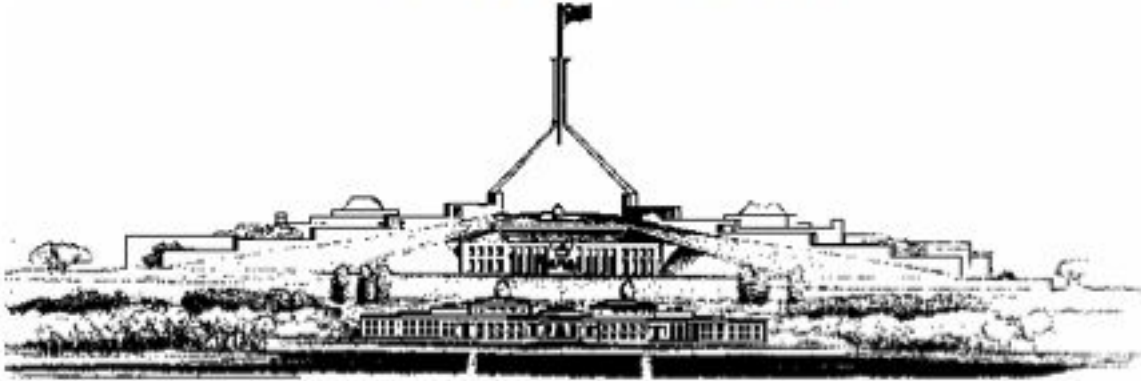




COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY DEBATES



**HOUSE OF REPRESENTATIVES**  
**SCIENCE AND INDUSTRY RESEARCH BILL**

**Second Reading**

**SPEECH**

Wednesday, 26 May 1926

BY AUTHORITY OF THE HOUSE OF REPRESENTATIVES

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## SPEECH

<p><b>Date</b> Wednesday, 26 May 1926  <b>Page</b> 1  <b>Questioner</b>  <b>Speaker</b> BRUCE, Stanley</p>	<p><b>Source</b> House  <b>Proof</b> No  <b>Responder</b>  <b>Question No.</b></p>
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**Mr BRUCE** (Flinders—Prime Minister and Minister for External Affairs) (NaN.NaN pm) . - (*By leave.*) - I move -

That the bill be now read a second time.

This measure amends the Institute of Science and Industry Act 1920, and alters the constitution of the Institute of Science and Industry in several respects. The object of the Government is, not to create a great new centralized institute of research, but, for the benefit of both the primary and secondary industries, to bring about co-operation between existing agencies and to enlist the aid of the pure scientist, the universities, and every other agency at present handling scientific questions. Every honorable member must consider it to be essential for Australia, with its splendid opportunities and difficult problems, to make every endeavour to bring to the solution of those problems whatever assistance science can offer. The only consideration which would deter honorable members from supporting this measure would be the feeling that it might lead to duplication and the overlapping of effort. I can assure them that the exact opposite will be the result; the bill will in no sense lead to a duplication of the efforts of the States, nor will it bring about any overlapping of scientific research in relation to our industrial or other problems. What we propose is essential in a country such as Australia. Recent industrial developments prove that science can greatly assist in bettering the conditions of the workers and in bringing greater prosperity to our people. Those nations which to-day are progressing most rapidly industrially and commercially are enlisting its aid to an extraordinary degree. The United States of America, I believe, lead the world in that respect. Their development has been amazingly rapid. Although the area of that country is slightly less than that of Australia, it carries a population of between 115,000,000 and 120,000,000 people, and yet its problem is how to obtain a sufficient number of workers to take advantage of the opportunities that present themselves. It is freely stated that America could easily absorb another 1,000,000 people to the advantage of the present inhabitants. Seeking a reason for that amazing state of affairs, one realizes what a great part has been played by scientific research. What strikes one most forcibly is that America's efforts in the direction of scientific research are not limited to governments nor even to great associations of employers; individual employers are expending vast sums of money in attempts to improve their methods and generally to advance their efficiency. Many individual manufacturing corporations maintain their own laboratories for experimental work, and employ staffs of trained scientists. The largest concern is the Du Pont de Nemours Company, which has 250 chemists engaged on experimental work throughout the year. The Pennsylvania Railway Company has no fewer than 361 scientists employed in its testing laboratory, and the General Electric Company has 150. The first cost of the laboratories of these great manufacturing corporations or transport agencies was as high as £100,000, and the annual cost of some of them runs to a figure equally great. In all there are over 30 large laboratories belonging to individual firms, and a score of associations of manufacturers are engaged in work of a similar nature. An extraordinarily interesting feature of the position in America is that, although these great research activities are conducted by individual firms or associations, almost without exception the utilization of their discoveries is not confined to their particular business. These discoveries are made known to the industry generally on the principle that the improvement of its efficiency benefits all concerned. We can learn a great deal from America in that respect. The National Canners' Association spends about £10,000 a year, and, connected with almost every industry in America there are associations which are carrying out research work for the benefit of their members. This covers a wide field of activity, and applies to lumber, paint, woollens, paper, refrigeration, dairying, cement, tiles, bricks, and almost every other product that can be mentioned. It is notable, also, that American industries are co-operating with the universities. Great industrial enterprises send their problems to the universities to be investigated by pure scientists, and thus science is being applied to the solution of industrial problems. In addition, there are institutions of a public or semi-public character, like the Mellon Institute, which is associated with the University of Pittsburg. In that institute there are no fewer than 80 highly-trained research fellows, who are carrying out work on selected subjects. Research fellowships are given to men who are selected by an industry, and those men go into the institute to solve, or attempt to solve, particular problems. Generally, they are afterwards absorbed into the industry, and, naturally, they raise its standard and assist its scientific development. We have done a little in this country in promoting standardization, but some persons have been appalled at hearing that the Government

ought to spend £2,000 to assist the work. Within the limited means at its disposal, the Standards Association in Australia has done valuable work. But its activities should be extended. The Bureau of American Standards occupies buildings which cost £300,000, and its annual expenditure is about £460,000. All that money is being spent to bring about standardization, which is regarded there as essential. One can readily realize how much can be saved by standardization. We often fritter away time, money, and energy in producing ten articles when, if we had standardization, one would do equally well. With standardization we could reduce capital expenditure and overhead charges, and at the same time enormously increase production and efficiency. We must undertake research work, and the time is over-ripe for it. I cannot now speak of all the activities of America, but I must mention the Carnegie Institute, which has an endowment of £4,500,000, and innumerable other institutions are carrying out similar work. Before the war Great Britain's activities in this direction were not so great as one would have desired, but there has been, within recent years, with the more intense competition that has followed the war, a realization of the need for research work. Machinery has been established, and is being rapidly extended, for carrying out valuable industrial and general research work. The problem is being dealt with differently in Great Britain and America, and there is something to be learned from a comparison of the two methods. In America there is great activity, but no real co-ordination of effort. Great Britain is attempting co-operation from the top, and that should be our aim, for in this direction the Commonwealth Government can give particularly useful assistance. The Department of Scientific and Industrial Research in Great Britain was established in 1917, a year before the war closed, and a fund of £1,000,000 for the endowment of research associations was created by the Government, and has grown considerably since. The expenditure of the

British Government for the co-ordination of industrial research work, and for carrying out such work, has nearly doubled in the last three years, and during the current year will probably reach £550,000. The department is endeavouring to stimulate industrial research by manufacturers and associations of manufacturers, and has already promoted the formation of 25 associations of manufacturers to deal with different phases of industrial problems by bringing scientific methods to bear upon them. The British Government is also endowing university research work, and in 1924 made 258 grants, totalling £35,000, for that purpose. Evidence of the development of thought on this subject in Great Britain is contained in the recent report of the Coal Commission. In dealing with the troubles in the coal industry the commission recommended that for a period of seven years an average sum of £50,000 annually should be set aside for scientific investigations into problems associated with the industry. Japan, which has experienced probably a more phenomenal industrial growth than any other country, is spending £300,000 on a national laboratory. The Indian Forestry Department is known throughout the world; it is carrying out valuable research work relating to forestry and limbers. Canada, New Zealand, and South Africa - our sister dominions - are trying to do something effective in the same direction.

I shall not deal exhaustively with the bill, but I wish to say a word about the Institute of Science and Industry, which was created in 1920. The bill alters the basis of the original proposal. While the institute did not realize all the hopes entertained of it, it is wrong to suggest that it has done nothing. It has done quite a large amount of valuable work, but disappointment has been felt because the aims and ambitions of those who created it were probably too large to be realized in practice. The money provided for it was not sufficient to enable it to function successfully. I hope that on the present occasion we shall remove both these weaknesses in the scheme by not attempting to do too much, and by ensuring that for the next few years it will be impossible for the institute to be starved, and its activities rendered of no value. I should like to refer to some of the work which the institute in its present form has done, because

I think there has been a considerable amount of quite unjust criticism of it. I admit that it has not done all that was anticipated; but it has still done very valuable work, for which it is entitled to credit.

**Mr Foster** (—) (NaN.NaN pm) - It has not had the means to do much.

**Mr BRUCE** (—) (NaN.NaN pm) - That is so. It has done very valuable work in connexion with the manufacture of paper pulp from Australian timber. It has done good biological work in the control of the prickly "pear", and it has, I think, successfully solved the problem of "bunchytop" in bananas. . Certainly the institute has not been a complete failure, as some people would suggest, but I think that every one recognizes that the time has come when it should be re-organized and placed upon a different basis. The Government, feeling that very strongly, last year summoned a conference of scientists, industrialists, and representatives of the commercial community. That conference was held in Melbourne, and made certain recommendations. The Government also invited **Sir Frank Heath**, who is at the head of the British Research Council, to visit Australia. He was in Australia for some three or four months at the end of last year and the beginning of the present year. He made a most valuable report

to the Commonwealth Government, and to a considerable extent the proposals I am now bringing forward are based upon that report, which honorable members have had an opportunity of reading.

**Mr Prowse** (—) (NaN.NaN pm) - Has **Sir Frank** Heath's report been made available?

**Mr BRUCE** (—) (NaN.NaN pm) - Yes ; I think it was published some two or three months ago.

**Mr Prowse** (—) (NaN.NaN pm) - He made an interim report before leaving Australia, but said that his main report would not be written until he reached England.

**Mr BRUCE** (—) (NaN.NaN pm) - I speak subject to correction; but I am almost certain that **Sir Frank** Heath's report was given to the press when Parliament was not sitting, and must have been circulated to honorable members in the ordinary way.

**Mr Mann** (—) (NaN.NaN pm) - We have only had press notices of it, I think.

**Mr BRUCE** (—) (NaN.NaN pm) - My impression is that it has been available for some time.

The first alteration proposed is that the position of Director of the Institute of Science and Industry created by the existing act shall be done away with. The position as existing under the present act is to be completely altered. The whole of the control of the institute under the existing act is in the hands of the Director. By the new proposal it is contemplated placing the control of the institute in the hands of a Central Council, which will be the body advising the Minister. There will also be created six State committees.

**Mr Coleman** (—) (NaN.NaN pm) - Is the right honorable gentleman assured of the cooperation of the State Governments?

**Mr BRUCE** (—) (NaN.NaN pm) - I do not think there is ' any question of that. The Central Council will be composed of three members appointed by the Commonwealth Government, and the chairman of each of the State committees. These nine will form a body to advise the Government on all questions requiring scientific investigation. In addition to these nine members, additional members, whose assistance may be required because of their special scientific knowledge, can be co-opted. The reason for this is that it might be found that the Central Council did not include a representative of some particular branch of scientific research which it would be most desirable to have represented on the council. For example, there might be no biologist amongst them, and it is essential that there should be a biologist upon an advisory council of this sort. Under the bill it" will be possible for the Central Council to secure the assistance of a biologist, or any other scientist whose help it would be desirable to have.

**Mr Foster** (—) (NaN.NaN pm) - What distinct provision is made to prevent overlapping by other institutions carrying out research work?

**Mr BRUCE** (—) (NaN.NaN pm) - That will be made quite clear during the consideration of the bill. Of the Central Council of nine the three members appointed by the Commonwealth Government will form the executive. They will not be permanent, but part-time officials, but it is proposed that they should be paid fees,, and should advise the Minister on all questions. It is not contemplated that the Central Council shall be called together more than once or twice a year. A period of the year when it will probably be called together will be the month of March, when the whole council will meet to prepare the estimates and programme for the forthcoming year. Apart from that annual meeting at which the general policy of the institute will be laid down, and the estimates for the forthcoming year prepared, it is not contemplated that the full council shall meet except in extraordinary circumstances, when some particular problem arises upon which it is necessary to arrive at a decision. In ordinary

circumstances the work of the council will be carried on by the three executive members appointed by the Government.

**Mr RODGERS** (WANNON, VICTORIA—) (NaN.NaN pm) - Appropriations will be made on recommendations of the council.

**Mr BRUCE** (—) (NaN.NaN pm) - "The Central Executive will really be the advisers of the Government at all times.

**Mr Blakeley** (—) (NaN.NaN pm) - Who will elect the chairman of the council?

**Mr BRUCE** (—) (NaN.NaN pm) - He is appointed, and is one of the three members of the council appointed by the Government to be the executive of the council.

**Mr Coleman** (—) (NaN.NaN pm) - Has not **Mr. Julius** already been appointed chairman ?

**Mr BRUCE** (—) (NaN.NaN pm) - Yes. The Government is extremely fortunate in having obtained the services of **Mr. Julius**, an engineer, of Sydney, to act as chairman, and with him **Mr. Newbigin**, and Professor Rivett of the Melbourne University, who have agreed to act as representatives of the Government on the Central Council. That council will deal with the general programme, the budget, and the activities generally of the institute. It must determine the programme of work. It is not contemplated that research work will be carried out by the institute, but that it will be undertaken wherever the best facilities exist for carrying it out. For instance, the problem with regard to fuel waste would probably be best dealt with in Western Australia, and the Western Australian committee would be responsible for carrying out the work which the council determined should be carried out in that State. It is necessary that the institute should co-operate; but I wish to make it clear that research work will be carried out in existing institutions, such as the universities of the States, and I am confident that we shall get the most cordial co-operation, from the States.

The universities are sympathetic, and we shall have their assistance, as well as the help of the industrial and commercial community generally. The State committees will have power to bring forward problems which they consider should be dealt with by the council, and where research work is being carried out in their own States, they will be responsible to the council for it. In this I think there is the germ of a scheme which should ensure the co-operation of the entire community.

**Mr RODGERS** (WANNON, VICTORIA—) (NaN.NaN pm) - Has the Government fixed on a method to determine the constitution of the State committees?

**Mr BRUCE** (—) (NaN.NaN pm) - Three members will be nominated by the Governments of the respective States, from the staffs of their scientific and technical departments, and three other members will be what might be called pure scientists. Probably they will be members of the staffs of the State universities. These six members, with a chairman, to be appointed by the Governor-General, will co-opt two or three more so as to make each committee thoroughly representative and efficient. Several of the State Premiers have indicated that they are prepared to co-operate in the scheme, and to afford every assistance. The actual functions of the State committees are set out in the bill. The purpose of the committees will be to advise the council as to the problems to be investigated. If a committee is directly interested in any problem affecting its State, it will investigate it, form its own conclusions regarding it, and make a recommendation to the council that research work upon it should be undertaken in the next year's programme. It will also be the function of the State committees to keep in touch, and to cooperate with the various other bodies which may be interested in a particular work; to assist the council in organizing the work carried out in the States, and to make inquiries and to furnish reports on matters referred to it by the council. If the executive requires further information from any State, it may utilize the State committee, and get the assistance required.

But when we embark upon a campaign of scientific research, unless we have trained scientists to carry out the work, we are not likely to get very far. It is regrettable that we have already lost the services of so many of the best men trained in our universities. Our objective, in launching this scheme, is to ensure that we shall have the assistance of men trained in Australia, and retain their services for this country.

The only other point to which I desire to refer now is the proposed change of the name of the " Institute of Science and Industry" to "Council for Scientific and Industrial Research." We are making the change because we believe it will more truly indicate the functions of the new body. It is to be a council for scientific and industrial

research. A further reason for the change is that the corresponding body in Great Britain is known as the "Department of Scientific and Industrial Research," and the Canadian body is styled "The Advisory Council of Scientific and Industrial Research." These bodies are receiving general recognition in other countries, and as we propose that the Council for Scientific and Industrial Research shall have similar functions, it is very desirable that the name should be similarly recognized for the character of its work.

**Mr Mann** (—) (NaN.NaN pm) - Are we to understand that research work need not necessarily be connected with industry ?

**Mr BRUCE** (—) (NaN.NaN pm) - It will be in relation to industry generally, primary and secondary.

**Mr Mann** (—) (NaN.NaN pm) - The change of name is significant.

**Mr BRUCE** (—) (NaN.NaN pm) - There is no intention to change the character of the work. It will be connected with science as applied to industry.

**Mr Foster** (—) (NaN.NaN pm) - Will the new body link up with big industrial organizations if opportunity offers ?

**Mr BRUCE** (—) (NaN.NaN pm) - We are hoping that the big industrial organizations will gradually recognize the necessity for scientific research.

**Mr Coleman** (—) (NaN.NaN pm) - By that is it meant that they will be able to initiate inquiries?

**Mr BRUCE** (—) (NaN.NaN pm) - Certainly. If a certain line of scientific research is thought desirable, the need for it will be brought before the council. The council will then investigate the matter, and request the committee in the State concerned to go into the whole question and advise what course should be adopted.

**Mr RODGERS** (WANNON, VICTORIA—) (NaN.NaN pm) - Under the system adopted for the standardization and link- ing up of secondary industries, panels are appointed on which certain industries are represented.

**Mr BRUCE** (—) (NaN.NaN pm) - It is proposed to have a central council representing the whole of the States, with separate committees in each State. Instead of having a centralized bureau with its director in Melbourne, there will be a general encouragement of industrial research.

**Mr RODGERS** (WANNON, VICTORIA—) (NaN.NaN pm) - When one of those panels issues a specification, that becomes a recognized standard without the necessity for enforcement by law.

**Mr BRUCE** (—) (NaN.NaN pm) - That is so. Admirable work is being done by the Standards Association. The council has given much consideration to immediate problems, and I think that the House will be interested to know what lines its investigations will take. It is considered that immediate investigation should be made regarding liquid fuels, cold storage, and the preservation of foodstuffs, forest products, animal diseases and pests, plant diseases and pests, and fruit-growing problems. All these matters are already receiving the consideration of the executive. Certain estimates in regard to them will, probably, be embodied in the general Estimates for the forthcoming year, so that an immediate start may be made. Every one will recognize that liquid fuel, for example, is an important subject of investigation. Unfortunately we have no indigenous oil supply, and consequently are importing 90,000,000 gallons of petrol a year. There is a wonderful possibility before us if we can find a solution of the liquid fuel problem. The institute up to the present has unquestionably suffered considerably owing to insufficiency of funds for its work. When an effort is being made to stimulate scientific research in relation to the problems of industry, and the best scientists of the country are showing a sincere desire to help to overcome our difficulties, it is most undesirable that their labours, which may have cost, perhaps, £10,000, should be lost because of the exigencies of a particular treasurer. The council might be on the brink of finding the solution of an important problem, requiring only an expenditure of £1,000 or £2,000 to complete its investigations, and its efforts would be defeated if the Treasurer of the day decided that no further money could be made available to it. To obviate such. & position, it is provided in the bill that for the purposes of scientific and industrial investigation, in pursuance of this measure, there shall be appropriated from the Consolidated Revenue Fund the sum of £250,000. It is not contemplated to expend that sum in one year. That amount should carry the institute on for some time; but the money will be placed in a trust fund, where it will be available for the purposes of the council. To ensure that full parliamentary control shall be exercised over the expenditure of this money, it is provided that nothing shall be spent from the trust account except in accordance with estimates of expenditure

approved by Parliament. The council will meet and prepare its budget for the following year, putting down the amount it considers desirable for the research that is being done. Those estimates will be presented to the Minister, and if he approves of them they will be embodied in the general Estimates submitted to Parliament. If they are passed by Parliament, the money will immediately be made available out of the trust fund. That will avoid any possibility of a treasurer, through financial stress, curtailing the expenditure of the council at a time when it may need the full amount of its estimates to carry on its investigations. The sum of £250,000 will ensure that during the next three or four years there shall be a ' fund available for a serious effort to deal with our industrial scientific problems. I am confident that the council's work will in four or five years' time be so obviously beneficial that no one will have the courage to attempt to destroy it. The bill should generally commend itself to the House. Every honorable member must be desirous that a serious effort, should be made, with the assistance of science, to solve the great problems now hampering industrial development. I believe that the bill provides for this. It will prevent overlapping and duplication, and with the assistance of our scientists, we shall achieve a result that may go far beyond what can be anticipated at present.

Debate (on motion by **Mr. Blakeley**) adjourned.

Message recommending appropriation for the purposes of the bill reported.