

Dr. Eichler also explains what he calls the "divergence rule". Where there are groups of hosts with many species, he deduces the rule that the more a given host is infested by different genera of parasites the larger must be the group to which that host belongs. This principle is illustrated by many of the Mallophaga that infest large groups of closely related birds. The fact that the tinamon Mallophaga are very numerous in genera is exceptional for the parasites of a bird group containing so few species. It indicates, perhaps, that the Tinamidæ was a much larger group of birds at one time, most of its species having died out.

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RESEARCH IN INDUSTRIAL RELATIONS

AT the 1948 mid-winter meeting of the American Philosophical Society, which was held at Philadelphia in February 1948, papers were read dealing with research frontiers in human relations.

One of these papers, by Prof. E. Wight Bakke, of Yale University, dealt with the subject of research into industrial relations and suggested that the search in recent years by leaders of management and labour for basic principles of human relations on which they might build new techniques in their own organisations has been in vain (*Proc. Amer. Phil. Soc.*, 92, No. 5; Nov. 12, 1948). According to Prof. Bakke the psychologists have come closest to providing the practical men with the most useful principles, and some of them have contributed by the development of tests for prospective employees, attitude surveys, techniques for building morale, training of supervisors, and similar projects. Other psychologists have also undertaken a careful analysis of the motives for and determinants of behaviour among workers themselves. Anthropologists, sociologists and economists, too, have carried out investigations; but these have been only loosely connected with the subject of industrial relations, and no common theory running through this research into human relations has emerged.

It is not surprising, therefore, that the leaders of management and labour have been unable to turn to a dependable and useful science of human relations. Neither is it surprising that the men of action have not been able to find what the men of science have been unable to find or produce, namely, an integrated body of principles of human behaviour on which the techniques for the organisation and direction of human beings in purposeful group activity could be tested and on the basis of which effective action could be developed.

In an attempt to determine the particular type of research into industrial relations in which the development of a scientific theory of human interaction and of the determinants of human behaviour would be the dominating consideration, Prof. Bakke insists that industrial relations are simply one kind of human relations. The principles which govern men's actions and relations in industry are no different basically from those which govern their social, their religious, their familial, their educational, and their political activity and relations. The distinguishing marks of this kind of industrial relations research would be:

(1) The general problem must be defined as one of learning the determinants of human action.

(2) Specific questions must be shaped by reference to the need for amplifying or modifying a basic theory of cause and effect.

(3) Group-wide or group-wise behaviour and the group as an organic entity must be emphasized.

(4) A diagnostic pattern outlining all personal and environmental facts needed for adequate explanations must be utilized.

(5) Attention must be paid to the definition and measurement of data in quantitative terms.

(6) Field observations must be used as the major source of data.

(7) Theory must be progressively formulated and tested in the laboratories of industrial and union operations.

This kind of research may be described as a 'frontier' activity primarily because it is seeking to develop systematic principles of cause and effect in a field of behaviour in which such principles are not understood. Here the most pressing need of to-day is for studies not only of personnel policies but also the nature of persons; not only of incentive systems but also of human incentives; not only of collective bargaining procedures but also of the factors which mould the actions and attitudes of the bargainers; not only of bargaining issues but also of the structures of living of the parties which give them varying and conflicting 'slants' on the issues; not only of the structure of management and unions, but also of the compulsions these structures impose upon the actions and thoughts of the men who represent them; not only of techniques for organising enterprises or unions, but also of the principles of effective association and group solidarity and teamwork.

This type of research raises many problems, in addition to the scientific problems of the research itself. It is expensive. The facts must be gathered through field-work of a comprehensive nature. The personnel who can collect the facts must have a breadth of training and knowledge preferably in more than one discipline. A further difficulty arises out of the necessity for a partnership of the men of science with the men of action, management and trade unionists, in the collecting of facts and the testing of conclusions. Even when co-operation is obtained, there is the necessity for accurate and full reporting of results which are not always easy to reconcile with the requirement for avoiding harm, actual or feared, to the co-operating organisations and individuals. There is also the necessity for using a language in describing scientific results which is understandable to men who are not trained in science.

In conclusion, Prof. Bakke describes the value of theory in the advancement of knowledge and its application to the solution of the world's industrial problems. The increase in quantity and quality of material goods which flow from industrial operations is as dependent on the effective co-ordination of people and efficient team-work as upon the adequacy of tools and technique. The processes of democratic society are seriously disturbed by industrial warfare. The practical decisions in ordering human relations so that the public interest may be met depend on the leaders of industry and unions. Changes in technology, in economic, social and political situations, are constantly inserting elements, of which the old techniques took no account, into the problem. Today, more than formerly, he is poorly equipped for adaptive action, in industry or elsewhere, who knows merely what to do but not why he does it.

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