

- (iv.) The general control and administration of such laboratories when established :
- (v.) To promote the immediate utilization of existing institutions, whether Federal or State, for the purposes of industrial scientific research :
- (vi.) To make recommendations from time to time for the establishment or development of special institutions, or departments of existing institutions, for the scientific study of problems affecting particular industries and trades :
- (vii.) The establishment and award of industrial research studentships and fellowships, to include either travelling-fellowships or fellowships attached to particular institutions :
- (viii.) To draw attention to any new industries which might be profitably established in the Commonwealth :
- (ix.) To keep in close touch with and seek the aid of all Commonwealth and State Government Departments, learned and professional societies, and private enterprises concerned with or interested in scientific industrial research :
- (x.) The co-ordination and direction of scientific investigation and of research and experimental work with a view to the prevention of undesirable overlapping of effort :
- (xi.) To advise the several authorities as to the steps which should be taken for increasing the supply of workers competent to undertake scientific research :
- (xii.) To recommend grants by the Commonwealth Government in aid of pure scientific research in existing institutions :
- (xiii.) To seek from time to time the co-operation of the educational authorities and scientific societies in the States with a view to advancing the teaching of science in schools, technical colleges, and universities, where its teaching is determined upon by those authorities :
- (xiv.) To report annually and from time to time to Parliament.

3. The Committee gave careful attention to the relation between the proposed Institute and the existing Commonwealth Laboratory. It was recognized that the daily routine of Customs, Naval and Military Stores, and other Departments requires the performance of a great deal of important scientific work, particularly chemical analysis of material, and that the laboratories in which such routine scientific work is carried out must necessarily remain under Departmental control, though they might with advantage be co-ordinated and their equipment increased. On the other hand, as the work of the proposed Institute develops there will be an increased scope for work in national laboratories devoted to special branches of research and experimental investigation which are not otherwise provided for. Such laboratories and their scientific staffs should, in the Committee's opinion, be kept distinct and placed under the control of the Institute.

In the future it will be necessary to undertake experimental work in connection with the growth of our naval and military defence, the testing of materials with regard to the physical reasons underlying deterioration and change of structure due to mechanical and heat treatment, and as to failure in operation under varying conditions, the testing and trying-out of processes in connection with the metallurgical industry and biological and geological problems.

The highly specialized intricate work of standardizing electrical instruments and other scientific apparatus for use as sub-standards by different Government Departments and other institutions in which research work may be carried on would also naturally fall within the functions of the Institute.

A convincing reason for drawing a line of distinction between laboratories primarily for scientific research and laboratories primarily for the necessary routine work of departmental testing is that any attempt to combine the two would lead to confusion and hamper and weaken both branches of activity, and would tend to drown the research work for which the Institute is being created.

It cannot be too strongly insisted that the qualifications of a staff for "researching" are different in character from those of a staff which is to carry out scientific routine testing.

The Committee therefore recommends that—

- (a.) The control of the present Commonwealth Laboratories be not disturbed, but that they be co-ordinated, their staff increased, and their equipment improved.
- (b.) Any new national laboratories which may be created for special purposes of research and experimental inquiry, including a physical laboratory for testing and standardizing purposes, should be controlled by the Institute.

4. With regard to the constitution of the Institute the Committee passed the following resolutions:—

- (i.) "That an Advisory Council consisting of nine members representing science and the principal primary and secondary industries be appointed, who shall advise and co-operate with the Directors in framing the policy and in the administration of the Institute."
- (ii.) "That the members be appointed by the Governor-General in Council."
- (iii.) "That for the purpose of controlling and administering the Institute, and of collecting information, and determining on the researches to be undertaken and directing their elucidation, three highly qualified salaried Directors, of whom one should be Chairman of the Directors, shall be appointed by the Governor-General in Council. The Directors shall seek the advice and co-operation of the Council, and shall be *ex officio* members thereof."
- (iv.) "That of the three Directors one should be an expert business and financial man with ability in organization; the other two should be chosen mainly on account of scientific attainments and wide experience."
- (v.) "The tenure of the Directors shall be fixed by the Act."
- (vi.) "That the scientific staff should be appointed by the Governor-General in Council on the recommendation of the Directors."