

Perth Meeting of the Australasian Association for the Advancement of Science.

THE eighteenth meeting of the Australasian Association for the Advancement of Science was held in Perth during the week commencing on Monday, August 23, but was extended in the form of excursions well into September. As this was the first time the Association had consented to visit Western Australia, special efforts were made to induce members from the other Australian States and New Zealand to attend the meeting. The State Government of Western Australia granted £1,200 for printing and publishing, and offered free transit over the State railways to all visiting members; and the Australian Commonwealth Government was induced for the first time to contribute towards the general expenses of the meeting the sum of £750, out of which travelling allowances were paid to members of known scientific standing who came to Perth over the Transcontinental Railway. Furthermore, private hospitality during the meeting was arranged in Perth for all members from other States who would accept it, and on most of the excursions members were carried free.

In response to the invitation more than 200 members from the other Australian States and New Zealand attended the meeting. To transport this number in addition to the ordinary traffic an average distance of more than two thousand miles each way taxed the resources of the Transcontinental Railway, but the task was satisfactorily accomplished. About half the visitors, including most of the principal officers of the Association, were carried in a special train, thus making the overland journey an excursion in itself. The total enrolment for the Perth meeting included about 750 members and more than 200 associates. Among the visiting members were delegates from some fifty scientific, technical, and educational bodies in the other States, and delegates from the Commonwealth Government and the Governments of New Zealand, New South Wales, and South Australia. More than twenty scientific and other bodies in Western Australia also sent delegates to the meeting.

At noon on Monday, August 23, the Mayor of Perth gave a civic reception to the Association in the Perth Town Hall. In the afternoon Mr. G. A. Julius, chairman of the reconstituted Council for Scientific and Industrial Research, addressed the Association on the organisation and aims of that body, and explained the important influence its activities must have on the future development of pure and applied science in Australia. In the evening the incoming president, Prof. Edward H. Rennie, delivered his inaugural address in the Perth Town Hall on "The Chemical Exploitation, Past, Present, and Future, of Australian Plants." The retiring president, Lieut.-General Sir John Monash, presided, and at the close of the address a cordial vote of thanks was proposed by the Governor of Western Australia (Sir William R. Campion) and seconded by the Mayor of Perth. On Thursday, August 26, the University of Western Australia gave a garden party in its new grounds at Crawley. Three meetings of the General Council were held during the week, the most important business done being to adopt a new constitution for the Association and to advance the Subsection of Pharmacy to be a full Section to be designated "Section O." Sectional business extended from Tuesday, August 24, to Friday, August 27, inclusive, meetings being held in the daytime in the Perth Modern School and in the evening in the temporary buildings of the University. At the end of the week most of the visitors left to take part in various long-distance excursions.

An innovation tried in some of the sections at the Perth meeting was to hold evening sessions for papers and discussions on topics of more general interest, including in a few cases the sectional presidential address. This was to enable local business and professional men to take part who could not have attended in the daytime, thus extending the opportunities of the general public to share in the activities of the Association. The innovation was fully justified by results, and will probably be taken as a precedent at future meetings.

In his inaugural presidential address, Prof. Rennie, after an appreciative reference to the late J. H. Maiden, for many years general secretary of the Association, and Mr. F. G. Smith, well known for his work on the eucalyptus oils, gave a brief summary of recent work on the structure of the atom, the discovery of new elements, the possibility of atomic transformation, and the significance of the penetrating radiation discovered by Millikan. The main part of the address dealt, however, as its title implies, with the constituents and economic possibilities of Australian plant products, much of it describing Prof. Rennie's own work of the past forty years. The chief plant constituents and products considered were essential oils (eucalyptus, sandalwood, boronia, etc.), gums and resins, coloring matters, and the poisons which cause so much loss to stock owners and farmers. Prof. Rennie strongly urged the need in all the Australian States for active reforestation to maintain a supply of raw materials, and for research on new products and on methods of utilising the present great waste from timber mills.

At the conclusion of his address, the president presented the Mueller medal of the Association to Prof. F. Wood Jones, for distinguished work in anthropology.

In Section A (Astronomy, Mathematics, and Physics) Prof. Kerr Grant gave the presidential address on "Atomic Transmutation." He showed that the developments in physics during the past twenty-five years are based chiefly on the theory of relativity, the quantum theory and the theory of the nucleus atom. The various attempts that have been made to bring about transmutation were reviewed and discussed, and the conclusion was drawn that transmutation of the heavier elements by artificial means, although not improbable, has not adequately been proved.

In his presidential address to Section B (Chemistry) on "Some Aspects of the Problem of Molecular Structure," Prof. James Kenner reviewed the chemical and physical data at present available for developing a rational theory of molecular structure. Such a theory must account for the intricate structure of carbon compounds as well as for absorption, catalysis, and molecular association, the last being specially important since substances like the proteins and rubber have been shown to be associations of relatively simple molecules. Prof. Kenner believes that a firm basis for such a theory and the means to develop it are already at hand. This address followed that in Section A, the two addresses in fact being the first items in a joint discussion of the two Sections on "The Atom and Valency."

In Subsection B₂ (Pharmacy) Mr. A. T. S. Sissons gave the presidential address on "The Indebtedness of Pharmacy to Organic Chemistry," summarising the achievements of organic chemistry in purifying and standardising naturally occurring drugs, and in synthesising these together with many others not found in Nature.

In Section C (Geology and Mineralogy) Sir Douglas Mawson, president of the Section, gave an address on "The Igneous Rocks of South Australia—a Brief Survey of Present Knowledge Relating Thereto." Igneous activity in South Australia appears to have been restricted to four periods: the older pre-Cambrian, as seen at Port Lincoln and Carrow; middle pre-Cambrian, shown by uncrushed granites in the Eyre Peninsula; late pre-Cambrian, as in parts of the Mt. Lofty Ranges; and Tertiary, as in the effusions in the Mt. Gambier district and on Kangaroo Island.

Prof. Launcelot Harrison, president of Section D (Zoology) gave an address on "The Composition and Origins of the Australian Fauna, with special reference to the Wegener Hypothesis." The Australian fauna seems to have had three main origins: an Autochthonian, established in the south-west in very early times; a Euriotian, probably derived by way of the Antarctic continent in Mesozoic or Miocene times; and a more recent Papuan element. The address served also to open a joint discussion between Sections A, C, D, E, and M on "Biological, Geological, and Physical Evidences regarding the Relationship of Australia to other Lands, with special reference to the Continental Drift Theory."

In Section E (Geography and History), Prof. Ernest Scott took as the title of his presidential address "The Discoveries of the Western Australian Coast, with especial reference to Dampier and D'Entrecasteaux," in which he gave the results of an examination of documents bearing on the history of the ill-fated D'Entrecasteaux Expedition in the Archives Nationales in Paris.

The presidential address in Section F (Ethnology and Anthropology), by Prof. F. Wood Jones, contained caustic comment on the treatment meted out to the Australian aborigines in the past, and urged that the only way in which the race can be saved from extinction is by establishing native reserves, where the natives can live their own lives under natural conditions and be protected from pauperisation.

In Section G (Social and Statistical Science) the president, Major L. F. Giblin, took as the title of his address "Federation and Finance—an Examination of the Financial Relations of States to a Federal Commonwealth." In this he showed that the present financial arrangements between the Commonwealth and the States, including taxation, are almost exclusively on a *per capita* basis, which is inequitable, as wealth and population do not run parallel.

Sir Charles Rosenthal, president of Section H (Engineering and Architecture), was unable to attend, but forwarded his address on "Nation Building," which was read to the Section. The address dealt with the dependence of the progress of civilisation on engineering and architecture, and amongst other things urged the necessity on strategic and economic grounds for a uniform gauge for the Australian railways.

In Section I (Sanitary Science and Hygiene) the president, Dr. F. S. Hone, gave an address on "Notification and its Relation to the Prevention of Disease," in which he showed the great need for co-ordination

and reform of the methods of notification in use in the Australian States. To make notification effective for controlling disease, the number of permanent medical officers of health will have to be increased.

In Section J (Mental Science and Education) Mr. P. Board spoke on "Economic and Social Values in Education." Education creates the soul of the nation, acting as the sum of the effects of all the teachers on all the pupils. An extension of the school age is desirable, but will probably require some form of family endowment.

Mr. C. E. Lane Poole, president of Section K (Agriculture and Forestry), who was unable to attend, forwarded an address on "Forestry and Land Settlement." Forestry is agriculture on a long rotation, and to convert good forests into poor grazing land, as so often happens in Australia, is economically unsound; also the wholesale destruction of forests affects the climate adversely.

Prof. J. Douglas Stewart addressed Section L (Veterinary Science) on "The Relationship of Veterinary Science to the Prosperity of the State." Heavy losses of stock are caused annually by parasitic and other diseases. These can be combated successfully only by preventing infestation, but this requires a knowledge of the life history of the parasites, which in many cases we do not possess. Much research is needed, but the veterinary services of the Commonwealth are sadly undermanned.

In Section M (Botany) Prof. A. J. Ewart gave his address on "Past, Present, and Future Development of Botanical Science," dealing with the killing of weeds by poison, which at present is done on purely haphazard and empirical lines, the need for botanical research in Western Australia, and modern views on the ascent of sap in trees.

In the new Section N (Physiology and Experimental Biology) Prof. W. A. Osborne gave the presidential address on "The Study of the Reflex." The response to changes in environment is one of the most obvious manifestations of life, and the higher the organism the wider the range of environmental changes to which it is sensitive. In man the highest form of reflex action is found in the emotions. Prof. Osborne suggested that many body changes that seem without purpose in the individual become clear when the individual is regarded as a member of a society, as they express the interaction between him and his fellows.

Most of the sections had very full programmes. Intersectional discussions were a prominent feature of the meeting, the following discussions being held in addition to those already mentioned: "Catalysis and Enzyme Action" and "Hydrogen-ion Concentration" (Sections B and N), "Teaching of Hygiene in Schools" (I and J), "Soil Classification and Survey" (B, C, K, and M), "Adult Education and the Workers' Educational Association" (E, G, and J), "Poison Plants" (B, K, L, and M), "Water Supplies—Domestic, Agricultural, and Pastoral" (B, C, H, I, K, L, and N), "Treatment of Low-grade Ores" (B and H), "Biological Control of Pests" (D, K, L, and M), and "Timber Preservation" (B, H, K, and M).

Danish Observations of the Planet Jupiter.¹

THE observations of the planet Jupiter made at the Urania Observatory, Copenhagen, during the period 1919-24 are summarised in the publication before us. By far the greater part of the report,

however, deals with the observations secured during the very remarkable apparition of 1919-20—an apparition which saw the revival of the well-known hollow in which the Red Spot normally lies, the south tropical disturbance, and the south component of the south equatorial belt—all of which had disappeared in the earlier part of 1919. In the succeeding apparitions, bad meteorological conditions, and later the

¹ La surface de la planète Jupiter 1919-1924. Par C. Luplau Janssen. (D. Kgl. Danske Vidensk. Selsk. Skrifter, naturvidensk. og mathem. Afd., 8 Række, XI., 1). Pp. 88+7 plates. (København: Andr. Fred. Høst and Son, 1926.) 10 kr.