

Only a few of the industrial concerns or organizations in New Zealand at present have the means or are willing to support capital charges of laboratories and salaries of staff adequate to ensure a profitable proportion of major commercially successful results; but even the smallest concerns can participate in the rewards of such investigation by supporting the work on a co-operative basis. In general, therefore, the policy of the Department has been to endeavour to prove to particular industries that research work is worth while, and that co-operation in this regard is a practical proposition. In the case of industries of national concern, by making grants supplementing moneys raised for this purpose, the Department has aimed to encourage such effort.

While nearly all are agreed on the general principle that scientific effort in industry is worth while, difficulties sometimes are raised. The first results from the tendency of late years for industry to lean too much on the Government, and to expect the latter to provide scientific services gratis. Apart from objections on general principles to this procedure, there would appear to be no doubt that such scientific services would be in danger of lack of direct application and would get out of touch with actual major problems. Moreover, those directly concerned would fail to appreciate them and ultimately lose all interest in the work. The outcome of this would be failure to make direct application of the results, in consequence of the absence of incentive to industrialists to "get their money's worth."

The second difficulty sometimes arises from those conservatives who, while quite prepared to admit that science has an application in every other industry, declare that scientists can scarcely appreciate or grasp sufficiently their own particular practical problems. They feel conservatively averse to any changes of plant, methods, or procedure which might result from scientific suggestions. Fortunately, during the past two years this type of objector has become somewhat uneasy, and industry generally, viewing the question with an awakening interest, is adopting a more experimental and alert attitude to new processes and possible new technical developments. The operations of modern industry, both primary and secondary, tend more and more to be based on scientific knowledge of processes, and the undoubtedly increased realization of this fact in New Zealand is one of the most hopeful auguries for future development.

The third difficulty arises from mutual distrust occurring between the firms or organizations which comprise the units of our various industries. In the past, co-operative action often has been concerned with or limited to such activities as price-fixation of both the product of industry and the wage of labourers. Co-operation has been fashioned for defence purposes, and not always has been actuated by the broader desire for the general forward development of industry. Each firm or concern is apt to consider itself in possession of knowledge of methods superior to those of its rivals, and feels that by co-operative research there is a danger of these methods being stolen and broadcasted to its own particular detriment. However, experience of co-operative research organizations elsewhere has shown that they do not lead to loss of initiative or special development by individual concerns, but, on the contrary, where successful, act as an educative force stimulating individual inquiry and experiment. There is ample room for healthy competition apart from research along lines of common necessity and interest. Moreover, in most of our industries the presence on the market of New Zealand goods of reputedly inferior quality has a far-reaching effect on the marketing of the product of the most progressive concerns. In these matters, again, evidence is not wanting of the development of a higher and broader point of view of honest endeavour to allow no petty jealousies to stand in the way of the production of a better article based on scientific standards, and the giving of better service to the community. Indeed, the units of New Zealand industries must close their ranks and assemble their scientific reserves to withstand the large-scale attack of overseas competitors, many of whom have almost unlimited resources at their disposal.

A fourth difficulty, fortunately rarely met with, is the fear of so-called "Government interference." This is the opposite point of view from the first difficulty mentioned above, and arises from the belief that the community, as represented by the Government, constantly hampers the progress of industry with a plethora of controlling regulations. Whatever justification there may be for this belief, the fact remains that the State must needs take a longer view of national industries and adopt such measures for the future permanence of industrial progress as are not possible to individual members of industry itself. Scientific assistance is one of these measures, and recollection of what was done and still is being done in Great Britain, Germany, the United States of America, Australia, Japan, and Canada should suffice to convince those who doubt the wisdom of State encouragement. The method of control of the various researches under the aegis of the Department effectively disposes of the contention of beaucroatic departmental control generally understood by the term, "Government interference."

The policy of the Department is that, as far as possible, industries should be encouraged to organize and conduct their own researches in a comprehensive way, and ultimately, to do this at their own expense. With regard to Government grants towards such researches, while public interest necessitates such control as will ensure that these grants are properly spent, it is realized that freedom and flexibility are essential conditions of fruitful research. It is the policy of the Department, based on its belief in the efficacy of scientific assistance to industry, to induce the development of a practical scientific attitude of mind among those connected with our primary and secondary industries. It is realized that this is not possible of immediate attainment, but that there is need for the Department to play the role of educator to a certain extent, to render the financial assistance necessary to place the scientific equipment of industry upon a sound basis, and to endeavour to point out the possibilities which lie ahead. There is a very real danger in any industry where scientific progress is at a standstill, for then stagnation is not far distant.

Grants that have been made to promote research are an earnest of this policy. In every instance where these have been made members of the industry itself have been entrusted with the major control