24 Apr, 1.5.25.

SCIENCE AND INDUSTRY.

CONFERENCE IN MELBOURNE.

Melbourne, May 31.

Scientists and business men from all the States yesterday attended a conference convened by the Prime Minister to discuss proposals for the future co-ordination of federal and State efforts in applying science to industrial development. The conference was attended by Senator Wilson (chairman), Professor Ross (Perth), Mr. C. S. Nathan, and Professor M. E. Eagar (Melbourne University), Drs. S. R. Cameron (Director of Agriculture), Victoria), Mr. P. C. Hunt (Melbourne), Professor E. Skeats (Melbourne University), Mr. E. H. Flack (Melbourne), Councillor G. Lightfoot (Institute of Science and Industry), Sir John Monash (Melbourne), Professor Sir D. Orme Masson (Melbourne University), Senator J. D. Millen (Tasmania), Professor Goddard (Brisbane University), Mr. W. Russell Grimwade (Melbourne), Mr. H. W. Gepp (Melbourne), Mr. W. E. Wainwright (Melbourne), Dr. A. E. V. Richardson (Adelaide University), Professor D. D. Steele (Brisbane University), Professor Robert D. Watt (Sydney University), Sir G. H. Knibbs (Director of the Institute of Science and Industry), Mr. Lane Poole (Commonwealth Forestry Adviser), Professor Chapman (Sydney University), Mr. G. R. Julius (Sydney), Mr. R. H. Cambage (Sydney), Mr. G. Valder (Under Secretary and Director Department of Agriculture, New South Wales), Professor Perkins (Director of Agriculture, South Australia), Mr. F. Mitchell (secretary of the Broken Hill Proprietary Company, Limited Melbourne).

The Prime Minister said the conference had been called to consider something definite and practical. The institute had been established under the auspices of the Commonwealth to bring about the application of science and scientific methods to the whole of Australia's industrial life. The matter had been dealth with in the past but so far the Government had not been able to achieve the results at which they aimed. It was unnecessary to stress the necessity of taking action on a national basis to bring to the assistance of all Australian industries the most modern scientific methods, and make available by research and investigation that measure of assistance which was essential to the industrial life of a country. Particularly was that assistance needed if Australians were to maintain the high standard of living and those social conditions which they had established for themselves.

The task of the conference was to consider ways and means by which the result recognised as essential could be achieved. The establishment of the Commonwealth Institute of Science and Industry was constituted by Act of Parliament in 1920 as the result of a conference in 1916. It had not, however, realised the great expectations entertained, and it was necessary to find out how that position had arisen. Its proposals were too wide and too general, and that was why the institute had not made the measure of advancement expected. If the Government had attempted to carry out the Act as framed it would have involved an expenditure quite beyond its financial resources. There were also great difficulties in determining how the institute as constituted could best give effect to its purpose in any part of the wide field. Another difficulty was that it had never been clear enough how the co-operation of existing bodies in Australia was to be secured. He had always held that it should be the duty of the institute to take some of the great problems which confronted industrial life, and deal with them along the lines of co-ordinating efforts already made, and utilising every existing channel rather than the creation of new channels which would lead to duplication. The Government were prepared to take up the question seriously and deal with it in a manner that would make the institute one of greater efficiency to the whole of Australia in the solution of those problems that were bandicapping the Commonwealth, but it must be on the lines of making it a great co-ordinated effort.

The Government had given a lot of thought to the matter, and he would put a few suggested lines on which the institute might concentrate to ensure the necessary research being carried out. The Government suggested that the following subjects should be included in the questions to be discussed:—(a) Forestry products; (b) liquid fuels; (c) preservation and cold storage of goods; (d) stock diseases and pests; (e) plant diseases and pests; (f) cultivation of crops. He would suggest that from the delegate's knowledge they should recommend to the Government what were the first problems it should deal with, and how to make the most effective use of every channel that existed. The Government were prepared to entertain any views they [illegible] submit, but their suggestions would [illegible] the final selection of subjects of [illegible] would depend on the details [illegible] mation of such matters as (a) the [illegible] and facilities necessary for investigation and method of carrying them out; (b) the expenditure involved; (c) the State departments, universities, and other bodies which would co-operate; (d) the prospects of solving the problems within a reasonable time; (e) the industrial importance of the results if the problems be solved, and the magnitude and economic value of their commercial application. Other matters which the Government suggested for consideration would include (a) the concentration of effort and a systematic plan of development; (b) the final control of policy by the Minister on the advice of the representative body of experts; (c) general control by a representative expert council; (d) execution of policy and supervision of work by a scientifically qualified administrative and executive officer and staff; (e) detailed control of each investigation by an expert committee; (f) co-operation with existing institutions and full utilisation, where practicable, of existing facilities and resources; (g) the training of qualified investigators; (h) the control of accounts and business organisation.

The Prime Minister also suggested that a scheme for post-graduate research fellowships at universities should be inaugurated, the subjects of research and the men selected to be approved by the Minister, on the advice of the general council. The Government regarded this as probably one of the greatest problems of the day, and were prepared to find the necessary financial assistance. It only wanted to be assured that it would get practical results, and that the project would not bring about any measure of duplication.

After some discussion it was decided to adopt the Commonwealth Government's scheme, as submitted by Mr. Bruce, and to appoint a committee to consider details. Accordingly, on the motion of Sir J. Monash, a committee was appointed, with Sir D. A. Masson chairman. On the motion of Mr. W. E. Wainwright, a second committee was appointed, with Senator Millen chairman, to consider and report on suitable means for consolidating the work now carried on by the Commonwealth Bureau, and similar work being done by the various States.

ADV. 20-5-25.

Dr. H. Heaton, Director of Tutorial Classes and Lecturer in Economics at the Adelaide University, has been offered the Macdonald Chair of Economic and Political Science at Queen's University, Kingston, Canada. The vacancy has arisen owing to the appointment of Professor Skelton, the former holder of the position, as political and economic adviser on Imperial affairs to the Dominion Government. Dr. Heaton states that in all probability he will accept the position.

ADV. 1.6.25.

APPLYING SCIENCE TO INDUSTRY.

It may be hoped that the conference of scientists and industrial leaders, opened in Melbourne on Saturday, will succeed in attaining the object for which it was called by the Prime Minister—the elaboration of a scheme for the reorganisation of the Commonwealth Institute of Science and Industry on such a basis as will make that establishment a real power for the development of Australia. With a more liberal grant of funds the Institute, even as at present constituted, could have rendered a far greater measure of service to the agricultural and other productive interests of the Commonwealth than it has done, but the convening of the conference is a virtual confession that it was not planned on the best possible lines, and that limitations of finance were not the only difficulty it has had to contend with. In all the States, and especially in South Australia, valuable work is being done in the same field as that covered by the operations of the Institute, and there is a proper objection to the taxing of the people for any merely duplicating activity on the part of the Commonwealth. It is essential that the reorganised Institute should be closely linked up with the State departments and the universities, where much research is being carried on, particularly for the promotion of agricultural and pastoral interests; otherwise money will be wasted in a needless and useless rivalry. But if care be taken to avoid the evil of overlapping services, which appears naturally to arise out of our dual system of Federal and State Government under a Constitution that has proved to be in many respects too elastic, there is ample room for a central Institute that will deal efficiently with problems of industry common to all the States. Mr. Bruce has told the scientists and industrial leaders whom he has called together that the Federal Government are willing to vote adequate funds if a practical and efficient method is evolved for the solution of the industrial problems of the Commonwealth. Ministers are deeply impressed with the growing importance of the application of science to industry in the development of Australia. She is in a world of competition, and must march with the times, or will find her markets closing as a result of her inability to produce as cheaply and efficiently as other countries. Even the secondary industries, sheltered though they are by a protective tariff, must aim at improving the methods and reducing the costs of production if the present standards of profit and wages are to be maintained. There is an outcry at present for higher and virtually prohibitive duties, but tariff protection was never meant to give the home producers absolution from the necessity of adopting the most economic and up-to-date processes. The secondary industries ought to be developing in such a way that when population has sufficiently increased they will, like those of America, be capable of holding their own in export markets.

Even the most carefully organised Institute will, of course, fail unless it is able to rely on the wholehearted support of the various interests it is intended to assist. It is not enough for science merely to point out the way; there must also be a disposition to accept its guidance. Hence the wisdom of the Federal Government in endeavoring to secure the full co-operation of captains of industry throughout the Commonwealth in the carrying out of a policy of progressive development. What has to be shown to and realised by all concerned is that it "pays" to make use of science in industry, and that loss and retrogression are invited by too long delay in applying scientific discoveries to the working of an industrial system. In the interesting lecture he delivered at the University Commemoration in this city last year, on "Things Unattempted Yet," Professor Kerr Grant indicated that even in the existing stage of knowledge big opportunities for social and industrial improvement are being missed, simply because the desire to utilise what science has already revealed is not sufficiently strong in the community to provoke the necessary action. With the will to do it, as he said, we could in as short a period as five years extirpate such diseases as tuberculosis, venereal, measles, and scarlet fever. To gain such prodigious results from hygienic science, however, there must be a strength of public opinion, and a readiness to make heavy, if only temporary, sacrifices, for which at present we might look in vain. The process of popular education in such matters is perhaps inevitably slow and gradual. We are, at any rate, not standing still, and we must not despise the day of small things. But where actual bread-and-butter interests are obviously at stake we might fairly expect a more rapid rate of progress than is visible in those large movements for the betterment of society which call for some faith and much altruistic effort. Professor Kerr Grant stated, for instance, that we have only to utilise facts already in our possession to be able immediately to double the yield of wheat per acre. The practical agriculturist, would be certain to retort, "Yes, but at what expense?" and it is undeniable that the question is strictly pertinent. Science, however, may justly claim that it has made many discoveries which, in the first instance timidly and almost sceptically applied, have rapidly demonstrated their utilitarian value and revolutionised the economics of agriculture. The introduction of fertilisers and the improvement of the breeds of wheat are conspicuous examples in this country. Research by a well-equipped Institute of Science and Industry, if accompanied by proper arrangements for publicity, may be expected to add substantially to the boons which scientific experiment and enquiry have already conferred. The interests of every class of the community are affected by, and should give support to, an enterprise whose aim is to raise the industrial efficiency of the nation.

ADV. 30.5.25.

ELDER CONSERVATORIUM.

For the students' recital to be held in the Elder Hall to-night, a programme of exceptional interest has been arranged. It includes favourite gems, vocal and instrumental, by ancient and modern masters, such as Mendelssohn, Chaminade and De Busy. Seats can again be reserved at S. Marshall & Sons, 49 Gawler place.

ADV. 30.5.25.

At Friday's meeting of the Council of the University of Adelaide, the resignation of Mr. H. H. Corbin, as lecturer in Forestry, was accepted with great regret. The date from which the resignation will take effect will be decided by a committee of the council and Mr. Corbin, in order that the work of his lectureship may be continued until the end of the year. Mr. Corbin, as already announced, has been appointed Professor of Forestry at the Auckland University College.

ADV. 30.5.25.

PHILOSOPHY AND SCIENCE.

The Australian Association of Psychology and Philosophy, of which the third annual congress was recently held in Sydney, and of which Professor McKellar Stewart, of the Adelaide University, has been elected president for the current year, connects mental science with metaphysics in a manner which perhaps would not meet with the entire approval of the great French philosopher, M. Bergson. For while the quest of metaphysics is for the absolute or the real in the perceived facts of existence, the study of the mind undertaken by psychologists proceeds by a method of analysis which, admittedly appropriate in the sciences devoted to physical phenomena, will never, according to Bergson, solve the mystery of consciousness. It is his contention that "duration," or the ceaseless flux of psychical change which constitutes self, is penetrable only by an effort of intuition, and cannot, if we are seeking ultimate truth, be resolved into parts or elements that may be treated independently of one another. "Every psychical state, simply because it belongs to a person, reflects the whole of a personality. Every feeling, however simple it may be, contains virtually within it the whole past and present of the being experiencing it, and can only be separated and constituted into a 'state' by an effort of abstraction or analysis." If, however, the very desirable contact of philosophy with science is to be made and maintained, psychology cannot be ignored, even though, on the Bergsonian hypothesis, it does concern itself merely with aspects or partial views of that indivisible and continuous unity of mental life which cannot be atomised or analysed like a piece of matter. The practical value of psychological research is, of course, beyond dispute. To what an extent metaphysical speculation stands to gain from the acceptance of the conclusions of modern science in the realm of phenomena we may easily satisfy ourselves by recalling the ludicrous errors made by profound thinkers in ancient times, who blunderingly supposed that they could explain the facts of the objective world by the purely deductive reasoning in which, when they confined it to its proper sphere, they have never been excelled. On the other hand, scientific men are still in many cases too prone to regard metaphysics with unmerited contempt. As Sir Oliver Lodge puts it, they are apt to assume that no such things exist as spiritual entities save as "epiphenomena"—a high-sounding term which is really no more than a cover for ignorance—or as some other curious outcome of molecular aggregation. How, he asks, can the behavior of matter under the known laws of motion account for such realities as thought, emotion, love, [illegible] knowledge? What kind of knowledge, or conceivable potentiality of knowledge, can we attribute to atoms, or ether, or energy, or any of the forces of Nature?

Savants of the highest eminence have not hesitated to admit the limitations of science as a field of knowledge. Science describes phenomena, but assuredly it does not interpret them. It has nothing to tell us of the power behind them; the reality of which they are only the appearance to the human sense and understanding. Beyond the sphere of the sensuous, as George J. Romanes, the distinguished biologist, wrote, science can offer no explanations. It testifies to the uniformity of Nature, but can give no reason why Nature should not be a chaos instead of an ordered Cosmos. It treats as cause and effect the invariable succession it discovers in natural events when the same conditions are repeated, but, as even Herbert Spencer acknowledges, in ultimate analysis all natural causation is inexplicable. Romanes points out that our very notion of causation is derived from our own activity when we ourselves are causes. "Mere observation of causality in external nature would not have yielded an idea of anything further than time and space relations." So the great French mathematician, H. Poincare, points out that physics shows only the relations between this thing and that. It finds something which first, perhaps, it calls motion, and later calls electricity. "But these are merely