

Abstracts of Proceedings

27TH FEBRUARY, 1947

Annual Meeting

The Annual Meeting was held in the Society's Room, Tasmanian Museum. His Excellency the Governor, President of the Society, presided.

The following Office-bearers were elected for 1947:—Mr. W. H. Hudspeth was elected Vice-President for two years in the place of Mr. Henry Allport, who retired under Rule 12; Honorary Secretary, Dr. J. Pearson; Assistant Honorary Secretary, Mr. D. C. Pearse; Honorary Treasurer, Mr. S. Angel; Honorary Auditor, Mr. H. J. Exley.

The following were elected members of the Council for 1947:—Professor S. W. Carey and Mr. L. W. Miller were elected for three years in place of Mr. A. L. Meston and Mr. R. G. Brett, who retired under Rule 21; Mr. J. L. Somerville was elected in place of Mr. W. H. Hudspeth, who had been elected Vice-President, for the remaining two years of his office and Mr. J. W. C. Wyett was elected to take the place of Dr. H. D. Gordon, who was leaving Tasmania, for the remaining one year of his office.

The following were elected members of the Society:—Mrs. Winifred P. H. Radford, Mr. Paul Radford, Mr. M. C. Russell.

Dr. R. W. Fairbridge delivered an illustrated lecture dealing with 'Some Aspects of Structural Geology', of which the following is an abstract:—

Geological thought and method have evolved during the last 100 years, gradually and without revolutionary jumps, beyond the initial stage of the simple geological survey, the recording of facts relating to the composition of the rocks of the countryside and the mapping of these components to show a real distribution. More advanced studies are now possible, relating not only to the evolution of life, by means of fossils, but also to the analysis of sediments and igneous rocks by means of the microscope and other instruments.

But in addition to all this, a new science has grown up, that of structural geology—the study of rock forms, the shapes into which these rocks may be deformed during earth movements. Transferred onto a world-wide scale this is known as 'Geotectonics'. Structural geology is now used to unravel the secrets of ore deposition and of petroleum development, while geotectonic methods are used for predicting new fields for search.

It may be demonstrated, for example, how the distribution of oil-fields follows certain geotectonic belts, which have undergone a highly complex palaeogeographic evolution. Australia's geotectonic position lies outside the major belts, but there are certain restricted areas (about 5 per cent of the total) which would be foolish to ignore. Hitherto, there has been very little systematic mapping or research in this direction, but the formation of the initial nucleus of a federal geological survey in Canberra is a step in the right direction.

Australia needs a central geological survey and research agency as much as any country, young or old. It is last in the field in this respect and has a great deal of leeway to make up. The personnel of such a body should number not a handful, but hundreds or even thousands, when one considers the great need for reliable information about the rocks of this country for all sorts of developmental purposes, such as new land settlement, soil survey, main roads planning, railway construction, aerodrome building, artesian water supply, dam construction, water power, irrigation, not to mention all sorts of mineral resources from coal to oil and uranium.

1ST APRIL, 1947

A meeting was held in the Society's Room. Mr. W. H. Hudspeth, Vice-President, presided.

The following were elected members of the Society:—Mrs. G. R. Garner, Miss J. M. Turner, Miss J. Waterhouse, Mr. M. R. Banks, Mr. F. R. Dowse, Mr. T. D. Hughes.

Dr. H. E. Dadswell of the C.S.I.R. Division of Forest Products delivered an illustrated lecture entitled 'Forest Products Research', of which the following is an abstract:—

The first Australian forest products laboratory was established in 1919 in Perth, by the Institute of Science and Industry, under Mr. I. H. Boas, but this did not last long owing to the lack of funds, although work on the pulping of Australian timbers was carried on in Perth and later in Melbourne. This work formed the foundation of the Australian Pulp and Paper Industry of to-day.

In 1928 the newly constituted C.S.I.R. decided to form as one of its activities the Division of Forest Products with Mr. I. H. Boas as its first Chief. From that time the Division has grown and now has approximately 200 members on the staff.

During the war years the use of timber increased enormously and the need for knowledge of its properties, behaviour, etc., was urgent. To meet this demand the Laboratory had to be developed rapidly, and to-day there is a very great need for more fundamental research.

The organization of the Division is such that the various problems of forest products can be tackled in eight main fields:—Wood structure, wood chemistry, timber physics, timber mechanics, timber preservation, timber seasoning, veneer and gluing, and utilization dealing with applied aspects. As regards the work of the Section of Wood Structure, which is my own section, we endeavour to follow several main lines of investigation, including the structure of the cell, the study of wood anatomy in general, the influence of structure on properties, and the influence of growing conditions on structure.

The question of utilization of the material from the forest is of the greatest importance and new methods are constantly being investigated especially as regards the waste, sawdust and shavings, that are burnt every day.

The plastic industry is always on the lookout for wood-flour as a filler and up to the present that from softwoods is preferred. Sawdust can also be used in mixtures with cement with and without sand and the slabs or blocks so made have a definite value.

The Division in co-operation with the C.S.I.R. Building Materials Section is developing this line of work.

The University of Tasmania and certain other Australian universities have become interested in fields of forest products research and have trained workers in such fields. The goal is the complete utilization of the forest tree. One way of obtaining this close utilization is by co-operation of industries, the waste from one series of operations becomes the raw material for another. Tasmania seems ideally suited for forest products industries. It has available considerable hardwood forests and ample power with plenty of good water. Replanting of cut-over areas is necessary to maintain adequate supplies of raw material.

6TH MAY, 1947

A meeting was held in the Society's Room. Mr. L. Cerutti, Vice-President, presided.

Mr. W. Hudson was elected a member of the Society.

Mr. W. H. Hudspeth delivered an illustrated lecture entitled 'Leaves from the Diary of a Van Diemen's Land Official' which was published in full in the Papers and Proceedings for 1946.

3RD JUNE, 1947

A meeting was held in the Society's Room. Mr. W. H. Hudspeth, Vice-President, presided.

The following were elected members of the Society:—Mr. J. M. Boyes, Mr. G. R. Brettingham-Moore, Mr. L. K. Griffiths, Mr. G. C. Wade.

Mr. P. Radford delivered an illustrated lecture entitled 'An Introduction to Coleoptera'.

1ST JULY, 1947

A meeting was held in the Society's Room. Mr. L. Cerutti, Vice-President, presided.

Miss M. Balchen was elected a member of the Society.

Dr. J. Pearson showed aerial photographs which were lent by Mr. C. E. Radcliff, who had received them from Group Captain Courtney, Commanding

Officer at Point Cook, R.A.A.F. Station. The photographs were taken by R.A.A.F. personnel during the recent visit which was paid to Macquarie Island by R.A.A.F. planes.

The Honorary Secretary announced that the Government had agreed to make two sets of photographic prints of the Knopwood Diaries in the possession of the Mitchell Library, Sydney, the Government to retain one copy for the Government archives and to present the other copy to the Royal Society of Tasmania for the use of research students.

Dr. E. K. Emmerly delivered a lecture on 'Austrian Child Art', which was illustrated by drawings and paintings done by the children. The following is an abstract of the lecture:—

Most adults can't draw, i.e., they are completely unable of recording any visual impression on paper. What most adults call drawing is only a very primitive form of hieroglyphic writing: a circle represents a head, several straight lines indicate the relative positions of arms and legs.

Children begin to draw in exactly the same way but very soon their vivid imagination as well as their keen sense of observation urges them on to express what is going on in their minds. The Austrians Czizek, Thetter, Dworschak and others have proved, I think conclusively, by their results, that it is fatal for the teacher to interfere at this stage. The teacher as an adult has reached quite a different stage of development, and his advice, or worse still, his corrections have a disheartening, stifling effect on the child. It can only learn by trial and error.

The collection of Child Drawings and Paintings displayed in this room gives a true representation of the work done at an Austrian orphanage in the outskirts of Vienna. It is of special interest because the teacher, Herr Dworschak, has no opportunity of selecting his pupils. They come from the poorest strata of society, and—owing to the lack of funds—live under appallingly poor conditions.

Herr Dworschak maintains that he has never yet met a child that does not like to work. They all like to express their ideas if given the opportunity. Herr Dworschak provides them with paper, pencils, coloured chalks, paints, wood, clay, glass, copper, metal, and allows them to do anything they like. The first results are absolutely bewildering, and yet the teacher does not attempt to graft his own superior knowledge on to the child's mind, he only helps them by suggesting a few simple experiments. These must be as simple as possible to give every single child a chance.

In one lesson he told the children to cover a white sheet of paper with dots. Some children put all the dots into one corner, others spread them out evenly. He asked them: What figures do these dots suggest? Is not our sky covered with similar dots called stars? Immediately the children's imagination began to work.

Later on the same method was applied to the teaching of painting. The children took a damp sheet of paper, and then painted on it with a brush, first in one colour, then two or three colours together. The colours spread into all possible shades of dark and light, they ran into each other and produced new interesting tints. Again each child was left to make its own discoveries.

Herr Dworschak once asked them to paint a landscape in blue only, and to look at it for a long time. They were asked what it would feel like to walk in such a landscape, and they all agreed that they would have to walk slowly, it was so peaceful and quiet. One child suggested that modest people would like it. Red, on the other hand, is the colour of blood, passion, anger, fire. It gives warmth and movement, it predominates wherever it appears. Yellow is the sunlight, it cannot be caught, has no strength and no limits. Herr Dworschak knows many experiments with complimentary colours, which interest and amuse the class, and also give them an insight into the 'moral' or 'emotional' value of the different colours.

Another experiment: The teacher draws a mountain or a figure in the left bottom corner of the blackboard. The the children are asked to draw a cloud in the opposite space. Some draw it quite small, some big, but they soon discover that there is a certain relationship between the two, they learn to find the right proportion. You will see from the display of children's paintings how quickly they acquire a perfect sense of harmony and balance. Later, when they are taught to paint letters with a brush, Herr Dworschak points out to them that in their scribbles there is 'a constant war on' between the black script and the white paper. Whenever there is a large black blot or a white 'hole', the peace is lost. But if black and white are nicely balanced the battle is won, and harmony is restored.

What makes these paintings interesting is their originality. You see children in poor homes wearing their shabby wintercoats indoors, because it is very cold without a fire, and worse still, the washing is hanging from the line inside their one little room. In another picture you can see the people go to church on a Sunday. The church is quite small, and the people very large, but alas, their characters are unmistakably portrayed in their faces: some are proud and selfrighteous, others humble and devout. In a third picture we see a house on fire, but somehow the house is alive, pale, trembling, and the fire is personified, it approaches the house barking at it like a fierce dog. There are many other pictures of 'fire', glorious symphonies of colour: red, orange, purple, crimson.

Colour implies feeling. Shape in wood or clay expresses will power and force. It is not surprising that different children prefer different materials. Clay helps the imagination. You can alter and modify it, it grows under your hands. Wood needs purpose, a definite preconceived idea. Only older children can attempt to deal with it successfully, often with astounding results. The same applies to metal and copper work.

In playing ball and other games the child performs feats of agility, which arouse in him a great joy at his own prowess: it is the same when he achieves something in colour, on wood, metal, or any other substance. He takes up something which attracts his attention. His curiosity is not satisfied until he can create something new, but only after long trying does he achieve something that pleases him, that stimulates him to further efforts. As in playing ball it is only by continual practice that the child becomes expert in throwing and catching, so it is with the use of the materials offered him.

Though the teacher observes closely what the children are doing he says no word during their performances. They see in him a comrade, and an appreciative one to boot. One effort leads to another till at last the children have such joy in doing things that their joy is infectious. For their work is really joy bringing, not only to themselves but also to those to whom they can show and give their work. There can be no question of discovering future artists at that early age. When they leave school their minds will turn to other matters but the pleasure will remain. It may be that some particular talent will be discovered, but much more important at that age is the fact that the children discover themselves, and all the hidden faculties of thought, feeling, and expression, of which the human mind is capable.

5TH AUGUST, 1947

A special meeting was held in the Society's Room. Mr. W. H. Hudspeth, Vice-President, presided.

Rule 21 was amended to read as follows:—

Each member of the Council other than office-bearers shall be elected for a period of three years. Two members of the Council shall retire annually and shall not be eligible for re-election to the Council for at least one year, but shall be eligible for election as office-bearers of the Society. But a member who has been elected to fill a casual vacancy on the Council for a period of less than three years may be re-elected to the Council for a further term upon the expiry of his original appointment.

Rule 26 was amended to read as follows:—

The Standing Committee shall, subject to any direction given by the Council:—

- (i) Ensure that all papers and communications offered to the Society are examined and reported on by a competent authority; and decide whether they shall be printed.
- (ii) Arrange for the editing of the Society's Papers and Proceedings and for the printing and publication thereof.
- (iii) Arrange the programme of meetings, lectures, and other activities for the year.
- (iv) Purchase books for the Society's Library.
- (v) Prepare the annual and other reports to be submitted by the Council of the Society.
- (vi) Report to the Council on any other matter submitted by the Council to the Standing Committee.

5TH AUGUST, 1947

A meeting was held in the Society's Room. Mr. W. H. Hudspeth, Vice-President, presided.

The following were elected members of the Society:—Mr. J. H. Buckley, Dr. J. L. Grove, Dr. W. V. Tenniswood.

Professor V. V. Hickman delivered an illustrated lecture entitled 'The Life of the Crayfish', of which the following is an abstract:—

The marine crayfish, *Jasus lalandii* (Milne Edwards) belongs to the family Palinuridae. It was originally named *Palinurus lalandii* by Lamarck and described by Milne Edwards from a South African specimen in 1837. Ortmann in 1891 transferred it to the genus *Jasus*. Members of this genus lack the stridulating apparatus which is possessed by members of the genus *Palinurus*.

Jasus lalandii occurs mainly in a zone between 30 degrees and 45 degrees south latitude and has been recorded from Juan Fernandez, New Zealand, Tasmania, parts of the south coast of the mainland of Australia, St. Paul Island, South Africa, and Tristan da Cunha. Other members of the Palinuridae occur round the Australian coast. For example *Jasus verreauxi* (Milne Edwards) is found off the coast of New South Wales and occasionally in Tasmanian waters; the Coral Crayfishes, *Panulirus ornatus* (Fabr.), *Panulirus penicillatus* (Olivier), and *Panulirus versicolor* (Latreille) occur in the warmer waters round the north of Australia, whilst *Panulirus longipes* (Milne Edwards) is taken in considerable numbers off the coast of Western Australia.

The natural food of *Jasus lalandii* consists of mussels, chitons, and other molluscs. Sometimes echinoids and sea weeds are also found in the gut. Like other Arthropoda the crayfish periodically undergoes ecdysis. This casting of the exoskeleton not only allows for the growth of the animal but also renews the chitinous parts of the various superficial sensory organs. Ecdysis in young crayfish takes place more frequently than in older crayfish. Specimens of market size usually cast their shells once each year. At Wedge Bay the males undergo ecdysis during October, while the females cast their shells in April.

Spawning takes place during April, May, and June. The female, according to size, lays from 60,000 to 400,000 eggs. These are attached to the plepods under the abdomen and are carried by the female until they hatch. This takes place in from three to four months after laying. At Wedge Bay hatching occurs during July, August, and September.

Dr. Von Bonde has shown that during development in the egg the embryo passes through a nauplius condition. It hatches as a larva known as the prenaupliosoma. After about eight hours the prenaupliosoma undergoes ecdysis and changes into the naupliosoma. This measures about 1.7 mm. long and lasts for little more than a week. The naupliosoma then undergoes metamorphosis and gives rise to a phyllosoma larva, which is followed by a number of other phyllosomata, the exact number being unknown. These larval forms swim freely near the surface of the sea. The final phyllosoma stage measures about 35 mm. in length. It eventually changes into the puerulus, which in all essentials resembles a small adult. At this stage the young crayfish leaves the surface of the sea and lives on the bottom.

2ND SEPTEMBER, 1947

A meeting was held in the Society's Room. The President, His Excellency the Governor, presided.

The following were elected members of the Society:—Ordinary Member: Mr. M. A. Rankin; Associate Member: Mr. G. R. A. Ellis.

Mr. M. A. Rankin delivered an illustrated lecture entitled 'The Eucalyptus Regnans Forest'.

7TH OCTOBER, 1947

A meeting was held in the Society's Room. Mr. L. Cerutti, Vice-President, presided.

Professor G. E. Nicholls was elected a Corresponding Member of the Society.

Miss L. Monks and Mr. G. A. Triffett were elected Ordinary Members of the Society and Mr. J. B. Jennings was elected an Associate Member.

Miss J. Munro Ford and Professor A. L. McAulay delivered an illustrated lecture entitled 'The Organization of Plant Tissues', of which the following is an abstract:—

Miss Ford dealt with what is known about the organisation of plant cells into tissues, and suggested that some recent research in Botany may be of use in helping to solve the problem of this organisation. A unit of living matter is the cell, and cells may be grown together for special functions and specialised for certain purposes. She went on to say that active cell division takes place in meristems and here the raw materials for future tissue are formed. By methods of serial sectioning Botanists have been able to piece together the story of the development of plant cells. Examples and diagrams of primary and secondary meristems were given. The order Maturation of the special cells of the conditional system, the xylem and phloem were shown. Miss Ford spoke on the importance of hormones in initiating cell division and in controlling growth.

All living cells are capable of dividing, but in the plant they are normally inhibited, checked by the existing tissue. If the existing tissue is cut or wounded some of the living cells not usually dividing may become meristematic and produce new cells partly to replace the old, e.g., the parenchyma cells are less differentiated than other specialised tissue and may act as a secondary meristem and divide repeatedly to endeavour to close up the wound.

Another important advance in recent years has been the development of the technique of *tissue culture*. Examples and photos of recent plant tissue culture experiments were given by Miss Form. The suggestion of such cultures first came from a Botanist, the German Haberlandt in 1902, but he and his co-workers had no success and it was the Zoologists, including Carrell, who first developed the technique for growing animal cells.

It is yet to be determined why two adjacent cells of common origin with presumably the same heredity pattern, should differentiate into elements that appear totally unlike each other in structure and function.

Professor McAulay pointed out that in many cases plant meristems of common origin differentiated differently according to the nature of their surroundings. He described experiments with artichokes and maize roots made in the Physics laboratory of the University, which were designed to throw light on the factors controlling organisation.

He discussed the recognition and investigation of electric patterns which accompanied organisation. He stated that it was proposed to investigate electric and thermal phenomena in connection with growth.

11TH NOVEMBER, 1947

A meeting was held in the Society's Room. Dr. W. L. Crowther presided.

The following were elected members of the Society:—Ordinary Member: Professor C. D. Hardie; Associate Members: Mr. E. A. Jennings, Mr. M. N. Maddock, Mr. E. H. Norton.

The following papers which had been submitted for publication in the Society's Journal were tabled, and it was agreed to submit them to the Standing Committee:—

The Structure and Stratigraphy of the Nelson River District, Lyell Highway, Tasmania, by E. D. Gill, S. W. Carey, and M. R. Banks.
Review of the Geology and Glaciology of the Mt. Field, National Park, Tasmania, by S. W. Carey and M. R. Banks.

Geology of the Gunn's Plains District, by S. W. Carey and M. R. Banks.
Geology of the Country around Tarraleah, Tasmania, by R. T. Prider.
(See page 127.)

Tasmanian Araneae of the Family Hahniidae, by V. V. Hickman. (See page 21.)

A New Genus of Pseudogarypin pseudoscorpions possessing pleural plates, by J. C. H. Morris. (See page 48.)

The Taxonomic Position of *Idiogarypus hansenii* (With), by J. C. H. Morris. (See page 37.)

Neonatal Length as a Linear Function of Adult Length in Cetacea,
by E. O. G. Scott.

Péron in Tasmania, by Professor L. A. Triebel. (See page 63.)

Note on the Occurrence of the Nematode *Mermis nigrescens* in the common
European Earwig in Tasmania, by P. W. Crowcroft. (See page 59.)

A New Digenetic Trematode from the Gill-rakers of the Barracuda,
by P. W. Crowcroft. (See page 49.)

At the request of the A.N.R.C. the Chairman presented the Ranken Lyle Memorial Medal to Dr. J. C. Jaegar, Senior Lecturer in Mathematics in the University of Tasmania. This medal was awarded to him for his researches in mathematics.

The Chairman presented the Clive Lord Memorial Medal to Dr. H. Thompson, Chief of the Fisheries Division, C.S.I.R., who afterwards delivered the Clive Lord Memorial Lecture, the title being 'Fish Welfare'. (See page 1.)

Northern Branch

Annual Report, 1947.

Of outstanding importance to the development of the Northern Branch was the agreement concluded with the parent Society in respect to membership, subscriptions, and property. The agreement may be summarised as follows:—

- (a) *Membership*: Members nominated by the Branch to retain their membership of the Branch so long as they remain members of the Society.
- (b) *Subscriptions*: The Society to pay to the Branch the following shares of the subscriptions of members of the Branch:—
1. Members elected prior to September 3, 1947—one-third Annual Subscription.
 2. Members elected after September 3, 1947, and paying a subscription of £1 10s.—seventeen shillings and sixpence.
 3. Members elected after September 3, 1947, and paying a subscription of £1 1s.—fifteen shillings.

It was further agreed that when persons in Group 1 ceased to be members of the Society, the basic number in that group would be maintained by the transfer of names from Groups 2 and 3, in order of election.

(c) *Property*:

1. The terms of any bequest or gift made to the Northern Branch to be observed strictly by the Council of the Royal Society.
2. All property acquired by the Branch to remain in its custody during the existence of the Branch.
3. In the event of the Branch ceasing to exist, the Council of the Royal Society to hold in trust all such property referred to under (1) and (2) above, until such time as the Northern Branch would be re-established.
4. The rights of the Queen Victoria Museum in any property held jointly by the Museum and the Branch to be recognised.

Meetings.

APRIL 15TH, 1947.

Annual General Meeting.—The Annual General Meeting was held at the Museum, Mr. F. Smithies presiding.

The Annual Report and Balance-sheet for 1946 were adopted. The following office bearers were elected:—

Vice Chairman: Mr. J. E. Heritage in place of Mr. Gilbert C. McKinlay, who retired under the rules.

Members of Council: Dr. C. Craig and Mr. Gilbert C. McKinlay, in place of Mr. J. E. Heritage and Major R. E. Smith, who retired under the rules.

Hon. Secretary-Treasurer: Mr. N. J. B. Plomley.

Dr. Hugh D. Gordon, Senior Lecturer in Charge of Botany at the University of Tasmania, delivered an illustrated lecture entitled 'Plant Pilgrims'. Dr. Gordon considered the means by which plants have become distributed over the earth's surface. After discussing the mechanics of seed dispersal and other mechanisms for plant distribution, he concluded that none of these mechanisms in themselves was sufficient to account for the wide distribution of many plants. While drawing attention to such agencies for distribution as the oceans, winds, and migratory birds, it was concluded that the principal factors involved were long periods of time and the production of large numbers of reproductive bodies.

SEPTEMBER 25, 1947.

A meeting was held at the Museum, Mr. F. Smithies presiding.

Mr. Otto R. Hellwig gave a talk, illustrated by lantern slides, entitled 'Architecture in Pre-War Europe'. Mr. Hellwig started with a general discussion of the principles of architecture, which he defined as the skill and art of organising given components with material and psycholological requirements into an harmonious entity. By such a definition architecture was a functional art in the widest sense and this emphasis was brought out in the illustrations. Mr. Hellwig drew attention particularly to the absence of a national architecture in Australia. Such an architecture should not express a political belief, but the character of our country. In this way it would focus the life and ideals of the people.

NOVEMBER 11, 1947.

A meeting was held at the Museum. The President of the Society, Admiral Sir Hugh Binney presided.

Professor S. Warren Carey gave an illustrated lecture entitled 'The Geology of the Launceston District'. He traced the geological history of the area from Permian times to the present, showing by means of block diagrams the more recent changes that have taken place; as a result the Oligocene penplain was converted by faulting and subsequent erosion to give the present configuration. The history of the Tamar Valley and of the North and South Esk Rivers were dealt with, and the use of the river system for the hydro-electric power discussed.

Office-bearers, 1947:

Chairman: F. Smithies, O.B.E. (1947).

Vice Chairman: J. E. Heritage, C.M.G., LL.B. (1947, 1948).

Council: C. Craig, M.D., M.S., F.R.A.C.S. (1947, 1948); T. Doe, B.Sc. (1947); J. R. Forward (1947); Gilbert C. McKinlay (1947, 1948).

Hon. Secretary-Treasurer: N. J. B. Plomley, M.Sc.

