The Australian National Research Council.

A CERTAIN measure of co-ordination and co-operation in science was achieved during the war by Great Britain, France, America, and Japan, with results which were far-reaching in importance. Men of science in Australia felt that something of the sort would also be productive of good results in that continent, which until recently was represented in the world of science solely by independent State Royal Societies. The climax was reached in 1919, when the International Research Association meeting in Paris invited the co-operation of Australian men of science. No representative scientific body, with the exception of the Australian Association for the Advancement of Science, which had not met since 1913, was in existence at that time, so the matter was referred to the Melbourne meeting of the association, held on January 5–11 last (NATURE, May 26, p. 408). There it was decided that an Australian National Research Council should be formed and organised on lines similar to those adopted by countries already working under the International Research Council. A scheme of organisation was drawn up and approved by the Australasian Association, which provided for a council of a hundred members representative of pure and applied science.

Australia has now, therefore, three organisations of a general scientific nature apart from Government Departments, State societies, and museums. First there is the Australasian Association for the Advancement of Science, which meets normally every second year. Even if more frequent meetings were possible, lack of funds would probably hinder the effective direction of investigations by this body. Then there is the newly constituted National Research Council, in regard to which Sir Baldwin Spencer suggested in his presidential address to the Australasian Association at Melbourne that it might, with the view of economising time, energy, and money, be constituted as the standing committee of the Australasian Association, with independent powers of initiating research and dealing with such funds as were placed at its disposal. The third scientific organisation in existence is the Commonwealth Institute of Science and Industry, founded by Act of Parliament in 1920. The constitution of this body is not considered satisfactory by men of science, but it demonstrates official recognition of the importance of scientific investigation, and at present it is the only one of the three organisations which can command the funds necessary for carrying out investigations. Sir Baldwin Spencer is of opinion that the constitution of the National Research Council of the United States might have been copied with advantage when this body came into being.

However, now that the Australian National Research Council is an accomplished fact, it is hoped that it will serve as a representative Australian unit in international scientific organisation, and, in addition, have an important influence in encouraging scientific research in Australia.

The following is a list of members of the council as it is at present constituted :—

Agriculture: Mr. F. B. Guthrie, Prof. A. J. Perkins, Mr. A. E. V. Richardson, and Prof. R. D. Watt.

Anthropology: Prof. R. J. A. Berry, Mr. C. Hedley, Rev. John Matthew, Mr. S. A. Smith, Sir Baldwin Spencer, and Prof. F. Wood-Jones.

Astronomy: Dr. J. M. Baldwin, Prof. W. E. Cooke, Mr. E. F. Dodwell, and the Rev. E. F. Pigot.

Botany: Mr. R. T. Baker, Mr. R. H. Cambage. Prof. A. J. Ewart, Prof. A. A. Lawson, Mr. A. H. S. Lucas, Mr. J. H. Maiden, and Prof. T. G. B. Osborn.

Chemistry: Prof. C. E. Fawsitt, Mr. J. B. Henderson, Mr. A. E. Leighton, Prof. Orme Masson, Prof. J. Read, Prof. E. H. Rennie, Assoc.-Prof. A. C. D. Rivett, Mr. H. G. Smith, Prof. B. D. Steele, and Prof. N. T. M. Wilsmore.

Economics and Statistics: Mr. G. H. Knibbs and Mr. G. Lightfoot.

Engineering: Mr. J. J. C. Bradfield, Prof. R. W. Chapman, Mr. A. J. Gibson, and Mr. A. G. Michell.

Geography: Capt. John King Davis, Mr. Loftus Hills, Prof. W. Howchin, and Sir Douglas Mawson.

Geology: Mr. E. C. Andrews, Sir Edgeworth David, Mr. B. Dunstan, Mr. A. Gibb Maitland, Prof. H. C. Richards, Prof. E. W. Skeats, Dr. F. L. Stilwell, and Mr. L. Keith Ward.

Mathematics: Prof. H. S. Carslaw, Mr. A. McAulay, Mr. J. H. Michell, Prof. H. J. Priestley, and Mr. E. M. Wellish.

Mental Science and Education: Prof. Francis Anderson and Prof. William Mitchell.

Meteorology: Mr. H. A. Hunt and Prof. T. Griffith Taylor.

Mining and Metallurgy: Mr. G. D. Delprat, Mr. G. C. Klug, Mr. R. Sticht, and Mr. W. E. Wainwright.

Pathology: Sir Harry B. Allen, Dr. A. W. Campbell, Prof. J. B. Cleland, Dr. S. W. Patterson, Dr. W. J. Penfold, and Prof. D. A. Welsh.

Physics: Prof. K. Grant, Prof. T. H. Laby, Dr. E. F. J. Love, Prof. T. R. Lyle, Prof. T. Parnell, Prof. J. A. Pollock, and Assoc.-Prof. Vonwiller.

Physiology: Prof. H. G. Chapman, Dr. E. E. Embley, Prof. W. A. Osborne, and Prof. Brailsford Robertson.

Veterinary Science: Dr. Sydney Dodd, Dr. J. A. Gilruth, Prof. J. D. Stewart, and Prof. R. A. Woodruff.

Zoology: Dr. W. E. Agar, Mr. J. J. Fletcher, Mr. W. W. Froggatt, Prof. W. A. Haswell, Prof. T. Harvey Johnston, Assoc.-Prof. Georgina Sweet, and Mr. G. A. Waterhouse.

The first meeting of the Australian National Research Council was held in Melbourne on August 23–25 last, at which the nature of the work it would undertake was discussed.

Sir Edgeworth David, at a reception before the business sessions, said that he hoped the first full meeting of the National Research Council would be an epoch-making day in the annals of Australian science. Never in the whole history of Australia was there such a need for co-ordination in scientific effort. It would help to defend the country against foreign aggression. The public had no idea what we owed to science for our final victory in the great war.

Later, an executive committee, constituted as follows, was elected: *President:* Sir Edgeworth David. *Vice-Presidents:* Sir Baldwin Spencer, Prof. Orme Masson, Mr. G. H. Knibbs, and Mr. J. H. Maiden. *Members:* Sir Douglas Mawson, Profs. H. J. Priestley, E. W. Skeats, B. D. Steele, N. T. M. Wilsmore, R. W. Chapman, J. A. Pollock, K. Grant, and T. R. Lyle, Messrs. L. Hills, and W. E. Wainwright. *Secretary:* Mr. Cambage. There was some discussion as to the qualifications of associate members, and it was decided to admit as associate members only those who have carried out meritorious original scientific work.

One of the subjects of discussion of the second day's meeting was a motion on the order paper in

the name of Prof. T. H. Laby, that the Australian National Research Council should adopt such a constitution as would enable it to perform the following functions: (*a*) The discussion and publication of the results of scientific investigation by the publication of scientific papers and by co-operating with the State scientific societies in such work. (*b*) The promotion of scientific research generally, and the investigation of specific problems, bringing the latter under the notice of the Commonwealth and State Governments when that course is desirable. (*c*) The promotion of the application of scientific methods in questions of government and administration when such methods are peculiarly and specially applicable. (*d*) The promotion of the interest and status of scientific workers in Australia. The first of these clauses was negatived by a large majority, but the publication by the Council of abstracts of scientific papers by Australians was agreed to. Clauses (*b*) and (*c*) were carried, but clause (*d*) was rejected. In the discussion on the last clause Prof. Agar said that the Council should confine its attention to furthering the interests of science rather than the interests of men of science. The Council also rejected a proposal made in connection with the foregoing motions that it should form from those of its members who represent mathematics, physics, astronomy, and engineering, a section for the encouragement, discussion, and publication of research in the mathematical and physical sciences.

A letter from Sir Arthur Schuster, inviting the Council to submit business for consideration at the Brussels meeting of the International Research Council was considered. In this connection it was agreed to represent to the Commonwealth Government the need for funds to enable Australia to join certain of the International Unions. Mr. E. C. Andrews was appointed a delegate to the Pan-Pacific Scientific Congress to be held in 1923.

Among other business transacted, Sir Edgeworth David directed attention to the desirability of forming a Commonwealth Geological Survey, in addition to the State surveys, and further action is to be taken. A committee was also appointed to report on the possibility of making a gravity survey of Australia.

A special committee then reported on the proposed establishment of a solar radiation station at Sydney; the necessary funds had been raised successfully by public subscription, and it was considered that the project was a matter of considerable scientific importance.

The National Council formally took over from the Australasian Association for the Advancement of Science work of an international character relating to geophysics and physical and chemical constants.

The Australian National Research Council, so far as its constitution and objects are determined, is to be exclusive in character, and it will be concerned with the organisation of scientific work in Australia, and with co-operation in international research, but it will not discuss or publish scientific papers.

Scottish Fisheries.

By PROF. W. C. MCINTOSH, F.R.S.

THE Thirty-ninth Annual Report of the Fishery Board for Scotland, 1920 (H.M. Stationery Office, 3*s*.), as usual, contains much important information connected with the Scottish fisheries. In the introduction the Board refers to the present depressed condition of the industry, which is due, not to dearth of fishes of all kinds, but to industrial and transport troubles and the general unrest, as well as the partial dislocation of foreign trade in cured fishes. It bewails the increasing incursions of foreign trawlers in the Moray Firth, unmindful that the closure of the area beyond the three-mile limit was, as Lord Bryce and others long ago pointed out, the *fons et origo* of the trouble. The figures of the captures for 1920 show that with 1366 fewer boats than in the record year 1912 the quantity landed was 2,261,167 cwt. less. The supposition concerning the "accumulation" of fishes during war-time is conjectural.

The present remarks, however, mainly deal with the Board's scientific fisheries work, which, so far as its experienced staff is concerned, maintains its high standard. The Board apparently believes in the International Council for the Exploration of the Sea, yet it does not explain how this international *camaraderie* has failed to put an end to the raids of foreign trawlers in the Moray Firth. Indeed, it may well be doubted if, after twenty-one years' experience of the International Council, any practical result of importance to the British fisheries has resulted from the large expenditure, or evolved any solid basis for the revival of the scheme. The details of the Board's expenditure on this head should at once be published. Further, it is remarkable that the chairmanship of this Council has hitherto been only in British or German hands (often unscientific). The most experienced fisheries research workers firmly believe that, with all deference to the international exchange of views, real progress lies in the work of each country's scientific staff in its own ships and marine laboratories. That the Board is open to criticism is apparent from the fact that whilst other nations, notably the Danes, have worked up the life-histories of the food and other fishes collected in their ships in a praiseworthy manner, the large collection of eggs, larval, post-larval, and young fishes procured by the Board's steamer, with perhaps a few trifling exceptions, is unknown. Instead of leading the way in such work, the Board appears to pin its faith in this department to endless, but expensive, statistics of captures here and there. It clings to the notion that by a size-limit or by the closure of areas of the North Sea (which it formerly abjured) plaice will be benefited—forgetful of the persistence of this fish, notwithstanding the pessimism of nigh a thousand years. The recent work of Dr. Petersen, of Copenhagen, on intensive plaice-fishing will afford the Board some information on this head. The Board's intention to ascertain the present condition of the fishing-grounds (an advice given many years ago) is to be commended, as also is the development of oyster fisheries, though the decline of the oyster fisheries of the Forth is as yet unremedied. A profitable field for the energies of the Board would also be the encouragement of the canning of the sprats from the Forth, Tay, and other places.

The Board finally alludes to the reorganisation of its scientific staff, and it is to be hoped that, warned by the experiences in the Fishery Departments of England and Canada, untried, or even non-scientific, men will not be placed over the heads of trained scientific workers of perhaps a quarter of a century's experience. Whilst these public Departments have in many respects a free hand, science and the public also have rights, interference with which will soon lower the status of those who enter on such work.