

THE AUSTRALIAN NATIONAL UNIVERSITY

CANBERRA, AUSTRALIA

NEWS

Issued by the Registrar for private circulation within the University.

No. 7

March, 1951

GEOPHYSICS AND EARTH STRUCTURE

During the visit of Professor J. T. Wilson, Professor of Geophysics in the University of Toronto, to Australia last year, he conducted a seminar on the theme "Geophysics and Earth Structure." The Seminar was held in Canberra on 25th and 26th September, 1950, and Professor C. E. Marshall, of Sydney, was in the chair. The following brief note of the discussions has been supplied by Dr. A. H. Voisey, of Armidale. Dr. Voisey has prepared a fuller summary of the contributions made at the seminar and copies of the summary will shortly be available from the Registrar.

Professor J. Tuzo Wilson from the University of Toronto, Canada, opened the seminar by stressing the growing importance of Physics as an aid to geology. Physical methods provided new tools destined to be used more by geologists in the future. The hammer as the chief tool of the geologist was being superseded as more accurate information of the earth's crust at depth was required.

Professor Wilson then discussed the fundamental structure of the earth's crust dealing the so-called "Archaean-type" rocks which were well exposed in the Canadian Shield. Lantern slides were used to indicate how geological structures show up on the aerial photographs of the treeless north of Canada. Transcurrent and thrust faults were illustrated and discussed. Some of these major fractures have been taken as boundaries between distinct geological provinces. These provinces are defined primarily by differences in the rock types and foliation patterns. Age determinations by means of the content of radio-active materials have been very useful in lending considerable confirmatory support. It was suggested that similar determinations should be made of all the Pre-Cambrian areas in Australia as an aid to the interpretation of structure.

Professor Wilson explained his theory of continental growth by orogenesis using slides showing the subdivisions of the Canadian Shield and their ages. The older areas, up to 2,000 million years old, were separated by the roots of newer mountain ranges.

After the series of the orogenic episodes forming successive mountain ranges of which the roots of the latest are preserved in the Alleghenies and Adirondacks, the orogeny in North America seems to have moved to the western side of the Continent. A comparison of the Cordillera range with the remnants of the older Canadian mountain ranges show many structural similarities. At present a new geosyncline is forming north-east of Labrador and around Newfoundland.

The speaker then discussed ideas concerning island and mountain range arcs along the Pacific west coast of America and round the Pacific generally. From each junction of a pair of arcs two usually well defined lineaments extend at angles of slightly more than 45 degrees with the general line of the arcs. Mining activity tends to occur along these lineaments. He considered that the formation of the arcs and lineaments should lend itself to more precise treatment in mathematical and physical terms.

Dr. Haddon King gave an account of the Pre-Cambrian rocks of the Barrier Ranges and he was followed by Professor R. T. Prider who spoke mainly on the southern portion of the Western Australian Pre-Cambrian Shield.

Mr. R. C. Sprigg produced a plan showing the distribution of fold axes in the Adelaide Geosyncline and discussed the brecciola type sediments which figured prominently therein.

Mr. H. S. Thirlaway gave details of a recent gravity traverse from Sydney to Rockhampton showing the Bouguer Anomaly curves.

The second session was introduced by Mr. J. M. Rayner whose talk consisted of an outline of the types of geophysical work used in exploration, their present trend and economic aspects.

Mr. C. Kerr Grant collated all the gravity results in South Australia by various observers. The plan of the Bouguer Anomalies showed a good correlation with the broad geological structure.

Mr. R. F. Thyer described the results of a number of applications of various geophysical methods used for the delineation or elucidation of subsurface structure particularly in relation to coal deposits.

Professor W. H. Bryan, who introduced the third session on "Continents and Ocean Basins," gave a very comprehensive account of the various theories of the

continental growth. He considers that there are three levels of reference, sub-Pacific, sub-Atlantic and Continental.

Dr. G. D. Osborne discussed eclogite, anorthosite and peridotite in relation to earth structure. Dr. N. Boutakoff described the existence of parallel lineaments in various parts of the earth. Many of these are great circle lines.

The final session on Seismology was opened by Professor K. E. Bullen, who discussed two Earth models and some of the other planets. He considered that the following postulates together fit all the available data (i) The density changes in the earth at 2900 km are due to pressure and not chemical changes. (ii) The earth, Mars and Venus have a common primitive composition. (iii) Compressibility is a simple function of pressure throughout all three planets, for pressures greater than 400,000 atmospheres. (iv) The Earth's density distribution is closer to that in one or other of the two models discussed. (v) The Earth's inner core is solid. A new theory of the origin of the moon was put forward.

Professor S. Warren Carey showed the plot of 268 deep focus earthquakes characterised by three peaks. He considers that intermediate and deep focus earthquakes are consistent with a theory of convective circulation in a glassy substratum.

Father D. J. O'Connell gave details of Australian earthquakes recorded on the Riverview seismographs since 1909.

INTERIM COUNCIL

47th Meeting, 9th February, 1951

48th Meeting, 9th March, 1951

Enrolment, Courses and Degrees.

The Council, on the recommendation of the Board of Graduate Studies, has made a Statute and a set of Rules about the enrolment of students and the requirements for degrees.

Faculty Organisation.

After consultation with the Board of Graduate Studies, the Council has decided to establish a Faculty within each of the Research Schools of the University. Each Faculty will comprise the Director, Professors, Readers, Senior Research Fellows and Fellows of the School concerned, and the Schools themselves and the Academic Advisory Committee will be asked to consider the desirability of including Research Fellows in the Faculty membership. Each Faculty will elect a Chairman.

There will also be a Joint Committee of the Faculties of Social Sciences and Pacific Studies, comprising the Heads of Departments in those Schools, to consider matters of common interest. This body will meet by arrangement between the two Faculty Chairmen.

The Council has asked that, pending the passage of legislation to create these bodies, they should begin to function on an informal basis, and meetings have already been held.

Procedure for the Appointment of Professors and Readers

The Council has approved the procedure suggested by the Board of Graduate Studies for the filling of the position of Professor or Reader. When a vacancy occurs the Board, after consulting the Council about any desirable alteration in the existing conditions of the appointment concerned, will appoint a small committee of its members. The Committee will consider whether the post should be advertised, and will also have power to make such personal enquiries and consult such advice as it thinks fit. The Board, after receiving the Committee's report, will make a nomination to the Council, which will make the appointment. The Council has said that, if it is not prepared to adopt the Board's nomination, it will take no action other than to remit the nomination to the Board with comments.

Academic Salaries

After an exhaustive review of the salaries of the academic staff, the Council has decided on a revision of the salaries of certain classes of staff members, and has sought from the Government funds to enable effect to be given to its decision. This matter is still under discussion between the Prime Minister and the Vice-Chancellor.

Benefactions

Three benefactions have recently been reported to the Council. The late Lady Groom bequeathed to the University the sum of £500 to found a scholarship, preferably in law, to be called the Littleton Groom Memorial Scholarship (Sir Littleton Groom was for some time Attorney-General of the Commonwealth and Speaker of the House of Representatives).

Lady Isaacs, the widow of Sir Isaac Isaacs, formerly Governor-General, and for some time Chief Justice of the High Court, has donated the sum of £100 to further the work of the Department of Anthropology.

The French Ambassador (M. Padovani) has recommended his Government to provide the University with certain French periodicals nominated by the University Librarian.

Vice-Chancellor's Visit Abroad

The Council has granted leave to the Vice-Chancellor to enable him to accept the invitation of Sir Harlod Butler to attend a discussion of the European League for Economic Co-operation in London, and a conference of the League in Brussels, towards the end of May, 1951. Sir Douglas will be absent from Canberra for about five weeks from May 19th. While in England he will meet members of the University's Academic Advisory Committee, and hold discussions on various University matters. On his return journey he will spend a few days in New York.

Professor Oliphant's Visit to Pakistan

Leave has also been granted to Professor Oliphant, who has been invited to visit Pakistan to advise the Government of that country on scientific and educational matters. He will be away for some three weeks in April.

Rutherford Memorial

The Council has authorised the establishment of a fund to receive donations to the Lord Rutherford Memorial, which has been established by the Royal Society of London. Persons or bodies interested in the project may have further information from Professor Oliphant.

International Universities Bureau

The Council is considering whether the University should seek membership of the recently established International Universities Bureau. A report of the conference at which the Bureau was established has lately come from Mr. E. H. Clark, who attended on the University's behalf.

Attendance at Celebrations

The Vice-Chancellor will personally represent the University at the 500th anniversary celebrations of the University of Glasgow in June.

The Council is considering its representation at the official opening of the Institute of Commonwealth Studies in the University of London on 1st May.

London Office

The Council has decided to continue for the time being the University's office in London, which was established early in 1949 for an initial period of three years. About the end of 1951 Mr. E. H. Clark, the present Administrative Officer in the United Kingdom will return to duty in Canberra, and will be succeeded by Mr. R. L. Mathews, now the Vice-Chancellor's Assistant.

BOARD OF GRADUATE STUDIES

The Board of Graduate Studies, which held its first formal meeting on 4th December, 1950, met on 5th February and on 26th February, 1951. In addition to the matters referred to in connection with the business of the Interim Council, the Board has devoted discussion at its early meetings to such matters as the steps to be taken to fill the Chairs of History, Political Science and Social Philosophy; the creation of a Chair of Statistics; the means of publishing works produced by members of the staff, and the establishment of a Library Committee.

The Interim Council has approved a suggestion that the Registrar and the Librarian should be members of the Board of Graduate Studies.

BUILDING DEVELOPMENTS**Medical School Building**

It has not yet been possible to call tenders for the building of the Medical School laboratories, but sufficient details are available for this purpose as soon as certain remaining difficulties are disposed of.

Physics Buildings

Progress on the main Physics building is, for a

variety of reasons, outside the University's control, disappointingly slow.

A contract has been let for the building of a small high-tension laboratory adjacent to the main building. The high-tension laboratory will house equipment with which Professor Titterton will be particularly concerned.

The temporary store and workshop building mentioned in the last issue of the "News" is now in use.

Old Hospital Buildings

A large part of the Old Hospital Buildings on the University site has now been taken over as temporary headquarters of the Research Schools of Social Sciences and Pacific Studies. The rooms in question are now being renovated and redecorated.

University House

The progress of the building of University House continues steadily and satisfactorily. An attempt will be made to get a limited number of rooms ready for use later this year, though this will necessitate installing some temporary cooking facilities in advance of the main kitchen and dining room installations. In this way it may be possible to bring the north wing into substantial use early next year.

GENERAL DEVELOPMENTS**Convocation**

Convocation has now been constituted. It consists of past and present members of the Interim Council and the Academic Advisory Committee; certain members of the academic and administrative staff of the University; the Chancellors and Vice-Chancellors (or equivalent officers) of the other Australian Universities and University Colleges; and five members nominated by each of these institutions. The Interim Council has admitted Mr. R. G. Osborne, Registrar of the University from 1947 to 1949, as a member of Convocation. The total membership is now over 100.

Establishment of Permanent Council

Steps are being taken to constitute the permanent Council of the University. Nominations have been called for the election of six Council members by Convocation, and for the election of three members by the staff. Full details of the arrangements for these elections are available to qualified voters from the Registrar. The Houses of Parliament and the Governor-General have been asked to designate their members.

It is expected that the Interim Council will hand over the government of the University to the permanent Council early in July.

Enrolment, Courses and Degrees

The Statute on this matter recently made by the Interim Council provides that the following degrees may be conferred by the University:—

- Masters of Arts (M.A.)
- Master of Science (M.Sc.)
- Doctor of Philosophy (Ph.D.)
- Doctor of Science (D.Sc.)
- Doctor of Letters (Litt.D.)
- Doctor of Laws (LL.D.)

The Rules made under the Statute set out the requirements for enrolment and for entitlement to degrees. It is contemplated that the normal entrance requirement will be the holding of a **Master's** degree of a recognised University, or at any rate **graduation** with honours plus at least one year's post-graduate research training.

A person seeking enrolment will be required to submit, after discussion with the appropriate Professor, a scheme of study and research on which he wishes to embark. The Board of Graduate Studies will, if it approves the scheme, admit the student either as a student for a degree or as a student not proceeding to a degree, and will allot the student to a Department and appoint a supervisor of his studies.

The normal period of work for the Ph.D. will be three years, and for a Master's degree two years. These periods may be reduced by one year on account of appropriate work done previously, and provision may be made for the student to undertake part of his work at another institution or in the field.

Students will be required to reside within easy access of the University, single students being expected to live in University House. The University will adopt the three-term academic year common to the Australian Universities, and students will be required to be at work during those terms and at such other times as their supervisors direct.

In appropriate cases, members of the staff will be at liberty to become candidates for degrees.

M.A., M.Sc., and Ph.D. candidates will be required to submit, at or shortly after the end of their prescribed courses, theses embodying the results of their work. Each thesis will be examined by at least two examiners, of whom one will be external to the University. **An oral examination** will also be required.

Provision is made for joint candidatures for degrees.

The senior degrees of Litt.D., D.Sc., and LL.D. will be open to graduates who have a substantial connection with this University. Admission to the degree will be by way of the examination of the candidate's published work, and before the degree is conferred the examiners will be required to certify that the work submitted constitutes an original and substantial contribution to knowledge and scholarship.

Brassey House

The University has purchased the lease of Brassey House, and will take possession of the premises at the end of March. Brassey House is one of the **older permanent** hostel buildings in Canberra, and is well situated in the suburb of Barton. The building comprises, apart from staff quarters and community rooms, 35 single and 13 double rooms.

The University will continue the tenancies of present guests of the house, and will use it, as rooms become available, for the accommodation of certain members of the staff, particularly for members of the technical, secretarial and clerical staff. The building will also be valuable for the temporary lodgment of other members of staff whilst permanent accommodation is being arranged for them.

The Council has appointed Mr. E. R. Cottier, Assistant Manager of the Hotel Canberra, as Manager of Brassey House, the understanding being that when University House is ready for occupation Mr. Cottier will become its Secretary-Manager. Mr. and Mrs. Cottier will take up duty at Brassey House during April.

Scholars

Mr. G. R. Storry's scholarship has been extended for three months from 1st January, 1951, and Miss A. M. McArthur's for twelve months from 1st May, 1952.

The following scholarships have been awarded:—

Medicine:—

R. L. Blakley (Biochemistry)
J. F. Morrison (Biochemistry)
H. Harris (Experimental Pathology)
A. Hampton (Medical Chemistry)
Rosamond M. Eccles (Physiology)

Social Sciences:—

C. S. Soper
A. J. H. Marriage

Pacific Studies:—

K. O. L. Burrige
P. M. Worsley

General:—

J. R. Cannon
A. H. Donagan
D. J. Mulvaney

A special one-year scholarship tenable in Germany has been awarded to P. R. W. Barbour.

It has been decided to require scholars to undergo a medical examination by a physician designated by the University before taking up their awards.

Rhodes University College, Grahamstown

The University was represented at the inaugural celebrations of Rhodes University College during March by Mr. R. W. Parsons, Senior Lecturer in Law in the University of Western Australia, who is at present studying in South Africa under a scholarship awarded by this University.

Visiting Scholars

Professor Nicholas Mansergh has just concluded his tour of five Australian Universities as the University's guest. On 2nd and 3rd March he led a seminar in Canberra on "The British Commonwealth, with special reference to security problems in the Atlantic, Pacific and Indian Ocean areas." A report of the seminar will appear in a later issue of the "News."

Sir Richard Livingstone has accepted an invitation to visit Australia as the guest of the University. He will be in Australia from about 27th August until early November. Sir Richard is a former Tutor and Fellow of Corpus Christi College, and a past Vice-Chancellor of Oxford and of Queen's University, Belfast. Among his well-known publications are "The Future of Education," "Education for a World Adrift" and "Some Tasks for Education."

Jubilee Seminars

Plans are now well in hand for the two seminars which the University will hold as part of the Commonwealth Jubilee Celebrations.

The first seminar will be on the theme "Science in Australia," and will be held on 25th-27th July. Sir Edward Mellanby and Dr. Conant will be the guest scholars on this occasion. Arrangements for the seminar are being made by Professor Oliphant.

The second seminar, on the development and prospects of federation in Australia, will be divided into two parts. The first part, on 22nd-24th August, will deal mainly with the problems of public finance and administration implicit in federal government, and at this session Professor W. A. Mackintosh, of Queen's University, Ontario, and Professor J. L. Montrose, of Belfast, will be the principal contributors. The second part, on more general constitutional problems, will be held on 20th-21st September, when the principal visiting speaker will be Professor Wheare. Professor Sawyer is arranging the federalism seminar.

Pacific Studies Discussions

Professor Firth, the Adviser to the Research School of Pacific Studies, will arrive in Australia in the middle of August. He proposes to spend some months in Canberra, and then undertake a piece of field work among a native community in the British Solomon Islands Protectorate.

While in Canberra Professor Firth will hold discussions with the staff, fellows and scholars of the School about the School's plans for future work, and from 27th-29th August he will preside over a conference of the School with other bodies interested in research in the Pacific Area. Dr. Margaret Mead, the distinguished American anthropologist, who will be visiting Australia at the time as the guest of the New Education Fellowship, will attend this conference.

Professor Firth will return to his Chair in London in about September, 1952.

Visit of Sir Howard Florey

Sir Howard Florey, Adviser to the John Curtin School of Medical Research, will visit Australia for about a month from the beginning of September. Thus all the members of the Academic Advisory Committee will be in Canberra in or about the third quarter of the year, and opportunity will be taken to discuss with them the present stage of the University's development, and the problems which confront it.

Physics Seminar

During February Professor Oliphant convened a meeting of Australian physicists and mathematicians in Melbourne for discussions with Professor W. Gentner, Professor of Physics in the University of Freiburg.

Morrison Oration

On the evening of 19th March Mr. C. P. Fitzgerald, Visiting Reader in Oriental Studies, delivered the Morrison Oration in the Albert Hall. His subject was "The Revolutionary Tradition in China." Copies of the address are available from the Registrar.

The Morrison Oration was established in 1932 with the object of improving cultural relationships between Australia and China, and of honouring the name and work of a great Australian—Dr. Ernest Morrison. The oration was administered until 1948 by the Australian Institute of Anatomy, but is now conducted under the auspices of the University.

STAFF MEMBERS

New Appointments

Professor J. C. Jaeger has been appointed Professor of Geophysics in the Research School of Physical Sciences. Professor Jaeger is Professor of Applied Mathematics in the University of Tasmania.

Professor Jaeger was born in 1907 and attended the Sydney Church of England Grammar School. He graduated with first class honors and the University Medal in Mathematics and Physics from the University of Sydney, and in 1928 went to Cambridge as the Barker Graduate Scholar. In 1930 he took a first class and the Mayhew Prize for Applied Mathematics in the Mathematical Tripos.

Until 1936, when he was appointed Lecturer in Mathematics in Hobart, Professor Jaeger carried on research at Cambridge under the late Professor R. H. Fowler.

In 1942 Professor Jaeger was awarded the D.Sc. degree of the University of Sydney. For periods during 1943-44 and in 1948 he was associated with the C.S.I.R.O.

Professor Jaeger is the author of many publications, including the widely known book "Operational Methods in Applied Mathematics" written in collaboration with Professor H. S. Carshaw.

Professor Jaeger expects to take up duty in Canberra early in 1952.

Mr. F. Scarf has accepted an appointment as Reader in Radiochemistry in the Research School of Physical Science.

Mr. Scarf, who is married and has two children, is at present Area Chief Scientist with the National Coal Board in England.

Mr. Scarf graduated B.Sc. (Hons.) in the University of Birmingham in 1921. The following year he was awarded his M.Sc. From 1922-31 Mr. Scarf held various appointments on the academic staff of the University of Birmingham and for some time was Research Worker in Fuel in the Mining Research Laboratory under the late Professor J. S. Haldane.

From 1931 to 1947 Mr. Scarf was in charge of the D.S.I.R. Coal Survey Laboratory, Birmingham, where, in addition to work on problems relating to the physical and chemical survey of coal seams, he carried out work on problems relating to the best utilisation of the national coal resources.

Since 1948 Mr. Scarf has worked in the National Coal Board.

Mr. Scarf is 52 and expects to take up duty in Canberra at the end of the year.

The Hon. Michael Lindsay, was recently appointed Senior Research Fellow in the University's Research School of Pacific Studies.

Mr. Lindsay, who is 41, is a Master of Arts of Oxford, his special subject of study there being Economics. After a period of post-graduate study at Trinity College, Cambridge, he undertook work connected with an industrial survey of South Wales, and then went to Yenching University, Peking, where he organised a course in philosophy, politics and economics, using methods similar to those used in Oxford.

When Peking was occupied by the Japanese, Mr. Lindsay escaped from the city, and took a vigorous part in anti-Japanese organisations working in Free China. He returned to England in 1945, and shortly after conducted a lecture tour in Canada and the United States. He spent the academic year 1946-47 as a visiting Lecturer at Harvard. Since 1948 he has been Lecturer in Economics at University College, Hull.

Mr. Lindsay is the eldest son of Lord Lindsay of Birker, Master of Balliol College, Oxford, from 1924 to 1949. He will work in the Department of International Relations with the Head of the Department, Professor Crocker.

Dr. G. de Vaucouleurs has been awarded a Research Fellowship in Astronomy. Dr. de Vaucouleurs, though only 32, is a Doctor (in Physics) of the University of Paris, and has had considerable research experience both in France and England. He will work under Professor Woolley at Stromlo on a photometric and spectroscopic survey of extra-galactic nebulae.

News and Movements

Professor Nadel (Anthropology) arrived in Canberra to take up duty late in February. On their way from England Professor and Mrs. Nadel and their daughter spent some time in the United States.

The Visiting Reader in Oriental Studies, **Mr. C. P. FitzGerald**, arrived from England (via Hong Kong) and took up duty in Canberra during January. Mrs. FitzGerald and her three children arrived direct from England at the same time.

Mr. A. L. G. McDonald, the University Librarian, has returned from a visit to the United Kingdom and the United States, and has taken up duty in Canberra.

Mr. Maurice Brown, the Registrar's Assistant, has been granted leave to spend a few months in the United Kingdom early in 1952, at the invitation of the trustees of the Nuffield Foundation. Mr. Brown has been Secretary of the Foundation's Australian Committee since its inception early in 1948.

Professor Eccles (Physiology) visited Canberra during January and February for discussions on the build-

ings to be erected for the John Curtin School of Medical Research. He was present at the meeting of the Board of Graduate Studies on 5th February.

The Medical School Laboratory Manager, **Mr. A. F. Bunker**, who has been on duty for several months in Melbourne, has left for England. Mr. Bunker will return to Australia with his family towards the end of the year to take up duty permanently.

Mr. L. Strudwick has resigned the office of Buildings and Equipment Officer on being appointed Assistant to the Director of the Associated Chambers of Manufactures of Australia in Canberra.

Mr. A. A. McDonald has taken up duty as Mr. Strudwick's successor, with the title of Property and Purchasing Officer. Mr. McDonald was formerly Accountant and Property Officer in the University of Western Australia. He and Mrs. McDonald arrived in Canberra on 19th February.

Miss Dorothy Lober, the Registrar's Secretary, will be married on 31st March to Mr. R. J. Cameron. Mr. Cameron is Lecturer in Economics at the Canberra University College.

MISCELLANEOUS

The *Commonwealth Universities Yearbook* for 1951 is available to members of the University for £1/6/-sterling. The Yearbook is published by the Association of Universities of the British Commonwealth, and is the standard reference work for information concerning the staffs and proceedings of the Universities of the Commonwealth.

ACADEMIC VACANCY

The following advertisement has been published:—

Applications are invited for appointment as Senior Research Fellow in Economic History. The Fellow will be required to reside in Canberra and to devote his whole time to research, with particular reference to Australian economic history. The Fellow will be appointed for three years, and may be re-appointed for a further two years.

The salary of Senior Research Fellows is at present under review, but the commencing salary will not be less than £1,200 Australian per annum. A cost of living adjustment (at present £164 per annum) is payable. Provision for superannuation is made.

Fuller details of the conditions of appointment are available from me.

Applications, together with the names of three referees, should be lodged not later than 18th April, 1951, with the Registrar, Australian National University, Box 4, G.P.O., Canberra.