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INDUSTRIAL RESEARCH ASSOCIATIONS

THE indispensability of uninterrupted basic and applied research in every branch of industry has made Industrial Research Associations a unique and progressive feature in the industrial economy of Great Britain. The work of the Associations consists of the application of scientific knowledge to the processes operated with a view to establishing the fundamental causes of their success and to devising improved methods of production. An additional function of the Association is the sifting of the technical and scientific literature published and the dissemination of the relevant material to industrialists. Unlike in America where large-scale manufacturers and combines, like the Duponts and the General Electrics and the Mercks, have their own well-equipped laboratories, in Britain the Research Association seeks to achieve similar progress through research and application of science by means of co-operative effort. The origin, organisation, function and benefits accruing from the Research Associations were explained by Sir Edward Appleton in a speech delivered by him before the British industrialists.

"I am convinced," said Sir Edward, "that the most valuable support that can be given to industry in meeting its particular needs for scientific knowledge, both for immediate application and for its long-term requirements, lies in the encouragement of co-operative action through the Research Associations. Remember that although Government through the Department of Scientific and Industrial Research contributes generously to the Research Associations, they are mainly financed by their member-firms and are self-governing organizations. They ought, therefore, to be well fitted for knowing the problems facing their industries and for carrying out the type of work most likely to be fruitful. If they fail in this the fault lies with their members and not with Government.

"Apart from the research they carry out, the Research Associations form centres of information and advice to their members for dealing with their day-to-day difficulties. This, together with the rights of members to propose items for investigation, to have the use of patents taken out, to submit problems for solution and to consult the Associations whenever they wish, has convinced us in the Department of Scientific and Industrial Research that the Research Associations' scheme provides the best single method

of bringing research and scientific knowledge within the reach of smaller firms.

"With the 31 Research Associations already formed, and with the others in course of formation, the main industries of the country such as textiles, metals, rubber, paint and pottery and so on are well covered, together with a number of the processing industries such as welding, packaging and production engineering.

"Cases arise of course, for example, in general engineering, where a firm's needs are not covered by a single Research Association and where it is necessary for it to join several. This would certainly be a difficulty, if the cost of joining a Research Association were not so low. A medium-sized or small firm can, however, join a number of Research Associations for a sum less than the salary of a single young scientific worker; and for this small expenditure the results of research costing many tens of thousands a year becomes available to the firm. Money should not, therefore, be a deterrent.

Commercial Competition and Co-operative Research

"Many branches—the engineering industry for instance—are keenly competitive. How then do they stand in relation to co-operative research? I can quite understand the anxiety of these competitive industries that the products of the skill of their designers and engineers should remain the closest secret until full production has been achieved. That kind of competition often provides a real incentive to progress; but for the life of me I cannot see that there is any benefit whatever in each individual manufacturing concern itself, attempting to carry out the basic research which must form the stock of scientific knowledge upon which the whole industry must depend for its progress. In my opinion much of that kind of work can be much better done co-operatively.

"A brief glance at some of the items of the programmes of the Research Associations will illustrate what I mean. The Motor Research Association, for instance, is carrying out work, using the most up-to-date physical equipment, on the filtration of lubricating oils and its effect upon wear. It is studying the performance of bearings and bearing materials and the durability of gears. The Internal Combustion Engine is investigating similar problems in its field, and in the course of its work many different materials are carefully studied. This Research Association is also carefully investigating several German engines of novel design to see what can be learnt of value to our industry. The Production Engineering Research Associations are carrying out fundamental work on the processes of drilling, turning and milling, on surface finish, on the performance of lathe tools and on methods of testing various types of machine tools. Work such as this, which is fundamental to the whole of industry, must be carried out well. It seems to me that it can be done most economically and efficiently in co-operative laboratories."

This account of the Research Associations by Sir Edward Appleton can easily serve as an example that could be copied in this country with benefit. The conditions prevailing in our industrial system are, to a very great degree, similar to those of Britain. There are in India, for instance, numerous small concerns, who, while anxious to encourage research in their respective fields, lack the wherewithal to maintain even a modest laboratory. These firms could join together to form Research Associations which are sure to step up their progress and, therefore, the pace of industrialisation of the country. The All-India Manufacturers' Organisation is at present best suited to sponsor such a move among the major, well-established industries in India. The Silk Research Association, for instance, will include mulberry growers, cocoon makers, silk reelers, throwers, weavers, spun and waste-silk manufacturers, dyers and silk machinery makers. Similarly cotton, wool, jute, metals, rubber, sugar, oil seeds and other interests will derive immense benefit by becoming actively research-minded. In their attempts to help themselves the Council of Scientific and Industrial Research will, needless to say, be only too eager to help them both with finance and their valuable advice and experience in the various branches of industry. It is time that the planners and executors of the vast schemes of industrialisation of the country recognised that, with the logarithmic rate of scientific and technical progress all over the world, it is a huge folly to establish any large-scale industry without the backing of an efficient machinery of research that would help discover new uses for and adopt the latest advances in the exploitation of our natural resources. We trust the enlightened industrialists of the land will not fail to come forward with practical proposals to incorporate research activity as an organic part of the industrial plan that is being contemplated for India.