted in *Crepis*. We have here, on the other hand, a cytological record, in many cases amplified by genetical information derived from inter- and intra-specific crosses, of no less than 113 species of a monophyletic genus which spreads from Eurasia to Africa and America, a genus, moreover, which is exceptional among plants for the low number and large size of its chromosomes. Full credit is given in the introductory paragraph to Part 1 to the early work of Rosenberg, Juel and Digby, who first detected $n = 3$ in *Crepis capillaris* and $n = 4$ in *C. tectorum*. To Babcock is due, however, the credit of recognizing the importance of low chromosome

number in 1915, and for having stimulated by his exertions not only a numerous school of collaborators in the United States, but also some outstanding cytological workers in the Old World, notably the Russian school under Nawaschin. The result is a display of cytological information which has never previously been equalled and which will long remain unsurpassed. The incorporation of this knowledge in the systematic monograph places it at once in a class apart.

Scarcely less important are the geographical data included in the numerous distribution maps appended to the various sections of the genus. Until quite recently information about the floras of large tracts of country, notably in central and north-eastern Asia, was so meagre as to preclude an effective treatment of the plant geographical development of the floras of the northern hemisphere considered as a whole, with the result that an over-emphasis on Europe led to very widespread misconceptions on the order and importance of events which are only now becoming apparent. Recent phyto-geographical exploration of these missing regions, notably by Hultén¹, is profoundly altering previous concepts, and it so happens that north-eastern Asia turns out also to be of fundamental importance in the evolution of *Crepis*. The collation of the geographical evidence on plant migrations with the cytogenetic evidence on the order of evolution of species is not the least important part of the whole work. The detailed discussion of endemism in this context, enriched with the certain knowledge as to which endemics are relics and which innovations, knowledge which is impossible without the type of cytogenetic and morphological data here assembled, also enables the author to discuss not merely plant migrations and the origin of the floras of four continents, but also cognate matters such as the theory of 'age and area', with effectiveness and, in part at least, with the semblance of finality.

These matters are dealt with in Part 1 of the work under review, and their close perusal is much to be recommended to geographers, zoologists and botanists interested in other groups inhabiting these regions. Part 1 also contains, among other things, the summary of the main cytogenetic conclusions on the mechanism of evolution in *Crepis*, a statement which may profitably be amplified for the general reader by perusal of a still more recent summary by Babcock in another connexion². From the analysis of 113 species and very numerous interspecific hybrids, *Crepis* is seen to be a genus which, on the whole, has evolved with little aid from polyploidy and by a process of reduction rather than increase in chromosome numbers. Polyploidy has affected less than 8 per cent of species. Interspecific hybridization has been involved in some 20 per cent of species, and primary importance has to be assigned to the internal action of segmental interchange and genic mutations, aided by genetic, geographic or ecological isolation, in making possible the morphological and physiological differentiation of the rest. Detailed information is provided about the mode of operation of both the latter processes in the speciation of various parts of the genus, and the importance of work such as that of Tobgy³ and Gerassimowa⁴ in revealing how segmental interchange can alter chromosome morphology and set up sterility barriers without other genetic changes is very clearly brought out, especially in Babcock's later article⁵, and in doing so a very important gap in our knowledge of evolutionary mechanisms is partially filled, with fact instead of surmise.