

CURRENT SCIENCE

Vol. XIII]

FEBRUARY 1944

[No. 2

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INDUSTRIAL RESEARCH ASSOCIATIONS

IN 1915, England laid the foundations of a permanent organisation for the promotion of scientific and industrial research, in response to an united demand by persons engaged both in science and industry. At the outbreak of the last War, many of Britain's industries were faced with a serious crisis; they realised the extent of their dependence with regard to certain essential articles, the manufacture of which had been monopolised by foreign countries, particularly by Germany. Scientific research in Germany had been more thoroughly and more effectively harnessed to the solution of industrial problems and to the development of economic and scientific methods of production. Arthur Henderson wrote: "It is impossible to contemplate without considerable apprehension the situation which will arise at the end of the war unless our scientific resources have previously been enlarged and organised to meet it. It appears incontrovertible that if we are to advance or even maintain our industrial position we must as a nation aim at such a development of scientific and industrial research as will place us in a position to expand and strengthen our industries and to compete successfully with the most highly organised of our rivals. The difficulties of advancing on these lines during the war are obvious and are not underestimated, but we cannot hope to improvise an effective system at the moment when hostilities cease, and unless during the present period we are able to make a substantial advance we shall certainly be unable to do what is necessary in the equally difficult period of reconstruction which will follow the war."

In 1917, the British Government put forward a scheme for the encouragement of industrial research by co-operative associations of manufacturers. With a view to give practical shape to the scheme, the Government placed at the disposal of the Department of Scientific and Industrial Research, a fund of a million pounds

sterling which was to be utilised in rendering financial aid to such of those groups of industrialists who voluntarily chose to organise themselves into Research Associations with the specific object of undertaking research on problems of common interest. Industrial concerns participating in the scheme were obliged to subscribe an equal amount towards the prosecution of such researches; they were, in consequence, entitled to certain privileges, such as, the right to elicit information on technical matters relevant to the industry, the right to recommend specific subjects for research, and the right to use any patents or secret processes resulting from the researches undertaken under the auspices of the Association. In addition, they would be entitled to receive a regular service of summarised technical information, thereby keeping themselves abreast of technical developments and to obtain a translated copy of any foreign article in which they may be specifically interested.

British manufacturers readily responded to these proposals and organised themselves into several Research Associations each representing a particular trade or type of manufacture. They were asked to make free use of the facilities offered by the several laboratories attached to the universities, technical colleges and research institutes. The industrialists soon began to realise in a practical manner the value of research as the most effective means of combating competition, of enhancing the quality and prestige of their products and stabilising their industry. The Government were thus able to demonstrate the importance of scientific research in relation to industrial advancement and national prosperity. The Research Association scheme which was launched some thirty-five years ago, has proved a great success. The financial contributions to research by private enterprise to-day far exceed those endowed by the Department of Scientific

and Industrial Research: Many of the Research Associations have reached such a state of self-sufficiency that they are able to carry on their work without receiving any further subsidies from the Government. Some of them have built their own lavishly equipped and efficiently staffed research laboratories. For the continued maintenance and expansion of a prosperous export trade, the work carried out by these Research Associations, have proved invaluable. Very recently, a plea for the increased awareness of the part that must be played by industrial research in post-war Britain has been made in a report compiled by a special committee of the Federation of British Industry: "Research, it is stated, has an even greater part to play in the future, than it has played in the past. Britain's position as the leading exporting nation can only be recaptured by establishing a high degree of superiority and originality in industrial products. British industry will be required not only to maintain the highest measure of productive efficiency but to introduce new materials, to develop new products and through collaboration between scientific, technical and productive personnel of industry, generally to mobilise the whole of our industrial resources in the interests of national prosperity."

Thanks to the farsighted statesmanship of Sir Ramaswami Mudaliar, the Board of Scientific and Industrial Research was constituted soon after the commencement of the present conflict, to promote the advancement of pure and applied research in this country. Under the able and inspiring leadership of Sir S. S. Bhatnagar, the Board has made substantial progress. Plans for post-war research are being

drawn up and proposals for the formation of a National Research Council for directing and co-ordinating the research activities have been put forward. Several important schemes of research are now in progress in the various laboratories throughout the country. These are being financed by the Board of Scientific and Industrial Research. Leading industrialists have become increasingly conscious of the importance of research and they are making every effort to consolidate the position of their respective industries. Some of the progressive manufacturers have made liberal endowments for research. But it is doubtful if they will be in a position to meet post-war competition which is expected to be both severe and ruthless unless the Central Government helps them to organise themselves into the several Research Associations each representing a particular type of product. Addressing a meeting of the All-India Manufacturers' Organisation recently held in Bombay, Sir S. S. Bhatnagar suggested the formation of Research Associations. The Government should extend their financial support and give sufficient protection to some of the more important key industries, if they should have any chance of survival during the post-war period. The manufacturers should immediately organise themselves into representative groups and put forward proposals for stabilising their industries on a solid foundation. The formation of Research Associations will naturally constitute the first step in this direction. The several research committees functioning under the auspices of the Board might perhaps take the initiative in the inauguration of these Research Associations.

'PATULIN'—A REMEDY FOR COMMON COLD

COMMON COLD is an ailment costing the nation a heavy price in sickness, unemployment and loss of several man-hours. It often leads to pneumonia, bronchitis and other respiratory complications, and weaken the system and render the body susceptible to other infections. A 100 per cent. cure for cold has been sought unsuccessfully for many years and although numerous palliative drugs have been tried from time to time, the results were uniformly disappointing. But of late, we have all read with great interest the announcement of the success of 'Patulin' in the treatment of common cold. If this achievement passes the extensive tests, it will constitute a great contribution.

Prof. Raistrick and his colleagues have isolated a metabolic product of *Penicillium notatum* Bainier and shown its antibacterial properties for both gram positive and gram negative organisms. This active inhibitor has now been identified as anhydro-3-hydroxy-methylene-tetrahydro- γ -pyrone-2-carboxylic acid and named 'Patulin'.

The story of 'Patulin' as a remedy for cold is very interesting. An almost accidental observation by Prof. Gye of the Imperial Cancer Research Fund Laboratories suggested that 'Patulin' might be useful in the treatment of common cold. When this new drug was sent

to him for study, Prof. Gye had a severe common cold. Knowing its antibacterial properties Prof. Gye tried it on himself. The outcome was encouraging and he repeated the experiment on other members of his staff. Further experiments were conducted by Surgeon-Commander Hopkins at a Naval Establishment in the South East of England. The response to treatment has been encouraging. Hopkins showed that 'Patulin' has no effect in the early period of cold, probably caused by virus infection; but secondary stage which constitutes invasion with gram positive and gram negative organism can be entirely prevented. These trials, spread over a period of months, gave good results and a strong balance of evidence in favour of treated group; 57 per cent. of treated cases recovering completely within 48 hours as compared with only 9.4 per cent. of the controls.

The exact mode of action of 'Patulin' in cold is not yet known. The action *in vitro* of 'Patulin' against a number of pathogenic aerobic organisms has been studied; the results show that it possesses bacteriostatic effect; Serum and pus do not interfere. What still lacks is evidence that 'Patulin' has antibacterial activity *in vivo* and this knowledge is necessary for an understanding of the mechanism of its action and its therapeutic scope. N. N. D.