CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 10, MELBOURNE, JANUARY 1960

NEW EXECUTIVE MEMBERS APPOINTED

Mr. C. S. Christian and Professor L. G. H. Huxley

THE Minister-in-Charge of C.S.I.R.O., Mr. Casey, announced last month the appointment of two new members to the Executive of C.S.I.R.O.

THE announcement follows the passage in November of an amendment to the Science and Industry Research Act, enlarging the Executive.

The two new full time members of the Executive will be Mr. C. S. Christian, B.Agr.Sc., M.S., Chief of the Division of Land Research and Regional Survey, and Professor L. G. H. Huxley, M.A., D.Phil., Ph.D., F.A.A., Elder Professor of Physics in the University of Adelaide.

The Executive now comprises five full-time members (Dr. F. W. G. White, Dr. S. H. Bastow, Dr. R. N. Robertson, and the two new members) and two part-time members (Dr. J. Melville and Mr. A. W. Coles).

The new Act provides for the appointment of two more part-time members.

Mr. Christian, who is aged 52, has been associated with C.S.I.R.O. ever since his graduation from Gatton College and the University of Queensland.

He first went overseas in 1931 to study genetics at the University of Minnesota, U.S.A., and in 1933 he held an appointment under Sir Ronald Fisher at the famous Rothamsted Experiment Station in England.

On his return to Australia, he undertook wheat and plant breeding research with C.S.I.R.O. in Canberra and in Queensland.

In 1946, following a request from the North Australian Development Committee, Mr. Christian organized and directed a team of scientists known as the North Australia Regional Survey.

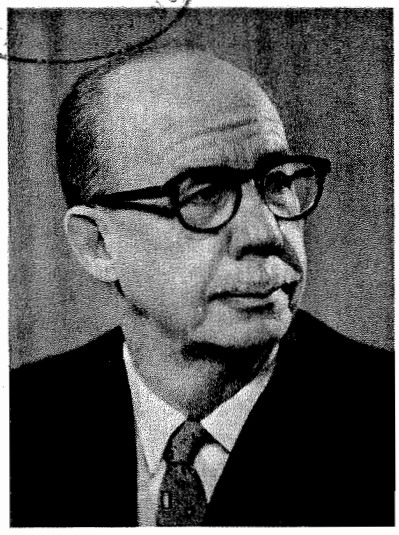
The team has since grown into the Division of Land Research and Regional Survey, with a staff of over 80.

Under Mr. Christian's leadership, the group has carried out regional surveys of large areas of Australia and New Guinea, and agricultural research in selected areas of northern Australia.

This work has indicated the possibilities for large scale agricultural development of immense national importance.

Mr. Christian was invited by U.N.E.S.C.O. to go to Syria in 1955 to advise on the establishment of a resources survey unit there.

Mr. Christian also visited New Guinea last year, to report to the Minister of Territories on the rice industry there.



Mr. C. S. CHRISTIAN

Prof. L. G. H. HUXLEY

He is the Australian delegate to the International Rice Commission and President of Section K (Agriculture) of the Australian and New Zealand Association for the Advancement of Science.

He has been President of the Queensland and A.C.T. branches of the Australian Institute of Agricultural Science.

He is a keen photographer and has exhibited and judged photographs internationally.

Mr. Christian is married to an American science graduate, and they have four daughters.

Professor Huxley, who is aged 57, was educated at Hutchins School in Hobart, and at the University of Tasmania. He was the Tasmanian Rhodes Scholar in 1923, and went to New College, Oxford, in 1925 to read Honours Physics.

He was awarded his doctorate in 1928, and returned to Australia in 1929, to carry out research for the Radio Research Board, under Sir John Madsen.

He returned to England in 1931, and taught physics to university students at Nottingham, Leicester and Birmingham.

During the war he was in charge of a Radar School under the Ministry of Aircraft Production.

Professor Huxley came back to Australia ten years ago to take the Chair of Physics at the University of Adelaide.

He is a member of the Councils of the Australian National University and the University of Adelaide.

He has been associated with C.S.I.R.O. through his Chairmanship of the National Standards Commission and the Radio Research Board.

He was a Foundation Fellow of the Australian Academy of Science, and is now the Academy's Secretary (Physical Sciences).

He is keenly interested in educational matters, being Chairman of his University's Education Committee, and Patron of the Science Teachers' Association of South Australia.

Mrs. Huxley is, like her husband, an Oxford graduate, having taken a first-class honours degree in history.

Their son, G. L. Huxley, is following the family tradition. He is a Fellow of All Souls' College at Oxford.

Mr. Casey also announced two changes in the top administration of C.S.I.R.O.

Mr. Guy B. Gresford has been designated Secretary and Mr. Walter Ives, Executive Officer.

Mr. Gresford, who is aged 43, was educated at Trinity College, University of Melbourne.

He joined C.S.I.R.O. in 1942.

From 1943 to 1946 he was in England on the staff of the Australian Scientific Liaison Office in London.

He became Assistant Secretary of C.S.I.R.O. in 1946 and Research Secretary (Physical Sciences) in 1952.

In 1957 Mr. Gresford went to America on a Commonwealth Fund Fellowship.

He studied at the Harvard School of Public Administration and at the National Science Foundation in Washington.

Mr. Ives, who is aged 42, graduated in economics at the University of Sydney.

During the war he was with the Department of War Organization of Industry, and transferred later to the Department of Post-war Reconstruction.

He joined C.S.I.R.O. in 1946 as technical secretary of the Division of Plant Industry.

He became Assistant Secretary of C.S.I.R.O. in 1950 and Research Secretary (Biological Sciences) in 1952.

From 1954-56 he was Chief Scientific Liaison Officer at the Australian Scientific Liaison Office in London.

Research with Helicopter

SERIOUS soil erosion in the Kosciusko area of the Snowy Mountains Catchment has resulted in heavy expenditure by State and Commonwealth bodies on soil conservation measures.

Successful reclamation at these high levels is expensive because of the difficulty of securing germination of seeds and the establishment of seedlings, and the lack of easy access.

Reclamation costs to date have been as high as £1 per sq. yd. and £800 per acre and not all of this work has been completely successful. There is clearly a need for more effective and cheaper methods.

In connection with these problems the Division of Plant Industry has been evaluating an untested Caucasian clover, *Trifolium ambiguum*, and a naturalized "weed", *Hypocharis radicata*.

The Division has tried planting well established seedlings in peat pots impregnated with fertilizer, instead of the usual seeding and open-planting techniques.

These trials were planned for the Caruthers Peak area near Kosciusko, approximately 4 miles distance across rugged country from the road. Twelve thousand seedlings were raised in Canberra in peat pots which, together with fertilizers, tools and equipment brought the weight of material to be transported to about 2 tons.

The first trip (to the Mount Kosciusko road) was accomplished by vehicles in the ordinary way, but the practical problem remained of getting this material to the actual planting site 4 miles away.

This was solved by means of a Bristol Sycamore helicopter supplied by the Navy. In about half a day's flying the whole consignment of plants was flown in as well as 10 willing planters.

Each complete trip took only 7 minutes, compared with a packhorse trip of about half a day. If packhorses had been used the whole operation would have taken several days and considerable damage would have resulted to the seedlings.

Unloading seedlings from the helicopter at Caruthers Peak in the Kosciusko Main Range.

CHRISTMAS PARTIES FOR YOUNG AND OLD

ALMOST every Division and Section of C.S.I.R.O. celebrates Christmas with a party. There are lunch-time and evening parties, men's smoke nights, and lots of children's parties.

AT Head Office, for example, an annual children's party is held.

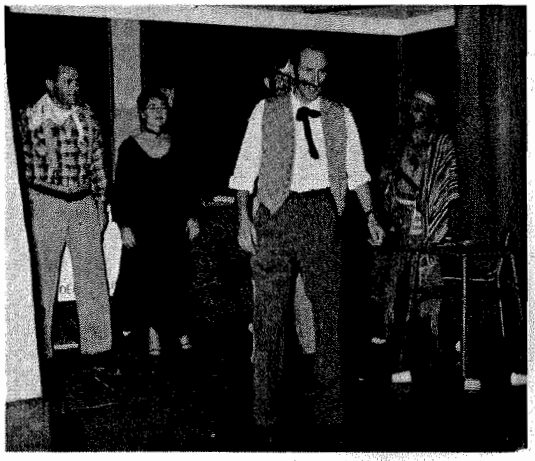
This year, about 130 children came to the party on 5th December. Each year, many of the staff members who don't bring their own children sponsor an orphan. This year, twenty boys and twenty girls came from the Salvation Army Homes.

There were swings and slides in the gardens opposite the office, films in the conference room, and an enormous afternoon tea in the courtyard.

On the Saturday afternoon before Christmas about a hundred and eighty children welcomed Father Christmas (alias Peter Hume) at Highett, where a party was held in the grounds of the Division of Building Research.

There were three ponies for the children to ride, a real Punch and Judy show to watch, a slide, roundabouts and a coconut shy.

In Sydney, parties were held on Christmas Eve in nearly every laboratory.



A scene from the Western drama enacted at the Division of Textile Physics dance on 12th December.

Mr. Dick Urie, of the Chemical Engineering Section, introduces his small son to Father Christmas at the Fisherman's Bend children's party.

Father Christmas hands out the presents at the Head Office Children's party.

The Division of Textile Physics, at Ryde, struck a new note this year by introducing an hour-long revue at their annual Christmas dance on 12th December.

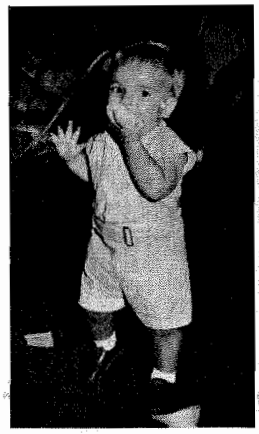
Items included "My Spare Lady" in which some laboratory personalities came in for a thorough, if kindly, drubbing, a Western saga exemplifying certain television programmes, and a version of "The Desert Song", complete with a "camel" on which the heroine made her entry.

The Canberra laboratories held their annual Christmas Eve party on the lawns fronting the Administrative block. An open air lunch was planned, and the organizers were hoping, as this article went to press, for a fine day.

In Adelaide, the Division of Soils collaborates with the Waite Institute in its social activities. A children's party was held on Friday evening, 4th December, at which Mr. G. D. Bowen played the part of Father Christmas.

On the following Friday night, the adults held their cabaret dance party at Urrbrae House (the Director of the Waite Institute's house).

This small boy at the Adelaide party was more interested in food than Father Christmas.



Cloud Seeding in Queensland

THE Radiophysics Division with the co-operation of Toomaroo Pty. Ltd., a pastoral company controlling extensive holdings in western Queensland, carried out a pilot rain-making experiment in the general vicinity of Cunnamulla last month.

The purpose of the experiment was to gain experience in the problems involved in operating aircraft in that area, to investigate the kind of cloud which occurs there in the summer months, and to seed any that were suitable.

The aircraft was based on Dynevor Downs, a large property controlled by Toomaroo Pty. Ltd., and the company contributed towards the costs of operating the aircraft and providing seeding material.

Toomaroo Pty. Ltd. also arranged for the installation of a number of additional rain gauges, the purpose of which was to provide a better picture of the amount and distribution of the rain that fell.

Chess Champion

THE Open Chess Championship of New South Wales was won by Mr. J. Szewczyk, of the Coal Research Section, on 16th November.

He had previously tied for the title with Mr. F. A. Crowl, of Melbourne, but won in the play-off match by two points.

Mr. J. SZEWCZYK

Mr. Szewczyk came to Australia from the Ukraine in 1948, and joined the Coal Research Section in 1952.

Though well known in Sydney chess circles and also internationally for his matches by correspondence with overseas opponents (in 1955 he was a member of the Australia team which defeated Spain and South Africa), he had not previously been successful in a title event.

As State champion, Mr. Szewczyk will be first N.S.W. choice for the 1960 Australian championship in Adelaide.

THIRTY-FIVE YEARS' SERVICE

LAST month, Mr. Ben Martin retired from his position as Senior Technical Officer at the Irrigation Research Station, Griffith, after 35 years' service.

AT a social function on the floodlit lawns of the Research Station on Saturday evening, Mr. Eric Hoare, Officer-in-Charge of the Station, made a presentation to Mr. and Mrs. Martin on behalf of the staff.

Mr. Hoare paid tribute to the work of Mr. Martin, who had been with the Station right from its inception, and carried out his very responsible position with great credit to himself and the Station.

Mr. Hoare wished Mr. Martin well in his retirement, and expressed the wish that Mr. Martin would continue to be seen at the Station from time to time, maintaining his interest in the work being carried out there.

Ray Worthington spoke on behalf of the Research Station staff, and recalled that he had worked under Mr. Martin for about 10 years, and had found him strict and fair.

Clive Gates, speaking on behalf of the laboratory staff, said he had also worked with Mr. Martin for quite a number of years. He stressed the great assistance Mr. Martin had given to himself and the staff generally because of his wealth of knowledge and experience of the Station and the farm and the area generally, gained in his 35 years at the Station.

In his reply, Mr. Martin thanked the speakers and, in a most interesting talk, outlined the events leading up to the establishment of the Station, and some of the more interesting and humorous episodes of its history.

Later in the evening movies were shown on the lawn, followed by supper, during which a cake, made and decorated by Mrs. Hoare, was cut by Mr. and Mrs. Martin.

State Committee Chairman Dies

PROFESSOR J. G. WOOD, Ph.D., D.Sc., F.A.A., died at his home in Adelaide on 8th December, at the age of 59.

Professor Wood had been closely associated with C.S.I.R.O. over a number of years.

At the time of his death he was Chairman of the C.S.I.R.O. South Australian State Committee.

He was also Chairman of the C.S.I.R.O.-Academy of Science Board of Standards which watches over the editorial standard of the Australian Journals of Science.

Professor Wood was the senior Professor, in years of service, at the University of Adelaide, having held the Chair of Botany since 1935.

He had been the recipient of many honours, including the Verco medal of the Royal Society of S.A. in 1945, and the Clarke Medal of the Royal Society of N.S.W. in 1952.

He is survived by his widow and three daughters.

MEETING IN INDONESIA

Mr. GUY B. GRESFORD, Secretary of C.S.I.R.O., visited Indonesia from 7th to 13th December. He was representing Australia at a meeting of the heads of seven national scientific research organizations at Bandung in Indonesia.

The meeting was convened by the South-Eastern Asia Science Co-operation Office of U.N.E.S.C.O.

Representatives attended from Australia, India, Indonesia, Japan, New Zealand, and the Philippines. Observers from Hong Kong, Malaya, Singapore, Thailand and Vietnam were also present.

Delegates discussed the organization of scientific research in each of the countries in the region. They also discussed the exchange of scientists between countries of the region.

Forty Years Ago

(From the official Journal of the Institute of Science and Industry, January, 1920.)

AT the recent meeting in London of the Imperial Education Conference, a strong opinion was unanimously expressed on the need for an Imperial Agricultural Bureau, the objects of which would be—

(1) To collect and to present in an available form information on the various agencies for agricultural education within the Empire.

(2) To perform a similar function with regard to agricultural research.

(3 To collect and distribute information on the agricultural resources of the Empire for the service, on the one hand, of intending settlers and planters, and on the other, for merchants and manufacturers.

Geelong Grammar

WILLIAM TAYLOR, the son of Mr. Keith Taylor, of the Division of Entomology, has been awarded the Bursary for sons of C.S.I.R.O. officers offered by the School Council of Geelong Grammar.

William, who is aged 13, was school captain at Ainslie Primary School in Canberra, and is captain of his form at Lyneham High School.

He has secured very high average marks in his school work, and is an enthusiastic swimmer, cricket, football and tennis player.

Prime Minister Opens the Cunningham Laboratory

ON MONDAY, 30th November, the Prime Minister performed the official opening of the C.S.I.R.O. Cunningham Laboratory in Brisbane.

Present at the ceremony were three hundred guests representing the University of Queensland, Commonwealth and State Parliaments, primary producers organizations, the C.S.I.R.O. State Committee, learned societies, and the Press.

"In the last 40 years, the C.S.I.R.O. has become one of the dominating things in the development of Australia," Mr. Menzies said.

"I do not know of any institution which has done continuously such magnificent work, so much of it perhaps little recognized."

"It is not only a Government enterprise. It has been able to attract support from the great primary industries — as they realise research in their industries is the key to success."

"I hope that, more and more, the great secondary industries will realize the great importance of its work, and will contribute more and more towards its achievements."

Mr. Menzies said that because of scientific research there were now millions of acres of fertile productive land in Australia which previously had been regarded as "more or less hopeless or useless".

The latest work of the C.S.I.R.O. was the introduction of new grasses and legumes in sub-tropical areas.

These areas had been previously handicapped in part because of the reliance on natural grasses and the relative failure on the part of people to take cognizance of the new pastures.

"I hope that on top of work on the sub-tropical areas will come work on the tropical areas," Mr. Menzies said.

"A great deal remains to be done on the tropical areas of North Queensland, and we can only encourage, support and persuade our scientific people in their patient work."

"As citizens it is our duty to find just what it is we can do for our scientists in their work, make sure we have the best scientists available — and leave it to them."

"The best results will come from patient examination and elimination, and not from happy flukes."

"Out of work that will be done here we can hope to find the production of cattle in these sub-tropical areas multiplied four or five times."

"And think what that will mean to Queensland — so rich in resources, and so many of her resources difficult to tap."

"What is good for Queensland is good for Australia. And what is good for Australia is good for the standards of living of men and women throughout the world."

At the conclusion of his speech, Mr. Menzies unveiled a commemorative plaque.

The Chairman, Dr. F. W. G. White, welcomed the Prime Minister.

It was a happy day, he said, for the C.S.I.R.O. scientists who work in Queensland.

The Organization was grateful to the Commonwealth Government for providing the funds for such a magnificent building, and also grateful to the State Government which had contributed the site, the roads, and some of the money.

Mr. O. O. Madsen, the Queensland Minister for Agriculture and Stock, thanked the Prime Minister.

The contributions made by the Queensland Government, he said, were in recognition of the grand work of C.S.I.R.O.

The Cunningham Laboratory occupies a three-acre site in the grounds of the University of Queensland at St. Lucia, a suburb of Brisbane.

It was completed this year at a cost of £180,000.

The Government of Queensland provided the site, contributed £15,000 towards the cost of the building, and built the access roads at a further cost of £10,000.

The Laboratory is named after Allan Cunningham, an explorer, who discovered the Darling Downs in 1827 and helped to establish the Brisbane Botanical Gardens in 1828, three years after the foundation of Brisbane.

Mr. Menzies performing the official opening. Dr. White and Dr. Griffiths Davies are on the left of the picture, and Mr. O. O. Madsen on the right.

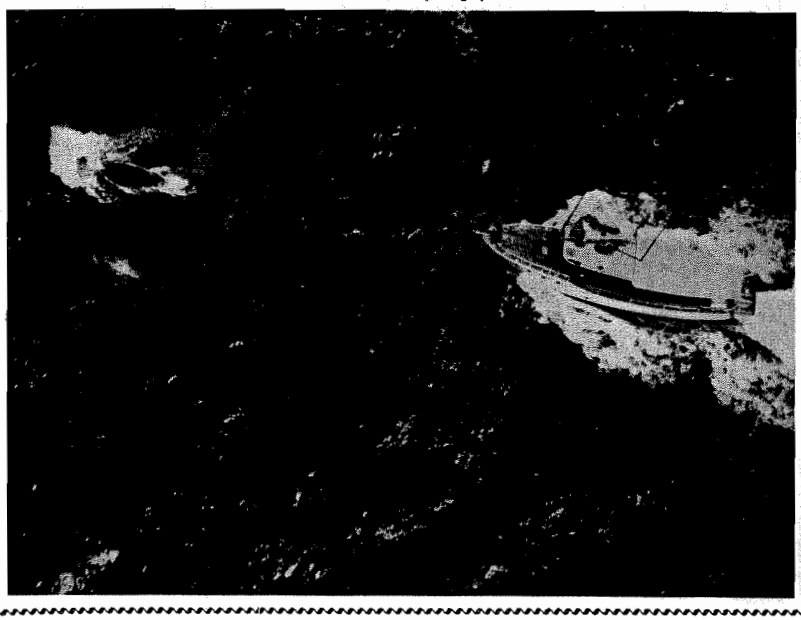
AERIAL WHALE SPOTTING

C.S.I.R.O. has gone into the whaling business around Moreton Island (Queensland) in the modern manner. They are using a Piper aircraft on charter from the Royal Queensland Aero Club to spot their whales.

In October, a Fisheries and Oceanography team, headed by Dr. R. G. Chittleborough, was spotting whales around Moreton Island, and marking them so that migratory and breeding habits could be studied.

A technical assistant, Bill Prothero, flew in the plane, while Dr. Chittleborough and another assistant cruised below in the charter vessel, motor boat "Norman R. Wright".

When a whale was spotted from the air, Bill Prothero marked its location on a map, which was dropped to the boat below in a waterproof container.



Whale boat from the air. Two whales can be seen on the left of the picture.

"Courier Mail" photograph

LIBRARIAN FROM SINGAPORE

TAN KIM HO, a science graduate from the University of Malaya, left Australia last month to return to Singapore.

Mr. Tan with Miss Conochie, Mrs. Cronshaw, and Miss Kent, in the Head Office library.

Mr. Tan, who is librarian at the Singapore Botanic Gardens, had spent nearly nine months in Australia. He attended a course at the Public Library in Melbourne, and gained the preliminary Certificate of the Library Association of Australia. He sat for the registration examination just before returning home.

Mr. Tan spent most of his time in Head Office Library, but made visits to a number of divisional libraries, including the Canberra library.

"Congratulations sir, on a most successful experiment."

With grateful acknowledgement to "The Sydney Morning Herald".

HONOURS

Miss B. DOUBLEDAY, the Organization's Chief Librarian, has been elected Vice-President of the Library Association of Australia for 1960.

Dr. G. D. AITCHISON, Officer in Charge of the Soil Mechanics Section, has been elected a Member of the Institute of Engineers, Australia.

Membership is granted only to engineers "who have occupied positions of major responsibility or have made some noteworthy contribution to the science or practice of engineering, or who have acquired an exceptional degree of eminence in the profession".

Dinner Dance

ARRANGEMENTS for the annual ball held by C.S.I.R.O. Melbourne divisions will be changed for 1960.

In the past years, the custom of holding the ball on a week night has limited attendances.

This year, a dinner dance will be held at the Royale Ballroom on Saturday night, 25th June.

Sherry will be served at 6.30, dinner from 7 o'clock onwards, and dancing will end at midnight.

Ticket prices are expected to be about 32/6 per head, and one Division has already started a lay-by scheme for tickets! The organizers will also accept payment on this basis.

On the Riviera

PROFESSOR L. G. H. Huxley, one of the new members of the Executive, leaves this month for Nice, in the south of France.

He will represent Australia at a conference sponsored by the Committee on Space Research of the International Council of Scientific Unions.

Trip to Thailand

Mr. F. A. DALE, of the Division of Forest Products, left for a short visit to Thailand on 11th December.

He is going to assist the Bhanasit Timber Impregnating Co., Bangkok, in the setting up of a pole preservation plant.

CHRISTMAS UNDERGROUND

THERE are many ways of spending Christmas. Bob Wren, a technical assistant on the staff of the Division of Land Research and Regional Survey at Katherine, N.T., has unusual ideas about a holiday.

HE and five other cave hunters, spent 4 days deep underground over the Christmas period.

Armed with oxygen equipment, rope ladders, nylon ropes, carbide lamps and torches, they were attempting to penetrate the Kintore Caves further than any man has gone before.

Mr. Wren told the Darwin "News", last month, that the explorers would live on tinned food and bread. Cooking would use up too much precious oxygen, as the air in some of the inner chambers of the Kintore system is already dangerously rare.

The party hoped to find an underground lake or river. They also intended to explore a hole estimated to be 80 feet deep and barely 4 feet across at its widest point. Below this they believe, is another level and an entirely new cave system.

Using rope ladders and strong lights they were planning to go to the bottom of the funnel and explore what lies below.

As a safety precaution, the party arranged to have at least 3 miles of wire made available so that they could rig up field telephones. This would link them with the entrance, where teams of boy scouts would be waiting to summon help in an emergency.

Mr. Wren had arranged to take soil samples in the caves, using special 10 foot augers.

The Kintore Caves are in an incredibly ancient limestone formation about 16 miles from Katherine.

They are believed to probe at least 14 miles into the earth and come out at the King River 25 miles from Katherine.

So far the six-member Katherine Speleological Group has explored only 1½ miles into the system.

Difficulties of penetrating the caves are heightened by:

- Pockets of bad air.
- Broken ground.
- The narrowness of passages linking the great chambers which might be anything up to 100 feet wide and 90 feet high.
- The number of caverns, vaults and twisting side passages leading off the main path.

The cave walls within a quarter of a mile of the entrance bear traces of old aboriginal art, and it is thought that the area was once a sacred tribal "dreaming place".

Root Rot Conference

THE Australian Agricultural Council has approved the holding of a conference on "Root Rots of Wheat" on 11th, 12th and 13th of April, 1960.

The conference will be held at the Wagga Agricultural College.

Messrs. P. F. Butler (Head Office) and N. L. Tyshing (A.R.L.S.) are joint secretaries of the organizing committee.

NEW APPOINTEES

Miss Kathleen O'Brien has been appointed to take charge of the library at the Cunningham Laboratory in Brisbane. For the past ten years she has been a librarian at the Brisbane office of the Department of Works.

Mr. B. W. van Keulen has been appointed Station Manager at the Division of Land Research and Regional Survey's Coastal Plains Research Station at Darwin. He had previously spent a number of years with the Overseas Food Corporation in Tanganyika. Mr. van Keulen, with his wife and family, arrived in Australia from Holland two weeks ago.

Mr. P. E. Mattner has been appointed to the staff of the Division of Animal Physiology. He is a graduate in agriculture of the University of Adelaide, and a veterinary science graduate of the University of Sydney. He had been retained by a dairy products company to advise milk suppliers, and simultaneously practised privately as a veterinary surgeon.

Mr. J. B. Corbin, a plant pathologist, has been appointed to the staff of the Division of Plant Industry. He will be stationed at Griffith. Mr. Corbin has previously been engaged on a survey of the peach and apricot industry in the Murrumbidgee irrigation area.

Miss Irene McNamara was recently appointed to the position of Librarian in the Agricultural Research Liaison Section. Before joining C.S.I.R.O. she was in charge of the library of the Department of Defence in Melbourne. In 1958, Miss McNamara visited the United States under the State Department Visitors' Exchange Programme.

Lightweight Aggregate

TWO months ago, the Governor of Victoria, General Sir Dallas Brooks officially opened the plant of Reids' Lightweight Aggregate Pty. Ltd., at Greensborough. The plant is producing "Shalite", an expanded lightweight aggregate for concrete.

THE Division of Building Research has been largely responsible for the development in Australia of this type of aggregate, now being produced both in Sydney and Melbourne, and acknowledgement of the assistance received from C.S.I.R.O. was made in the speech of Mr. Cyril Reid, the Chairman of Directors of the Company.

Concrete made with expanded shale aggregates, such as that now being produced by Reids', has only two-thirds to three-quarters the density of ordinary concrete and yet in all other respects, notably strength, it is the equivalent of ordinary concrete.

This lighter concrete permits the size of beams, columns and foundations in a structure to be reduced, with consequent savings in building costs.

Lady Brooks looks closely at the weighted concrete slab. Mr. Reid is on the left of the picture, next to Sir Dallas Brooks.

N.S.L. COURSE IN PYROMETRY

THE Division of Physics of the National Standards Laboratory, from time to time, holds classes in industrial pyrometry and temperature measurement.

In some 80 hours of theory and applied work people having some previous experience in these fields are given a concentrated course in dealing with the many problems that arise in temperature measurement.

Practical demonstrations are given of methods of testing temperature-measuring installations and instruments. Since the classes first started in 1948 some 150 persons have received this training.

A course in this series was held recently at the request of the Department of Supply, while limited invitations were accepted by private industry.

NORWEGIAN VISITORS

DR. JON K. GJONNES, a young Norwegian scientist, has come to Australia to spend a year in the Chemical Research Laboratories.

THE Royal Norwegian Council for Scientific and Industrial Research has awarded him a post-doctorate fellowship for overseas study.

Dr. Gjonnes's field of interest is in electron diffraction so he chose to come to Australia to work with Dr. J. M. Cowley, whose work in this field is well known overseas.

Dr. Gjonnes brought his wife with him to Australia. Mrs. Gjonnes studied at the University of Oslo, and was employed at the Veterinary High School in Oslo.

She has secured a position as Technical Assistant in the Organic Chemistry section where she will work on the chemistry of plant materials.

Advisory Council Meets

THE Advisory Council of C.S.I.R.O. met in Melbourne on 10th and 11th November.

The meeting was held at Head Office and at the Dairy Research Section at Highett.

DURING the business session on the first day, the meeting discussed the proposal to enlarge the Executive, the provision of a suitable memorial to Sir Ian Clunies Ross, and the appointment of new members.

It was agreed that the practice of having two senior Chiefs sit with the Council should be continued.

As Dr. Wark and Mr. Gill had completed their two year terms, it was agreed that Dr. O. H. Frankel (Plant Industry) and Dr. J. R. Vickery (Food Preservation) should be invited to sit for the next two years.

The meeting gave serious thought to the solution of the Organization's financial problems.

After the business session, a number of discussions were held on specific research topics.

Each topic was introduced by a senior officer who gave a general exposition of the work.

Dr. D. F. Waterhouse, Assistant Chief of the Division of Entomology, opened a session on the cattle tick.

He discussed the conclusions reached by the Bureau of Agricultural Economics following a study undertaken at the request of C.S.I.R.O. into the economic importance of the cattle tick.

The figure of £10 million, given for the annual losses in Queensland, was probably conservative, he said.

Dr. M. Lipson, Chief of the Division of Textile Industry, gave an account of the "SIRONIZED" process for the production of washable, non-iron fabrics.

He circulated treated garments for members of the Council to inspect.

Mr. D. A. Gill, Chief of the Division of Animal Health and Production, spoke on the control and eradication of bovine pleuropneumonia.

The disease, which is endemic in northern Australia, still causes losses conservatively estimated at over £2 million per annum.

He pointed out that tests and vaccines already developed could be used, if the necessary funds were available, to free the greater part of Queensland from the disease.

Mr. C. A. Gladman, of the Division of Metrology, gave an account of production engineering research at the National Standards Laboratory.

The work covered three main fields—machining research, engineering design analysis, and vibration.

Dr. H. E. Dadswell, Assistant Chief of the Division of Forest Products, gave a general outline of the work of the Division of Forest Products.

In the postwar period the Division had been able to develop a balanced programme, taking into account the needs of industry and the need to extend our knowledge of wood as a basic material.

On the afternoon of 11th November, the Council met at the Dairy Research Section at Highett.

Mr. G. Loftus Hills, Officer-in-Charge of the Section, said that the dairy industry faced a number of problems, which demanded that the industry should be flexible and ready to make changes.

He described the various projects which the Section had in hand, including the cheese mechanization work, which, he said, was well ahead of similar work being done overseas.

Mr. Loftus Hills also spoke of the industry's need to sell dairy produce in new food forms, such as edible casein and cottage cheese.

Later in the afternoon, the Council adjourned while members inspected eight different projects under investigation in the laboratory.

Printed by C.S.I.R.O., Melbourne

CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 11, MELBOURNE, FEBRUARY 1960

MARGINAL INCREASES

ON 31st DECEMBER the Executive announced its decision that marginal increases be applied to the salaries of all adult officers and employees of the Organization retrospectively to 3rd December, 1959.

THE INCREASES range from £15 p.a. to £775 p.a. Some representative examples of the increases are:

Fitter and Turner—Salary Maximum	**increased**	**by**	**£68 p.a.**
Technical Assistant Grade I—	**„**	**„**	**£73 p.a.**
Experimental Officer Grade I—	**„**	**„**	**£165 p.a.**
Research Officer—	**„**	**„**	**£275 p.a.**
Technical Officer Grade II—	**„**	**„**	**£165 p.a.**
Senior Research Officer—	**„**	**„**	**£345 p.a.**
Experimental Officer Grade III—	**„**	**„**	**£285 p.a.**
Senior Technical Officer Grade II—	**„**	**„**	**£205 p.a.**
Typist—	**„**	**„**	**£43 p.a.**
Storeman—	**„**	**„**	**£54 p.a.**
Senior Laboratory Craftsman Grade II—	**„**	**„**	**£125 p.a.**

The decision to grant marginal increases follows a decision by Federal Cabinet that Commonwealth employees' salaries should be examined in the light of judgments handed down recently by the Commonwealth Conciliation and Arbitration Commission in the Metal Trades and Bank Officers' cases.

These cases, in the main, simply determined economic questions and the extent to which employees should participate in increased productivity in certain industries.

However, a number of claims still await final determination on grounds other than economic, i.e., it has been claimed that further marginal increases are justified by the increased work value of a number of occupations.

These claims have been made mainly on behalf of professional workers and it is possible that the final decision on them could influence the salaries payable to professional officers of C.S.I.R.O.

Most officers and employees should have received the present marginal increases by the end of January — and it is hoped that adjustments for all members of the staff will be completed by the first pay day in February.

The increases will affect about 3,500 members of the staff and will cost approximately £650,000 in a full year.

RADIO TELESCOPE

Further Rockefeller Grant

THE Minister-in-Charge of C.S.I.R.O. (Mr. Casey) announced last month that the Rockefeller Foundation has made a further donation of $107,000 towards the cost of the giant radio telescope being built for C.S.I.R.O. at Parkes, N.S.W.

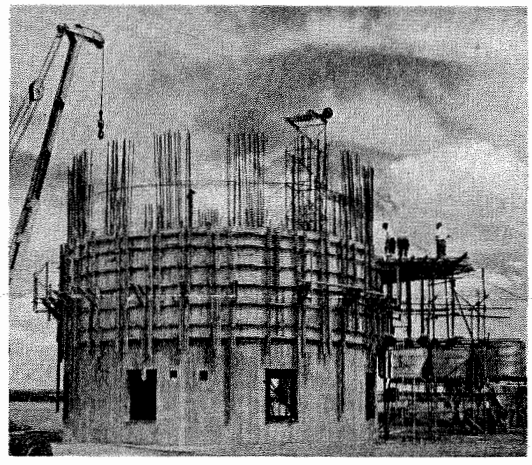
The Foundation made its first donation of $250,000 towards the cost of the telescope about four years ago. Since that time, the total cost estimates have risen from £500,000 to £800,000.

Construction of the huge instrument is now well advanced. In Germany the main contractor, a firm called M.A.N., is proceeding with the fabrication of the radio "mirror". The "mirror" is a steel dish-shaped bowl 210 feet in diameter and covered with wire mesh. It will pick up radio signals from the outermost fringes of the universe.

already nearly thirty feet high.

It is expected that the assembly of the steel "mirror" on the site will commence in June 1960, and that the whole project will be completed in 1961.

The present gift is the Foundation's third major benefaction to C.S.I.R.O. this year. Other gifts were $100,000 for special equipment for the Divisions of Plant Industry and Entomology in Canberra, and $30,000 for the newly formed Division of Tropical Pastures in Queensland.



Meanwhile, sub-contractors in Australia have made roads, prepared the site, and commenced construction of the concrete tower which will support the bowl. The tower is

The telescope tower, complete up to second floor, approximately 30 feet above ground level. The final stage is expected to be completed by the middle of this month.

F.A.O. PROGRAMME

Free the world from hunger

"F.A.O's. proposed 'Freedom from Hunger Campaign' is an idea that has already caught the imagination of the peoples of the world," Dr. O. H. Frankel told the Canberra branch of the Australian Institute of Agricultural Science recently.

Dr. Frankel, Chief of the Division of Plant Industry was a member of the Australian delegation to F.A.O.'s 1959 Biennial Conference in Rome.

Over a five-year period, it is proposed to increase throughout the world, and especially in the under-developed and over-populated countries, mankind's efforts to combat hunger and malnutrition. This is to be done by a campaign of education and information on the part of F.A.O. and by a determined effort on the part of the member nations themselves, involving application of known agricultural techniques and agricultural extension and development.

F.A.O. is to contribute technical information, education, and assistance. Finance is to come from voluntary contributions by governments and by non-governmental agencies, churches and foundations.

The Australian delegation fostered the idea that F.A.O. should help member nations to prepare altogether new resources for the expected population increase towards the end of the century.

Resources as yet unexploited because of the absence of knowledge should be surveyed and research needs made known. These ideas were received with a great deal of interest by Mr. Sen, the Director-General, and are likely to be accepted by the Campaign Committee on which Australia is represented.

Dr. Frankel stressed the need for a better understanding of F.A.O. on the part of Australian scientists.

Many Australians who had had contact with F.A.O. expressed disappointment. But when one took part in the Biennial Conference and so came to grips with the problems—political, economic, financial, and many others—that the international nature of F.A.O. posed for the staff, and also when one considered the international nature of the staff, then one cannot help gaining a great deal more understanding of the deficiencies and sympathy with the organization.

F.A.O. was bringing untold benefit to underdeveloped countries and playing an important and salutary role in many fields, including trade in agricultural products in which Australia was vitally interested; and all this at an expenditure substantially less than that of C.S.I.R.O.

New Year Honours

INCLUDED in the Queen's New Year's Honours list were three people who have been closely associated with C.S.I.R.O.

Mr. V. C. Williams was appointed Commander Order of the British Empire (C.B.E.).

He was a foundation member of the Advisory Committee of the Irrigation Research Station, Griffith, formed in 1927, and Chairman from 1942. The Committee's functions were taken over by the Irrigation Research and Extension Committee in 1947.

Mr. H. J. Goodes, formerly Treasury Representative on the Executive, and now Director-General of Social Services, was promoted to C.B.E.

Mr. O. H. Heinrich of South Australia was appointed Officer Order of the British Empire (O.B.E.). He has been concerned with agricultural development in South Australia, and has, since 1953, been a member of the South Australian C.S.I.R.O. State Committee.

VISITING NOBEL PRIZE WINNERS

AMONG the many distinguished scientists visiting Australia next August are three Nobel prizewinners in chemistry.

They are Professor Sir Alexander Todd (Cambridge), Professor Sir Robert Robinson (London), and Professor R. Kuhn (Heidelberg).

Along with other distinguished chemists, they will attend an international symposium on "The Chemistry of Natural Products". The symposium will be held under the auspices of the International Union of Pure and Applied Chemistry.

It is being organized by the Australian Academy of Science, and Dr. A. L. G. Rees (Chief of the Division of Chemical Physics) is Chairman and Convenor of the organizing committee.

Other visiting chemists will include Professor A. Stoll (Basle) who will give an address at the opening ceremony, Professor F. Storm (Prague), Dr. H. W. Thompson (Oxford), and Professor R. B. Woodward (Cambridge), all of whom will give lectures.

Dr. J. R. Price, of the Chemical Research Laboratories, Fishermen's Bend, will give a special lecture on Australian Natural Products Research.

Lectures to different sections of the symposium will be given by Professor D. H. R. Barton (London), Professor H. Brockman (Gottingen), Dr. J. W. Cornforth (London), Professor C. Djerassi (Stanford, U.S.A.), Professor T. R. Govindachari (Madras), Professor E. Lederer (Paris), Professor N. A. Sorensen (Trondheim), and Dr. A. McL. Mathieson (C.R.L. Melbourne).

After the symposium, seven excursions have been arranged for the visitors. They may choose between Central Australia, the Snowy Mountains, the Latrobe Valley, New Guinea, or the Atherton Tableland, the Barrier Reef or Lamington National Park in Queensland.

Space Research Plan

AUSTRALIA is to co-operate with the U.S.A. in the exploration of the ionosphere with an experiment devised by an Australian scientist.

The Australian is the Officer-in-Charge of the Upper Atmosphere Section, Dr. D. F. Martyn, who intends to measure very low frequency radio noise above the ionosphere.

Dr. Martyn is a world authority on the ionosphere. It will be the first attempt made to measure such noise and will be carried out in co-operation with the National Aeronautics and Space Administration of America (N.A.S.A.).

N.A.S.A. will make space available for the equipment in one of its satellites.

It will comprise a specially designed radio receiver and transmitter which will record the noise in the frequency required and transmit the results to earth.

The Assistant Secretary of the Australian Academy of Science, Mr. J. Deeble, said the experiment would contribute to man's knowledge of the ionosphere and the space beyond.

The research was of crucial importance to radio communications.

The satellite would transmit its stored information when the receiving station "interrogated" with a special signal.

The experiment is the first to be approved by the Academy's National Committee and referred by it to N.A.S.A.

N.A.S.A. are greatly interested in the experiment, which will be unique in world space satellite research.

It will probably be 18 months or two years before the experiment is carried out as equipment has to be designed in detail.

No other Australian satellite experiments are proposed at the moment, but the Academy National Committee has approved experiments involving rocket-borne and balloon-flown equipment.

These experiments are also aimed at investigating the behaviour and construction of the ionosphere.

They will be more ambitious than any space research carried out so far by Australia.

c.f. Canberra Times

STUDENTSHIPS—1960

THE STUDENTSHIP Selection Committee, which met in December, reports that the standard of applications was higher than ever before.

Mr. N. J. BARROW

There were 158 applications for Junior Studentships, 110 for Senior Studentships, and 46 for Overseas Studentships.

TWENTY-TWO Junior Studentships, eleven Senior Studentships, and fourteen Overseas Studentships were awarded.

Three C.S.I.R.O. officers were awarded Overseas Studentships. They are Messrs. N. J. Barrow and J. L. Davidson of the Division of Plant Industry and Mr. A. G. Constantine of the Division of Mathematical Statistics.

Mr. N. J. Barrow, who is aged 27, joined C.S.I.R.O. in 1954. He has been stationed at the Regional Pastoral Laboratory, Armidale, N.S.W.

He graduated M.Agr.Sc. (Melbourne) in 1956, and submitted a thesis for the Ph.D. degree of the University of New England last year.

Mr. Barrow's special interest has been in the study of sulphur in relation to soil fertility and the nutrition of plants. He hopes to work in the chemistry department at the Rothamsted Experimental Station in England.

Mr. J. L. Davidson, aged 27, is a graduate of the University of Adelaide. After taking his master's degree, he joined the Division of Plant Industry in 1956.

He was posted to the Regional Pastoral Laboratory, Deniliquin, N.S.W., where he undertook work on pasture establishment on the difficult soils of the Riverine plain. He has been particularly interested in the competition for light between pasture plants.

Mr. A. G. Constantine, who is aged 25, is an honours graduate in mathematics from the University of Western Australia.

He joined the Division of Mathematical Statistics in Perth in 1955, and was transferred to Homebush, N.S.W. in 1956. He transferred to Adelaide in 1957.

His studentship will enable him to continue his studies in multivariate analysis under Professor A. J. James at Yale University.

Mr. C. J. Brady, of the Fodder Conservation Section, has been awarded an Australian Dairy Produce Board overseas studentship.

He is a graduate in agricultural science from the University of Sydney, obtaining his M.Sc.Agr. degree in 1958.

He is planning to study the enzymology of starving leaves at the Rowett Research Institute, Scotland.

Solar Heated Pool

The Mildura and District Tourist Association has decided to investigate a solar heated swimming pool as a tourist attraction.

A sub-committee appointed by the association met in December.

It was decided to obtain an estimate of cost of construction of a solar heated pool.

Figures were submitted, which claimed that a pool 62 ft 6 ins long and 30 ft wide would be heated during the month of July to a temperature of 68 to 70 degrees using solar absorbers.

These calculations were made by Mr. R. N. Morse, Officer-in-Charge of the Engineering Section.

This Section has carried out extensive research into the use of solar energy for water heating in Australia.

It was stressed that during the summer, when heating of the pool would be unnecessary, portion of the absorber area could be used to heat showers.

The sub-committee agreed that such a pool in Sunraysia would publicize the Mildura district as a tourist centre.

It would be the only pool in the Southern Hemisphere heated by this means. This would create interest in Australia and overseas.

Association members believe that the Victoria Tourist Development Authority would be prepared to financially assist in the project.

The Director, Mr. M. J. Harkins, has indicated that the Authority is interested.

N.Z. Science Congress

THE NINTH New Zealand Science Congress held by the Royal Society of New Zealand will be held at the Victoria University of Wellington from 12th to 17th May 1960.

THE Congresses give scientists and interested members of the public the opportunity of discussing mutual problems and also of learning something of the scientific work of the Dominion.

Professor H. S. W. Massey, F.R.S., of University College London, and Professor R. M. Barrer, F.R.S., of the Imperial College of Science and Technology, will be guests of the Congress. They will both deliver public lectures.

1960 Visitors

FOUR scientists from overseas are making preliminary plans to visit Australia during 1960.

Dr. D. J. Finney, F.R.S., Head of the Department of Statistics at Marischal College in the University of Aberdeen, is expected to arrive in Australia in March for a stay of seven weeks.

His time will be principally occupied in discussions with officers of the Division of Mathematical Statistics.

Dr. J. Gardner, of the Forest Products Laboratory, Vancouver, intends coming to Australia to attend the I.U.P.A.C. symposium on The Chemistry of Natural Products in August.

Dr. B. J. Quinn, Managing Director of Bedela Citrus Estates, hopes to spend about 3 weeks in Australia. He will arrive in March. His interests include black spot and other citrus diseases, the bulk handling of fruit, pruning, and the concentration of juice.

Dr. J. T. Slykhuis, Head of the Plant Pathology Department, Canadian Department of Agriculture, will come to Australia for two or three months after July. He will conduct a survey of virus diseases of pasture grasses and cereals.

MILLIONS MORE LIVESTOCK

Dr. J. Griffith Davies, Chief of the Division of Tropical Pastures, believes that research will show the way for a dramatic increase in the carrying capacity of Queensland pastures. This article was published in the Brisbane "Courier Mail" last year.

"IF ONLY ONE-THIRD of some 43 million acres of Spear grass country lying between Brisbane and Townsville were fully developed it could carry seven million head of cattle, or more than all the beef cattle now in Queensland.

The full potential of the region, now carrying about 1,500,000 beef cattle, is probably near 10 million head. The Brigalow belt, with an area of 23 million acres, has a potential of about 5,500,000 cattle or the equivalent in sheep.

The Wallum country between Brisbane and Bundaberg, with a carrying capacity virtually nil at present, has a potential of 750,000 cattle, or the equivalent in sheep.

On top of such increases in numbers we will no longer be marketing bullocks at four to five years, but at two and a half years, with a consequent lift in production.

Many will consider all this too fantastic to be believed, but I am not joking.

Furthermore, production per unit area would still be low in comparison with a country like Holland, where the total area devoted to all branches of agriculture is less than 6 million acres, yet there are approximately 3 million head of cattle.

In the early days of settlement, sheep and cattle numbers increased rapidly as more land was occupied and developed. Since the 1890's, however, there has been relatively little change with stock numbers fluctuating due to the effects of good and bad seasons, pests, and diseases and markets.

Despite this there was progress, for over the same period production of meat and wool increased with better husbandry methods, breed improvements and disease control.

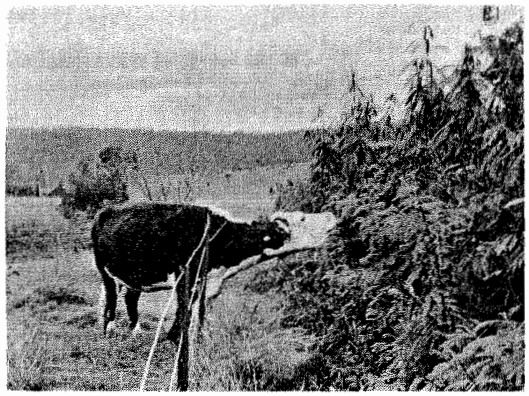
This relatively steady state of stock numbers indicates that we have virtually reached the limit of the carrying capacity of our native pastures.

Further increases in production will occur as improved husbandry methods become more widely applied, but there is a very definite limit to what we can expect unless in some way that total number of stock is also increased.

This is where pasture improvement comes into the picture. Pasture research is a very young branch of science in Queensland, and indeed anywhere in the tropics and subtropics, and the problems have barely been scratched. Nevertheless there is enough evidence for me to adopt the role of prophet, despite the dangers involved, to predict the kind of improvement we can expect.

In doing this, I draw not only on our own experiences in C.S.I.R.O., but also on those of the Department of Agriculture and Stock and the University Faculty of Agriculture.

In the low-rainfall areas pasture improvement in the ordinary sense is not likely to play a big part. The major problems stem from low rainfall, extreme seasonal fluctuations, and transport difficulties. The fine work of Dr. P. J. Skerman (Queensland University's senior lecturer in Agriculture) in pioneering the use of forage for silage as drought reserves is a major contribution and should be widely adopted by graziers.



Cattle relish *Leucaena glauca*, a leguminous tree adapted to Australia's higher rainfall country.

Increased use of buffel grass is also possible on the fertile soils. This is an excellent example of co-ordination between research and extension.

The late Dr. McTaggart brought new strains of buffel grass into Australia in the early 1930's. The Department of Agriculture and Stock tested these throughout Queensland, and the Gayndah and Biloela strains are now freely available.

These practices will make for more stability in stock numbers over the years, but are not likely to add greatly to the total number that can be carried. Indeed, the principal aim in this low-rainfall country must be to maintain a valuable asset.

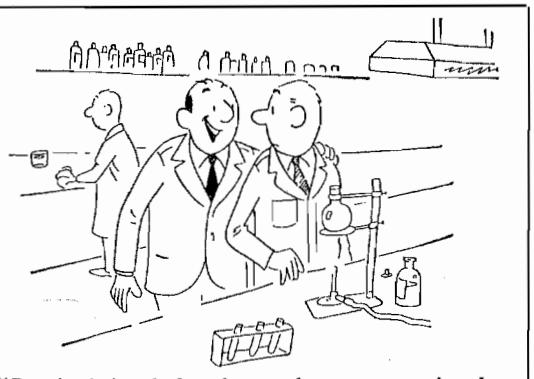
It is in the country with 20 inches of rainfall and over that really spectacular advances can be expected. Most of the stock in these areas are now grazed and reared on native pastures —pastures which, although fairly good in the summer growing period, are very poor in winter and spring. This is a situation where livestock production is controlled more by the quality of the dry season feed than by the yield of pasture.

There are large areas of highly fertile soils, such as the Darling Downs, the South Burnett farming areas, the Central Highlands, and the Brigalow belt, but there are even bigger areas of infertile soils which will pose greater problems for pasture and crop production.

Grass-lucerne mixtures on the Darling Downs are making dairying safer and production more uniform. Sorghum almum pastures with lucerne and buffel grass in them are carrying one beast to two acres throughout the year in the Goondiwindi district.

Several introduced grasses, when grown with *phaseolus lathyroides* and properly fertilized, have trebled the carrying capacity in Spear grass country and cut at least a year off marketing age.

Sown pastures in the Wallum at Beerwah are carrying a steer per one and a half acres or five sheep per acre with very heavy applications of fertilizer."



"Prentis, during the last three weeks, your suggestions have saved the firm £1 million. Please accept our heartfelt thanks."

Beef Research

DETAILS of legislation to be introduced during the next session at Parliament affecting beef research were recently announced by the Minister for Primary Industry.

The legislation will establish a fund contributed to by the industry and the Commonwealth on a £1 for £1 basis. It is expected that a total of £640,000 will be available each year.

The fund will be administered by a Committee on which C.S.I.R.O. will be represented.

The research will cover all problems from the farm to the point of retail sale, and will be done by C.S.I.R.O., Universities, State Departments and other appropriate organizations.

It is anticipated that the fund will allow a considerable expansion in C.S.I.R.O. research in this field.

A Committee comprising members of the Executive and Chiefs of the Divisions concerned has already made preliminary enquiries concerning the direction this expansion may take.

Similar funds already exist for research into the wool, wheat, tobacco and dairy industries.

MORE FILMS

THE FILM UNIT will shortly release two 16 mm. colour, sound films which should prove of wide general interest.

THE first of these, **"Pattern for Progress"**, is a 15 minute film produced for the Agricultural Research Liaison Section in collaboration with the N.S.W. Department of Agriculture.

It is the story of co-operation between research workers, extension officers and farmers in the central tablelands area of New South Wales. The study portrayed has been designed to assess the difference between the present state of land use and the agricultural potential of the region. It is aimed at finding out why this difference exists and why information which might be of use to the farmer has not been applied.

The region is an area of nearly 9,000 square miles of undulating upland country around Canberra, country known for over a century for the quality of its fine wools. In this area Hamilton Hume settled in 1828 and at Tharwa, on the Murrumbidgee River, William Farrar carried out his early wheat breeding experiments.

The central figure in the film is a farmer, Ted Walker, who has followed the traditional practice of sheep grazing on native pasture. His attempts at improvement have not proved economical. The film traces his introduction to the scheme and his meeting with extension officers and research workers at a Field Day arranged in connection with the survey of the area.

lead to the development of his property, the full value of the scientific and extension work will not be obtained for some time.

The scheme is an example of what can be achieved throughout Australia by close collaboration between the research worker, extension officer, and the man with the practical problems—the farmer.

The other film, **"Biological Control of Insects"**, will have a screening time of 40 minutes. Most of the film is beautiful close-up cinephotography showing insect pests and their natural enemies.

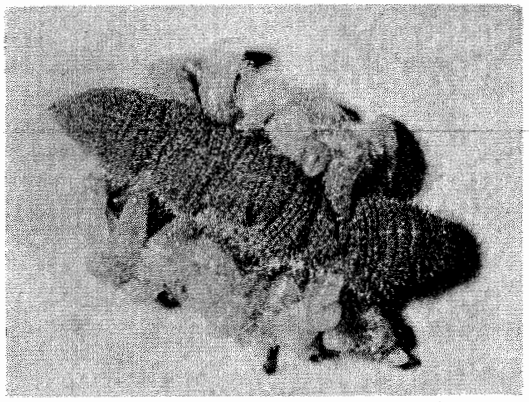
These enemies fall into three groups:

- Predators which eat their prey
- Parasites which live within the insect they attack
- Diseases which are specific to insects.

The film is concerned with the story of biological control rather than the life history of the insect pests and their natural enemies, but in telling the story, we look closely into many fascinating aspects of insect behaviour and the intimate life history of pest and natural enemy.

For example, *Microphanurus*, a minute parasite much smaller than the common house fly, only lays one egg in each egg of the Green Vegetable Bug. The female marks the egg so that she and her fellows will know that the egg has been parasitized.

Being able to distinguish between parasitized eggs means that the female does not waste eggs.



Scene from biological control film showing host and parasite.

The investigations being tackled by the research people and their relation to the farmers' problems are highlighted. Although the immediate application of the research results gives Ted a valuable

Incidentally the male parasites show many characteristics of higher animals in that they fight amongst themselves for possession of the eggs. Then the successful male fertilizes the females as they emerge.

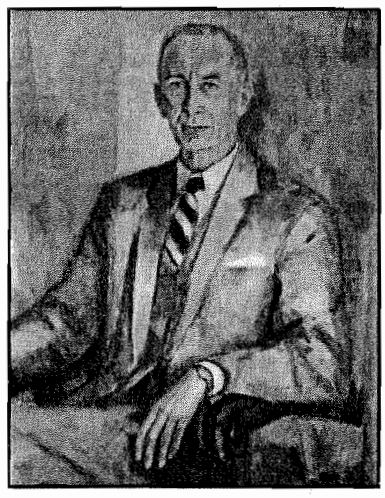
There are many interesting stories of biological control in the film but the two most well known are those aimed at the control of the Cabbage White Butterfly and the Queensland Fruit Fly.

Work on the latter has not reached the stage where an assessment can yet be made of the effectiveness of the many species of wasps which have been introduced from Hawaii. In that country they have exercised reasonable biological control of the Oriental Fruit Fly, which threatened the fruit growing industry after the last war.

The introduced wasps will attack the Queensland Fruit Fly in the laboratory and recoveries have been made in the field. But how effective the wasp is remains to be seen.

One effective wasp species, *Opius oophilus*, is an egg parasite and, by a wonderful piece of surgery, it lays a minute egg inside the recently laid eggs of the fruit fly. The larvae of the fruit fly continue their normal development to the pupal stage, when the parasite consumes its host and emerges from the pupal case of the fly.

PORTRAITS FOR McMASTER LAB.



THE PORTRAIT of the late Sir Ian Clunies-Ross, who was the first Officer-in-Charge of the McMaster Animal Health Laboratory, was presented to the McMaster Laboratory by Mr. Gill on his retirement.

It was painted posthumously by Miss Judy Cassab.

The portrait of Mr. D. A. Gill was painted to commemorate his service to C.S.I.R.O. as Officer-in-Charge of the McMaster Animal Health Laboratory from 1937 to 1954, and as Chief of the Division of Animal Health and Production from 1954 to 1959.

It was subscribed to by his colleagues in C.S.I.R.O. and the University of Sydney, and also by primary producer organizations and commercial firms.

This was also painted by Miss Judy Cassab.

OCEANOGRAPHIC RESEARCH

INTERNATIONAL interest is now being focussed in the Indian Ocean with the planning of a programme of oceanographical research by a committee sponsored by the International Council of Scientific Unions. Ten ships of six nations will be engaged in a co-operative venture.

U.S.S.R. has commenced with a survey by the research ship "Vitiaz," and Australia planned in co-operation with the Royal Australian Navy has just completed the first of a series of oceanographic surveys to examine the physical, chemical and biological composition of the water masses of the ocean.

A team of six officers of the Division of Fisheries and Oceanography, under the leadership of Mr. D. J. Rochford, joined H.M.A.S. "Diamantina" at Fremantle on October 11, 1959, and worked oceanographical stations in the eastern Indian Ocean. They covered an area of one million square miles, which is roughly half the area of Australia.

One hundred and thirty-three stations were worked. Fifty-one were to depths greater than 2,000 metres, and two, in the Sunda Trench south of Java, were to 5,800 metres.

At each station sea water samples were collected at various intervals and analyzed for temperature, salinity, oxygen, inorganic phosphate, total phosphorus, and nitrate. Samples were also taken for the study of plankton.

Most of the chemical analytical work was done in the laboratories aboard, and the data were processed aboard. This is a considerable improvement on conditions in the Division's own small ships, from which all sea water samples must be returned to Cronulla for laboratory analysis.

The Royal Australian Navy has converted four sections of the "River" class frigate H.M.A.S. "Diamantina" to provide accommodation and laboratories.

The larger laboratory is 17 ft x 14 ft and opens on to the quarter deck, while the smaller laboratory opens on the starboard side and the plotting room is abaft the chartroom on "B" deck. A six-berth cabin with bathroom provides accommodation for the scientific team, who were made honorary members of the ship's wardroom mess and enjoyed all the recreation facilities provided for members of the ship's company.

Similar laboratory and accommodation space will be provided for the Division in H.M.A.S. "Gascoyne", which will operate in the Tasman and Coral Seas from the end of January 1960.

The "Diamantina" called at Christmas Island and the Cocos Islands. At Christmas Island the scientists were the guests of Mr. Neville, Manager for the British Phosphate Commission, and at the Cocos Islands, scientists and ship's officers were entertained by Mr. J. Clunies-Ross, and by two officers of the Cable and Wireless Station.

An emergency appendectomy performed during the cruise, involved two of the scientific team as operating theatre assistants. The operation was successful and within a week the patient had recovered.

Medical Benefits in U.S.A.

THE HIGH COST of medical attention in North America has led the Chief Scientific Liaison Officer in Washington, Mr. T. Paltridge, to initiate an arrangement to allow C.S.I.R.O. students and others in similar circumstances to contribute to a group insurance scheme.

NEGOTIATIONS by Mr. L. G. Peres, on the Executive's behalf, have now made the operation of this scheme possible.

The group policy enables a single student to be covered for medical expenses at a cost of $2.20 per month. The cost for a student and his family is $7.47 per month. These premiums are lower than those available under individual contracts.

These additional benefits will go a long way towards bridging the gap between high American medical costs and the benefits people might receive under one of the Australian schemes.

A further advantage is that eligibility for benefits accrues as soon as an officer's name is added to the policy. There is no qualifying period.

Participation in this scheme has been made a condition of award for C.S.I.R.O. oversea studentships, unless the student is adequately covered in some other way. There is no cost to the student.

Officers in North America under similar conditions are encouraged to participate, but reimbursement of the cost will depend on the circumstances of the officer's visit.

Officers travelling in North America on official duty are covered under Treasury regulations.

Overseas Conference

Dr. A. W. H. BRADEN has received an invitation to participate in the Thirteenth Annual Research Conference of the Biology Division of the Oak Ridge National Laboratory (U.S.A.) to be held at Gatlinburg, Tennessee, April 1960.

He has been asked to present a major paper on egg maturation and fertilization.

The title of the Conference is "Mammalian Genetics and Reproduction".

Other speakers include Professor H. Grüneberg (London), Professor W. F. Hollander (Iowa), R. D. Owen (Caltech), Professor H. B. Chase (Rhode Island), Professor Sewall Wright (Wisconsin), and C. R. Austin (London).

Overseas Visit

Mr. D. J. TRANTER of the Division of Fisheries and Oceanography is to make an overseas visit to study zooplanktology research.

He will spend four months working at the Woods Hole Oceanographic Institute in the United States. He will visit research centres in Europe and the United Kingdom, and arrangements are being made for him to visit Moscow to attend the Zooplankton Symposium of the International Council for the Exploration of the Sea.

He will also visit the Institute of Oceanology in Moscow. Russian scientists are at present working in waters adjacent to Australia in the research vessel "Vitiaz".

Successful Timber Seasoning Course

SOME FORTY-FIVE representatives of the timber industry from all States attended the most recent of the Division of Forest Products' timber seasoning classes.

It was held at the Division's laboratories in South Melbourne, over the week 23rd-27th November. This course follows others held in other States over the past five years.

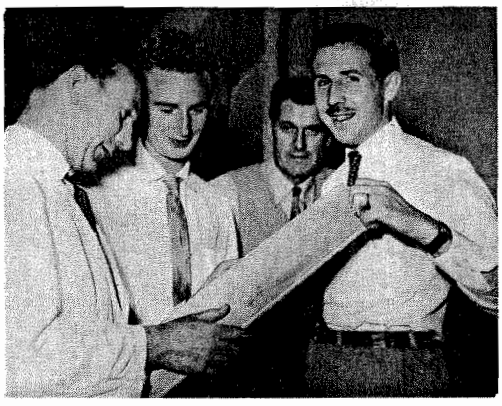
The Melbourne course was held at the joint request of The Victorian Sawmillers' Association, the Timber Merchants' Association of Melbourne and Suburbs, The Country Timber Merchants' Association and The Guild of Furniture Manufacturers, and was planned as part of a programme to improve technical standards in the timber industry.

It comprised eighteen lectures on the principles of plant layout; timber sorting, handling, and stacking; air seasoning; warp prevention; shrinkage and collapse; the causes and relief of drying degrade and drying stresses; the design, operation, and maintenance of modern seasoning kilns and pre-driers; kiln instrumentation; special methods of heating and drying; equilibrium moisture content in relation to timber usage; preservation in the every-day use of timber; and the economics of timber seasoning.

It included courses of practical work, discussion periods and visits to modern seasoning plants.

Five firms represented at the course have already requested the Division's help in replanning operations. The visitors were greatly impressed with the Division's facilities for this type of activity.

Class lecturers were Mr. G. W. Wright (Officer-in-Charge of the Division's Seasoning Section), Dr. W. G. Kauman, Mr. G. S. Campbell, Mr. L. J. Brennan, Mr. R. M. Liversidge, and Mr. F. Dale.



Mr. Ron Liversidge (Forest Products) with Mr. Roberto Chiani (F.A.O. Fellow) and Messrs. R. E. Stevens and G. Smith of the Kauri Timber Co. who attended the course.

Mr. R. G. Chiani will be leaving Australia early in March to spend one month in the U.S.A. on his way home to Argentina.

Mr. Chiani, an officer of the Direction of Forestry Investigations of the Argentine Administration of Forests has been in Australia on an F.A.O. Fellowship studying techniques in the preservation, seasoning, and utilization of eucalypt timbers.

Although eleven countries have been represented by the 28 Fellows who have received training at the Division, Mr. Chiani is the first from Argentina to undergo such a course.

His Fellowship was granted as a result of the assignment last year of Mr. C. S. Elliot, Assistant Chief of the Division, to advise on the treatment and utilization of eucalypts that are now being grown in great numbers in Argentina.

CREDIT SOCIETY

THE C.S.I.R.O. Co-operative Credit Society is in its third year of operation.

It has grown so rapidly that it is now the second largest Credit Society in Victoria. To date loans made to members exceed £40,000. This emphasizes the need for such a society within the Organization.

Outstanding applications for loans from the Society have reached a record level of £10,000. The Society could meet these applications more readily if additional funds were available.

Those investing in the Society are guaranteed a minimum return of 5% for an investment period of 12 months or more, 4% for 6-12 months and 3% under 6 months. These rates may be increased shortly. The investments may be withdrawn at any time.

Membership of the Society is open to all personnel of C.S.I.R.O.

Inquiries should be sent to Mr. I. F. Carrucan (Head Office) who is the Society's Secretary.

New Appointees

Miss S. C. Austin, a graduate from the University of Queensland, has been appointed to the Division of Forest Products. Miss Austin will be carrying out investigations into the chemistry of wood.

Mr. T. Gelb has been appointed to the Division of Building Research, where he will carry out chemical investigations into the nature of clays and clay products. Mr. Gelb has had many years experience in ceramics technology in Poland.

Mr. J. F. Horwood has joined the Dairy Research Section to carry out work on the identification of flavour compounds. For the last ten years Mr. Horwood has been a spectroscopist at the Defence Standards Laboratories.

Dr. R. T. Leslie has rejoined the Division of Mathematical Statistics. He will work at the National Standards Laboratory in Sydney.

Dr. Leslie was formerly stationed at Canberra, and the Division of Forest Products. In recent years he has been lecturing in Statistics at the University of Melbourne.

Mr. L. J. Ludwig, from Canterbury University College, New Zealand, has accepted an appointment with the Division of Plant Industry.

Mr. Ludwig will test growth habits, especially variability, of experimental plants grown in prototype phytotron cabinets.

Mr. D. Pescod has been appointed to the staff of the Engineering Section. Mr. Pescod is a former officer of the Aeronautics Research Laboratory and until recently was a design engineer with a chemical processing company.

Mr. P. J. van Rijn has been appointed to the Division of Land Research and Regional Survey.

Mr. van Rijn, who is a graduate from the University of Wageningen, will undertake research in connection with the development of rice production at the Kimberley Research Station.

Mr. W. D. Russell has commenced duty at the Irrigation Research Station, Griffith. Mr. Russell is a graduate of Canterbury Agricultural College, New Zealand.

At Griffith he will take part in studies of the physiology of plant growth in response to moisture stress.

Dr. P. A. G. Scheuer has joined the Division of Radiophysics as a Research Fellow.

Dr. Scheuer will carry out research in radio astronomy. He is a graduate of the University of Cambridge and has for the last three years been engaged on radio astronomy research at Cambridge.

Mr. H. F. Symmons has recently taken up an appointment with the Division of Physics. He will join the Division's solid state group studying transport properties of metallic elements, binary alloys and dielectrics.

Mr. Symmons is a graduate of the University of Bristol. For the last twelve years he has been lecturing in Physics at the University of Otago, New Zealand.

Mr. D. J. Winzor, from the University of Adelaide, has joined the Wheat Research Unit. He will carry out investigations into the surface properties of flour proteins.

Poultry Research

Dr. J. A. MORRIS has been appointed Officer-in-Charge of the Werribee Poultry Research Centre of the Division of Animal Genetics.

This follows the recent resignation of Mr. F. Skaller from the Organization.

Dr. Morris finished his agricultural science degree at Sydney after serving for 3½ years with the R.A.A.F.

In 1952 he was awarded a C.S.I.R.O. overseas studentship, to study at the Institute of Animal Genetics in Edinburgh.

For his work there he was awarded the Ph.D. degree in 1954.

Dr. Morris gives a series of lectures in genetics and animal breeding to final year agricultural science students at the University of Melbourne.

Printed by C.S.I.R.O., Melbourne

BOTTLES – 2s. each

C.S.I.R.O. is paying small rewards to finders of bottles which are being released in Bass Strait.

OFFICERS of the Division of Fisheries and Oceanography are using bottles to study ocean drift.

"We pay a reward of 2/- for the return of the cards from these bottles," Mr. A. M. Olsen, of the Tasmanian Regional Laboratory, told the press.

"Their recovery aids our study of the surface ocean currents along the west coast of Tasmania, western Bass Strait, western Victoria and south-east coast of South Australia.

"When sending the reward to the finder, we also give details about the date and place of release of the drift bottle.

"At a pre-arranged date each month, masters of interstate vessels trading between Melbourne and Strahan release at sea 100 bottles, 50 off Mt. Heemskirk (Granville Harbour) and another 50 off West Point.

"Other ships plying between Hobart and Adelaide likewise release 50 bottles about 30 miles S.W. of Cape Otway (Vic.) and another 50 south of Cape Northumberland (S.A.), making a total of 200 bottles released at approximately the same day each month.

"Altogether 2900 bottles have been released since September 1958, with a 25 per cent. recovery.

"Recoveries from these releases help us with our study of currents as part of an investigation into the life history of our marine crayfish.

"About October the eggs of the marine crayfish hatch out into small larvae totally unlike the adult animal.

"These larvae seek the surface waters and remain there, so far as we know, for about 4 to 6 months.

"They are carried along by the surface currents. It is the distribution of larvae which interests us. Because we are unable to mark the larvae, indirect methods, such as drift bottle studies have to be used.

"Many families spend their Christmas and New Year holidays at a beach. A search of many beaches for stranded drift bottles would be interesting, rewarding to the children and helpful to our research studies", Mr. Olsen said.

One bottle from a Mt. Heemskirk release was recovered from South Bruni Island, while others were returned from between such widely separated places as Yorke Peninsula, Kangaroo Island and Robe (S.A.), King Island and eastwards along the Victorian coast to Cape Liptrap.

West Point releases have been recovered from Cape Sorell (Tas.) and the West Coast beaches, Louth Bay near Port Lincoln, Goolwa Bay and Kangaroo Island (S.A.), King Island and eastwards to Cape Liptrap.

Bottles from Cape Northumberland and Cape Otway have been stranded on the coast from the Eyre Peninsula in the west right along the South Australian and Victorian coastal areas to Sussex Inlet in N.S.W. in the east.

Some have been returned from Flinders Island and Bicheno.

Staff Transfer

Mr. C. GATES, who has for a number of years been stationed at the Irrigation Research Station at Griffith, has transferred to the Division of Tropical Pastures in Brisbane.

Mr. Gate's work at Griffith was concerned mainly with water relations in plants and cell physiology.

In Brisbane he will study the effects of the climatic factors of environment on the behaviour of tropical and subtropical pastures.

A VETERAN AT HIGHETT

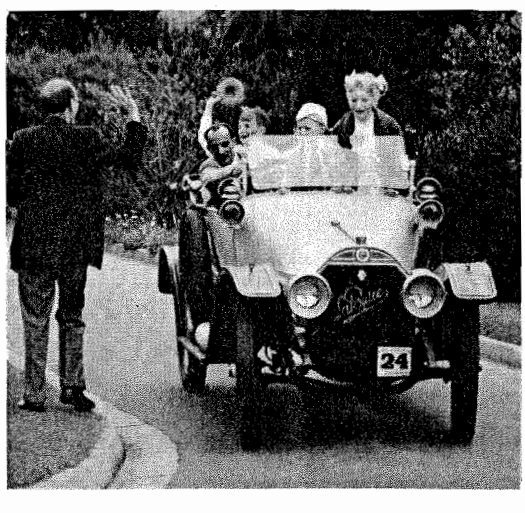
CHILDREN attending the Christmas Party at Highett last year were provided with an unusual form of entertainment — rides around the grounds in a veteran car. The treat proved highly popular and the little car made many trips with capacity loads of young folk.

THE CAR, a La Buire, is owned by Mr. Don Sisley of the Division of Building Research.

It was made in Lyons, France, in 1912, and came into Mr. Sisley's possession about six years ago. After about fourteen months of spare-time work the car was completely overhauled and is now in first class order. Apart from the wheels, which have been replaced to enable locally made tyres to be used, the car is in its original condition.

Mr. Sisley is an early member of the Veteran Car Club of Victoria and has participated with the La Buire in several long rallies organized by the Club, including trips to Ballarat (twice), Sorrento (twice) and the Barossa Valley, S.A.

During the latter trip Mr. Sisley was awarded a silver medal for high points gained in special events.



CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 12, MELBOURNE, MARCH 1960

A NEW MINISTER-IN-CHARGE OF C.S.I.R.O.

The Hon. Donald A. Cameron, O.B.E., B.A., M.B., B.S., M.P., has been appointed Minister-in-Charge of C.S.I.R.O. This follows Mr. Casey's resignation from the Ministry after his recent elevation to the peerage.

Dr. Cameron has been a member of Parliament since 1949 and Minister for Health since 1956. He served with distinction in the Army Medical Corps in World War II, reaching the rank of Lieutenant-Colonel. He saw service both in the Middle East and in New Guinea.

Dr. Cameron was Acting Minister-in-Charge of C.S.I.R.O. during Mr. Casey's absence from Australia last year. During this time he displayed a keen interest in the Organization's activities.

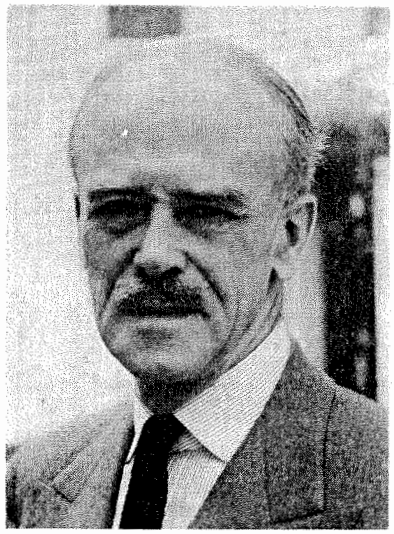
Mr. Casey's resignation from the Ministry ends a long association with C.S.I.R.O., dating back to 1937, when he first became Minister-in-Charge of C.S.I.R.

He relinquished the post shortly after the outbreak of war, but resumed it ten years later, shortly after the Menzies Government was returned to power in 1949.

Mr. Casey was always proud of his association with C.S.I.R.O. He frequently wrote articles and made speeches about the Organization in an effort to make other Australians share his pride.

His chief interest was, of course, in international affairs, and he has in recent years been a keen advocate of international co-operation in science. He has strongly supported technical training under the Colombo Plan.

It is likely that Mr. Casey will continue to extol the virtues of national scientific research when he takes his seat in the House of Lords.



Left — Dr. Cameron. Right — Mr. Casey.

A Scientific Viewpoint

In Victoria, the Australian Broadcasting Commission has arranged an interesting series of lectures by scientists and engineers, entitled "Viewpoint 1960."

"Engineers and scientists," say the A.B.C., "have done much to change the world we live in by modifying our environment, and while doing this they have been developing for themselves a new view of the world.

"Nevertheless, we are all members of the same community, sharing its benefits and putting up with its shortcomings, and any differences between us must be differences in attitudes. Therefore, it is worthwhile asking whether their attitudes differ from ours.

"The speakers in 'Viewpoint 1960' will be Scientists and Engineers, but they will deal with matters encountered in everyday lives, things we all know something about, thus providing opportunities for comparing our viewpoints with theirs."

Among the speakers are three members of the C.S.I.R.O. staff, Dr. J. M. Swan and Dr. M. Jermyn, of the Division of Protein Chemistry, and Mr. G. B. Gresford, of Head Office.

Dr. Swan has already spoken on "Words, Meanings, and Human Understanding". Dr. Jermyn will speak on "Attitudes, Habits, and Conformity" on Friday, 4th March, and Mr. Gresford will speak on "Barriers, Problems, and Progress" on Friday, 25th March.

All of the lectures will be broadcast over station 3LO on Friday nights at 10 p.m.

"SIRONIZED" WOOL GOES TO WIMBLEDON

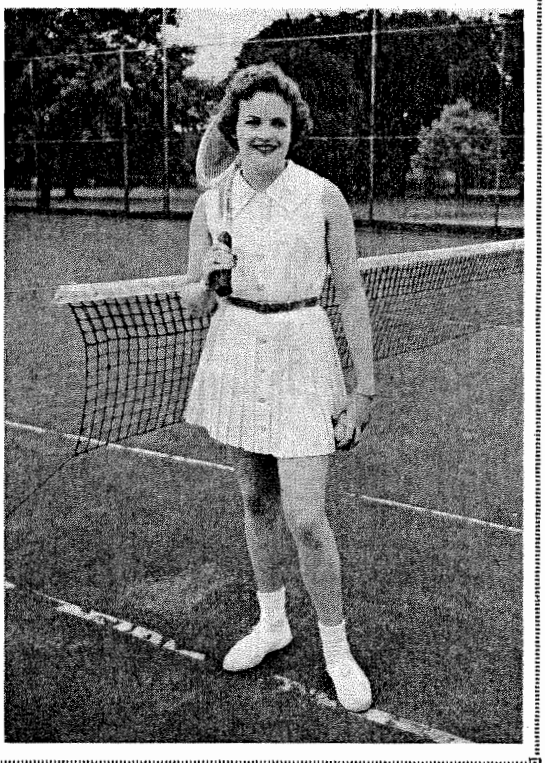
Australia's new wash and wear woollen fabric will make its debut at Wimbledon this year.

Australian women tennis players have included no-iron light-weight, wool tennis dresses in their travel wardrobes.

The players are Jan Lehane, 18, of New South Wales, who holds the Queensland and New South Wales senior singles titles; her tour chaperon, Mrs. Mary Hawton, who is also a well-known tennis player, and Fay Muller, of Queensland, who won the Australian mixed doubles with Mal Anderson.

For their private world tennis tour and for Wimbledon they have chosen tennis dresses in "SIRONIZED" wool, which washes, needs no ironing, and packs well.

Teenage tennis champion Jan Lehane models the washable, permanently pleated dress, she has included in her Wimbledon wardrobe.



Executive Arrangements

As a result of the additional appointments to the Executive there has been a reorganization of the Executive arrangement at Head Office.

The titles of Deputy Chairman and Chief Executive Officer have been abolished.

The Executive will now consist of the Chairman (Dr. White), four full-time Members of Executive (Dr. Bastow, Dr. Robertson, Dr. Huxley, Mr. Christian), and four part-time Members of Executive (Mr. Coles, Dr. Melville, and two members still to be appointed).

Formal meetings of the full Executive to deal with major policy matters will be held every month; a weekly meeting of full-time Executive members who are in Melbourne at the time will be held to deal with matters which do not require consideration by the full Executive.

Although Chiefs and Officers-in-Charge will of course continue to have direct access to any member of the Executive, each Member of the Executive will have a particular responsibility for certain Divisions and Sections.

These Divisions and Sections would then regard the Executive Member concerned as their first contact in the Executive and the person to whom they would normally go to discuss matters needing consideration at Executive level. This should ensure that at least one Executive Member is fully informed of the achievements, and general problems of the Division or Section concerned, and can interpret these to other members of the Executive.

This arrangement does not in any way exclude Divisions and Sections from contact with other Executive Members. The allocation of Divisions and Sections proposed at present is as follows.

Dr. White: Wool Research Laboratories, I.R.L.S.

Dr. R. N. Robertson: Plant Industry, Biochemistry and General Nutrition, Food Preservation and Transport, Fisheries, Entomology, Irrigation Research Stations, Wheat Research, Soils.

Mr. C. S. Christian: Tropical Pastures, Animal Industries, Wildlife Survey, Dairy Research, L.R.R.S., Soils, Fodder Conservation, A.R.L.S.

Dr. L. G. H. Huxley: Chemical Research Laboratories, Tribophysics, Physical Metallurgy, N.S.L., Radiophysics, Upper Atmosphere, Meteorological Physics, Mathematical Statistics.

Dr. S. H. Bastow: Head Office, Editorial, Forest Products, Building Research, Coal Research, Ore-Dressing, Mineragraphy, Engineering Section, Wool Research Laboratories.

Conferences in U.S.A.

Two officers have been invited this month to present papers to conferences in America.

Dr. A. W. H. Braden, of the Division of Animal Physiology, will leave this month for a short visit to the United States.

He has been asked to present a major paper to the Thirteenth Annual Research Conference of the Biology Division of the Oak Ridge National Laboratory at Gatlinburg, Tennessee.

Mr. A. Walsh, of the Division of Chemical Physics, C.R.L., has been invited to present a paper at a Spectroscopy Conference in Pittsburgh.

He will also visit a number of firms who are engaged in the manufacture, under licence, of scientific instruments which he has invented and developed. Mr. Walsh left for the United States last month.

A SURVEY OF SCIENCE IN PAKISTAN

ASIAN scientists work under conditions that would daunt even the most dedicated of our research men. In Pakistan we found that the scientist had to struggle to get both labour and materials for his work.

Mr. F. G. Nicholls, Research Secretary of C.S.I.R.O., has recently returned from a three months visit to countries in South-east Asia. Most of his time was spent in Pakistan, where he served as one of five Colombo Plan advisers to a fourteen-man Pakistani Science Commission.

The Commission was set up by the President of Pakistan to report on how the country's scientific effort should be organized and how science might best be harnessed to solve problems facing Pakistan.

In this article he gives his impressions of the difficulties besetting scientists in Pakistan.

Virtually all laboratory supplies have to be imported. There are no local traders who hold stocks of apparatus or chemicals and hence work can come to a halt until an unpredicted item which suddenly becomes important can be indented.

Laboratories have built up some stocks to meet this position but shortages of funds and stringent import restrictions have kept indentors to an unhelpful minimum.

These difficulties are made more acute by the lack of workshops and people to man them.

Unfortunately, the present educational system has virtually no provision for the training of technicians and skilled tradesmen.

Manual work is not highly regarded and craftsmen are mostly illiterate.

Technical training is almost exclusively confined to the University level and there is no provision for a broadly-based scheme involving technical colleges as we know them.

This means that the Pakistan scientist works without the valuable group of technical officers, technical assistants, and workshop personnel which forms a considerable part of the C.S.I.R.O. staff.

In consequence, there is little or no chance of fabricating equipment to offset the shortage of imported goods, nor is it easy to get apparatus repaired. Often valuable instruments are out of service because necessary spare parts are not available, or because there is no one with the skill to effect even minor repairs.

Scientific libraries are in poor shape. Pakistan had only a few libraries at the time of partition from India and new ones have not been developed in the way they should have been.

Trained librarians are scarce and in most places the librarian is little more than a guard for the books. Most libraries have all of their stock in locked cupboards. Catalogues and inter-library loans are a thing for the future.

There are even more major hazards for the research man. His work will be carried out in a Government laboratory (there are no other ones) under a bureaucratic control which must be experienced to be believed.

Before any new line of work is started official approval must be obtained for the project. A scheme of research has first to be accepted by the Ministry which controls the laboratory and the file of papers passed through seemingly endless chain of clerks in this process.

Next it goes to the Ministry of Finance and again goes up and down the ladder of command for "critical review" before it is sanctioned.

If it should survive this onslaught the project may be put forward for possible inclusion in the next budget. Before it is accepted, however, it again comes under similar scrutiny.

Getting approval to spend funds from the approval budget is almost as difficult an undertaking. Years can elapse before work in fact starts on a new project.

Recommendations for new positions and for appointments or promotions must also traverse this rough and difficult road.

The rewards to the scientist are not attractive. After completing the degree of M.Sc. (which is equivalent to our honours B.Sc. degree), the new graduate will be fortunate to receive more than Rs. 250 per (month (£A300 p.a.).

Increments granted every second year are at the rate of Rs. 50 per month.

Very few scientists can expect to reach even Rs. 1,000 p.m. (£A1,200 p.a.).

On the other hand the top civil servants (few in number, it is true) get Rs. 4,000 p.m. (£A4,800 p.a.) with free housing and other advantages. Small wonder that the brightest types seek to enter the Civil Service of Pakistan.

Yet, despite these barriers, some notable results have been achieved. High yielding varieties of cotton and sugarcane adapted to local conditions have been evolved.

The Pakistan Council for Scientific and Industrial Research, under Dr. S. Siddiqui, has developed processes which are being taken up by industry. A new insecticide produced by chlorinating a sulphur containing by-product of coal distillation looks very promising.

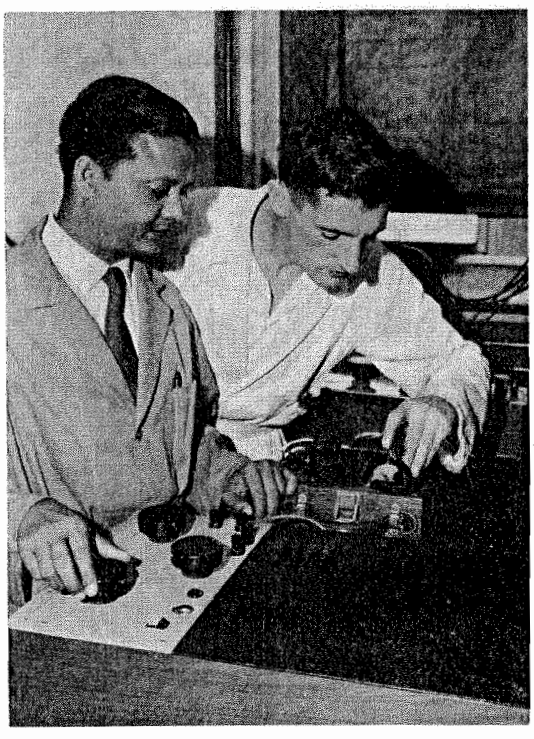
The Science Commission in its report to the President of Pakistan is recommending the formation of a new body, free from departmental control, to be responsible for the country's scientific effort.

It will be governed by scientists and will be rather similar to C.S.I.R.O. in its operations.

It is expected that the new body will be given sufficient funds to enable it to carry out the considerable programme of research which is clearly required.

The Commission has also recommended that the salaries of scientists be increased and that action be taken to improve their standing.

Pakistani at N.S.L.



Mr. A. Hye, an Assistant Director of the Regional Testing and Standards Laboratory in Dacca, East Pakistan, is at present undergoing training with the Division of Electrotechnology under a Colombo Plan Fellowship.

Mr. Hye is a Master of Science from Dacca University and is responsible for testing of physical and electrical properties of materials.

Mr. Hye receiving instruction in calibration of a meter from Mr. R. P. Hoffman.

During his scheduled year's training he will spend about seven months with the Divisions of the National Standards Laboratory and the remainder on visits to the Sydney County Council, to the Snowy Mountains Hydro-Electric Authority and to the Victorian State Electricity Commission.

Conference on Plant Protection

LATER this year, an international meeting on "Organization and Methods of Plant Protection" will be held.

This meeting will take place at Wageningen, the Netherlands, from August 1-26, 1960. It will be held under the auspices of the Netherlands Ministry of Agriculture and Fisheries.

The Organization will be in the hands of the International Agricultural Centre at Wageningen.

Experts in the fields of plant protection, advisory work and research on plant diseases and pests have been invited to introduce their special subjects. These lectures will be followed by discussions.

By making use of effective discussion techniques ample time will be available for a profound and thorough exchange of ideas and experience among participants. Most subjects will be supplemented by practical demonstrations either in laboratories or in the field.

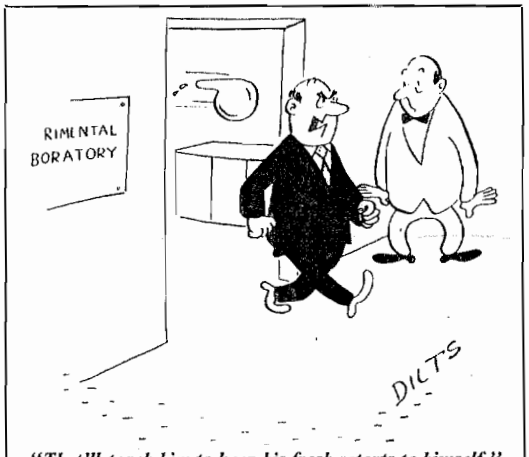
It is envisaged that some six days will be spent on field trips covering a large part of the Netherlands. This will enable participants to get a general view of plant protection in the Netherlands.

The meeting is designed for senior and junior officers of Plant Protection Services, Advisory Services, Experimental and other Research Stations.

Papers will be presented in English, French or German, but by making use of a simultaneous interpretation system, participants will be enabled to follow the lectures and take part in discussions in any one of the three languages.

Those planning to participate in the plant protection meeting are invited to communicate with:

The Director, International Agricultural Centre,
1, General Foulkesweg,
Wageningen,
The Netherlands.



"That'll teach him to keep his fresh retorts to himself."

With grateful acknowledgement to "Chemical Engineering News".

Vic. Credit Society Lifts Interest Rate

THE Victorian C.S.I.R.O. Co-operative Credit Society is now paying 6% interest on money deposited with the Society for a period of 12 months or longer.

This decision was reached at a recent meeting of the Directors of the Society. The Chairman of Directors (Mr. W. Ives) said that he was confident that the increase in the interest rate would attract much needed capital to the Society.

Interest rates for investments over a shorter period remain unchanged. These are 4% per annum for over 6 months and under 12 months, and 3% per annum up to 6 months.

Deposits are refunded on demand, though longer notice would be appreciated for large amounts.

Employees of C.S.I.R.O. or members of their families may lodge money on deposit. However, only employees of C.S.I.R.O. may become members of the Society and thus be eligible for loans.

All members are shareholders in the Society, and must hold a minimum of five shares before they become eligible for loans. Shares are £1, and, if desired, may be purchased by 10 equal instalments of 10/- on a fortnightly basis.

Further enquiries may be directed to the Secretary, Mr. I. Carrucan (Head Office, Ext. 333), or to any of the Directors of the Society. These are Mr. K. Fogarty, Fishermen's Bend (Ext. 276), Mr. R. McVilly (Head Office, Ext. 310), Mr. M. Combe (Head Office, Ext. 237), Mr. L. A. Bennett (Head Office, Ext. 326).

TRANSFERRED

Mr. C. T. GATES, formerly of the Irrigation Research Station, Griffith, has transferred to the Division of Tropical Pastures in Brisbane.

Mr. E. A. Jackson, formerly an officer of the Division of Soils stationed at Alice Springs, has transferred to the staff of the Agricultural Research Liaison Section in Melbourne.

The Most Elegant Gull on the Point

In the "West Australian" of 9th December, a technical assistant at the C.S.I.R.O. Regional Laboratory in Perth made headlines by a highly original attempt to suckle a sick silver gull. The following account appeared in the "West Australian".

"Sweetie, the seagull," can thank C.S.I.R.O. worker Lexie Nicholls, of Dalkeith, for still being alive today.

For two nights Miss Nicholls sat up and applied artificial respiration by hand to the bird while it fought off a severe attack of western duck sickness, or botulism, brought on by eating rotting weed in the Swan River.

Miss Nicholls is pictured using a pipette to feed Sweetie, who is now convalescing at the C.S.I.R.O. laboratories, Crawley.

The seagull would almost certainly have been killed by the disease if it had not been for Miss Nicholls' care.

Last summer, 23 gulls, two terns, about 30 waders and two grey teals died from the disease in the Pelican Point area alone where birds are trapped by the C.S.I.R.O. Wildlife Section.

Miss Nicholls' more detailed account of the treatment reads as follows:

"A Silver Gull was found in an almost completely prostrate condition on the foreshore of Pelican Point, on the Swan River estuary, at the end of November. This was only one of several cases of Duck Sickness (a type of botulism) rescued in most summers in W.A.

"He was unable to walk, fly or lift his head, and could barely swallow the first dose of the all-important castor oil. Within 24 hours the swallowing reflex failed, necessitating tube feeding of vitamized boiled water, glucose and crushed milk of magnesia tablets directly into the oesophagus.

"By the third day the peak of the syndrome was reached, with the failure of the respiratory apparatus and bowel, and complete prostration.

"Manual respiration applied to the bird for two days, in addition to mechanical evacuation of the paralysed cloaca, and two-hourly tube feedings kept Sweetie on the brink of life and death, while his body temperature dropped and heart action became faster and weaker.

"By the fifth day, the climax was passed and spells of normal breathing were possible. The bowel became naturally active, and tube feeding gradually dispensed with. Although a neck support was necessary up until the seventh day, the body musculature recovered quite rapidly, and, at the end of 10 days, the gull was able to stand unaided.

"On the nineteenth day, with the plumage fully restored to its normal water-shedding condition, Sweetie was released at the place of rescue, looking for all the world the most elegant, healthy silver gull on the Point."

According to her colleagues at the W.A. Regional Laboratory, Miss Nicholls' report does not do justice to the many days of loving care she bestowed on the patient. Before she joined C.S.I.R.O. she was a nursing sister at the Royal Perth Hospital.

Having no opportunities for exercising her Florence Nightingale activities among her colleagues at the laboratory, she lavishes them on various birds she becomes associated with in the Wildlife Survey Section.

Miss Nicholls serves breakfast to Sweetie with a pipette.

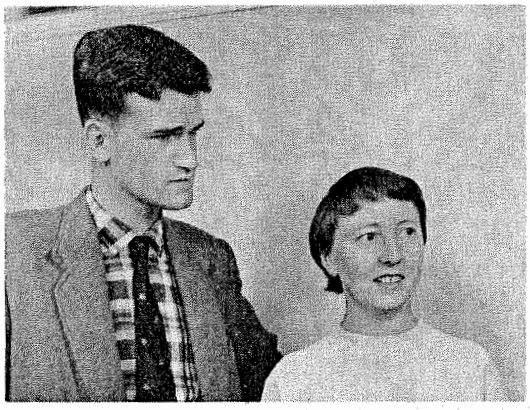
FELLOWSHIPS AT TRIBOPHYSICS

THREE young men, one a Canadian, one an Englishman, and the other an Argentinian, have taken up fixed-term research fellowships in the Division of Tribophysics. All three are married, and have brought their wives to Australia with them.

Dr. Ronald K. Ham, the first of the three to arrive, is aged 26. After graduating in Engineering Physics at the University of Toronto he went to England, where he worked for his Ph.D. degree at the University of Birmingham.

His supervisor was Dr. Trevor Broom, a former member of the staff of the Division of Tribophysics. Dr. Ham spent most of 1959 at the Cavendish Laboratory, Cambridge, working under Professor N. F. Mott on a Shell Commonwealth Scholarship.

Dr. Ham's fellowship is in metal physics, and is of three years' duration. Mrs. Ham, who is English, is a graduate in modern languages from the University of Bristol.



Dr. Peter G. Fox, the Englishman, is also aged 26. He is a chemist, who graduated from the University of Bristol and also took his Ph.D. degree there under Professor W. J. Dunning.

From Bristol he went to America, where he worked in the Department of Chemistry at Princeton University under Professor John Tirkevich.

Dr. Fox will work with the Division's surface chemistry group, which is concerned with adsorption on solid surfaces and its relation to catalysis, etching, and crystal growth. His appointment is also for three years.

Mrs. Fox is also a graduate in chemistry from the University of Bristol.

Mr. N. H. Ladizesky, the Argentinian, is aged 27. He came to Australia from the Institute of Physics at San Carlos de Bariloche in the Argentinian Andes.

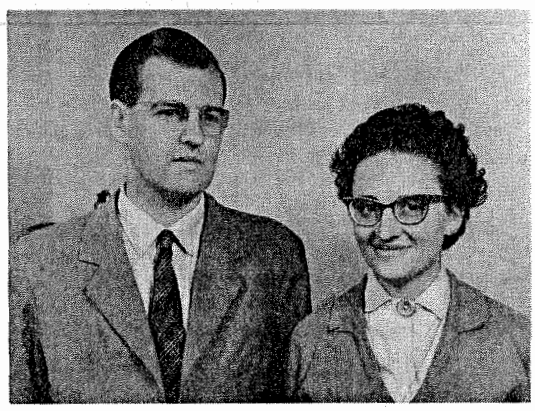
This Institute, which is run jointly by a University and the Argentine Atomic Energy Commission, provides selected students with advanced education in either nuclear physics or solid state physics.

Mr. Ladizesky will work on the energy released from cold-worked metals on annealing.

Mrs. Ladizesky, who is a nuclear physicist, has secured an appointment with Dr. D. E. Caro in the Department of Physics, University of Melbourne.

The Ladizeskys will be in Australia for one year.

Top — Dr. and Mrs. R. K. Ham, Centre — Dr. and Mrs. P. G. Fox, Bottom — Mr. and Mrs. N. H. Ladizesky.



RESEARCH ON FIJI TIMBER

Mr. J. R. ANGUS, Conservator of Forests in the Department of Forestry at Suva, Fiji, paid an official visit to the Division of Forest Products at the end of January.

FIJI possesses a wide range of timbers, many of which are cut by the sawmilling industry and are already of considerable value.

Some empirical knowledge exists regarding the properties of many of these timbers, but in general, the Colony's timber wealth is not being utilized to its best advantage as adequate technical and scientific information on the properties of the available timbers is lacking.

Potentially valuable woods are probably being neglected because their properties are unrecognized, whilst others are being used for only a few of the purposes for which they might be suitably employed.

The purpose of Mr. Angus' visit was to discuss possible research by C.S.I.R.O. into the properties, potentialities and correct methods of treatment of the various exotic and indigenous timbers growing in Fiji.

Presidency for Dr. Robertson

AT a three day conference in Canberra, commencing on January 13th, the members of the Australian Society of Plant Physiologists elected Dr. R. N. Robertson their second President.

Dr. Robertson played a leading role in the formation of the Society and at the inaugural meeting in Adelaide in 1958, the late Professor J. G. Wood was elected first President.

Amongst the thirty papers presented at the conference were contributions by officers of the C.S.I.R.O. Divisions of Food Preservation and Transport, Forest Products, Plant Industry, and Soils. Dr. Robertson presented a paper entitled "The relation between respiration and active transport in plant cells".

One afternoon during the conference was spent at the Division of Plant Industry. Here Dr. L. T. Evans described the plans for the Canberra phytotron and, after lively discussion on the use of controlled environment facilities in plant research, over seventy participants inspected the phytotron prototype.

Dr. N. P. Kefford, of the Division of Plant Industry, was Conference Secretary.

APPOINTMENTS TO STAFF

Mrs. H. C. Brookfield, whose husband is Reader in Geography at the Australian National University, has joined the Division of Land Research and Regional Survey in a part-time capacity. She is a graduate of the University of London. Mrs. Brookfield took part in the planning of the 1951 Festival of Britain. During 1953-54 she was a lecturer at the University of Natal, South Africa.

Mr. E. F. Bradley, who has been appointed to the agricultural physics section of the Division of Plant Industry, is an Englishman. He has been employed at the Atomic Energy Research Establishment at Harwell during the past 10 years.

Mr. L. E. Brownlie, who recently graduated in agricultural science at the University of Sydney, has been appointed to the staff of the Division of Food Preservation and Transport. After a few weeks at Homebush he will transfer to the Meat Research Laboratory at Cannon Hill, Brisbane.

Dr. H. W. Dolle arrived from Germany in February to take up an appointment at the Irrigation Research Station, Griffith. He is a microbiologist, who studied for his

Dr. H. W. DOLLE

Diploma in Biology at the University of Jena and obtained his doctorate at Gottingen.

Mr. J. R. Hudson has accepted a three year Fellowship in the Division of Animal Health, where he will be leader of the research team working on pleuropneumonia. Mr. Hudson spent twenty years as a veterinary officer in East Africa, and after the war he held an appointment at the Veterinary Laboratory of the Ministry of Agriculture and Fisheries in Weybridge, England. He has recently carried out an assignment for F.A.O. in Thailand.

Mr. F. J. Roberts has been appointed to the staff of the Division of Plant Industry and will be stationed at the Western Australian Regional Laboratory. An agricultural science graduate from the University of Western Australia, he has been working for his Ph.D. degree at the Institute of Agriculture in Perth.

Mr. D. A. Shutt has joined the staff of the Division of Animal Physiology at Prospect. Before undertaking part-time studies for his B.Sc. degree at Adelaide, he served for five years as a midshipman and navigation officer with the Blue Funnel Line.

Scientist from Poona

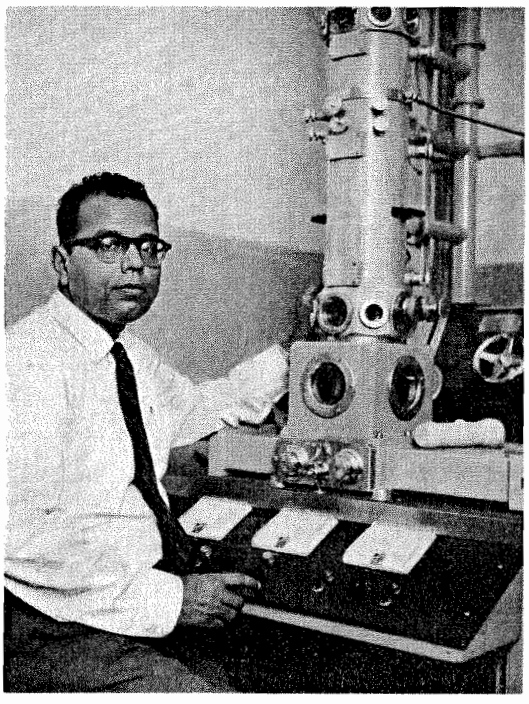
Dr. A. Goswami, of the National Chemical Laboratory, Poona, India, came to Australia on a Colombo Plan Fellowship in September last and is spending a year with the electron diffraction group in the Division of Chemical Physics.

The field of electron diffraction is one in which Dr. Goswami has already established a considerable reputation. He obtained a grounding in the classical aspects of the subject when he took his Ph.D. with Professor G. I. Finch in Imperial College, London, in 1950.

He was again associated with Professor Finch when Finch was appointed Director of the National Chemical Laboratory in 1953, and Dr. Goswami left his position at the National Physical Laboratory, Delhi, to join him. Until Finch's retirement in 1957, Dr. Goswami was in charge of the electron diffraction work there and has since then continued to lead the same small research group.

His work there was chiefly concerned with the use of electron diffraction techniques for the study of crystal growth and chemical reactions occurring on solid surfaces. In particular, a steady stream of publications from Poona has added a great deal to our knowledge of the structure of electro-deposited films and the growth of oxide layers.

He has come to the Chemical Physics laboratories to make himself familiar with the methods developed there for the structure analysis of sub-microscopic crystals using micro-beam electron diffraction techniques, and at present is working on the structure of some clay minerals for which these methods are particularly valuable.



Death of Mr. J. F. Barrett

Mr. James Barrett, Executive Officer to the Research Committee of the Regional Pastoral Laboratory, at Armidale, N.S.W., was killed by lightning on the Armidale golf course on 14th February.

He and three other men were sheltering under a tree from a shower of rain when a single flash of lightning burst upon them. Barrett was killed, and the other three fell to the ground unconscious. They were taken to the Armidale hospital and treated for shock.

James Barrett obtained the Hawkesbury Diploma in Agriculture before entering on his veterinary science course. He graduated B.V.Sc. in 1943 with second class honours and prizes for parasitology and clinical work.

After graduation, he joined the Division of Animal Health and Production, and was transferred to Armidale in 1944. He resigned in 1946, to enter veterinary practice in New Zealand, but returned to the Armidale laboratory in 1948.

He has remained in C.S.I.R.O. ever since, and has been responsible for the administration of the laboratory for the last five years.

Nevertheless, he continued to take an active part in research, his main interest being in the reduction of mortality in Merino lambs.

Mr. Barrett, who was aged 42, is survived by his wife.

THIRTY YEARS SERVICE

Miss A. L. KENT

"The reward of a thing well done is to have done it."
—Thomas Dunn

These must be the sentiments of Miss A. L. Kent, who retires on 21st March after over 30 years' service in Head Office Library.

For the last five of these years Miss Kent has edited what was known as Pitt's Catalogue and is now Scientific Serials in Australian Libraries. This is an up-to-date list of the periodicals and serials in some 300 libraries, and research workers and librarians both owe a debt to Miss Kent for her skill and her enthusiasm in surmounting the many difficulties that stood in the way of producing such a tool.

Miss Kent's first acquaintance with the Union Catalogue was in 1926, when the Library was accommodated in what is now known as the Board Room at Head Office. It had been the ballroom of an old home and was complete with hand-painted ceiling (cherubs abounding), chandeliers, crystal door knobs, etc.

Miss Kent has told us that in those days books lined the walls of the room to the ceiling. "With trepidation," she says, "we ascended long ladders and those moments were not without incident. I recall one person left hanging to the shelving, whilst the ladder came slowly to earth.

"The library shelving was in those days of wood and adjustable, but for the books and periodicals we wandered all over the building — into the rooms of the Director, the Secretary, the Assistant Secretary, the Enquiry Room and even to the room where we brewed tea and washed up."

When Miss Kent sails for Europe on 28th March she will not be casting aside all thoughts of catalogues and cataloguers because she intends to spend some time examining the great union lists published in England. We shall expect to see such improvements as the World List and the British Union Catalogue of Periodicals have to offer incorporated in our Catalogue after she has returned.

Visit to South America

Dr. J. Griffith Davies, Chief of the Division of Tropical Pastures, left last week for South America, where he will spend about ten weeks in Brazil, Argentina and Uruguay.

He will proceed to Europe in May, to spend about six weeks visiting research workers in Belgium, Holland, Germany, France, and Italy.

In England he will attend an International Grassland Conference and the C.A.B. Review Conference. He will leave the United Kingdom in October, and return to Australia through the United States and Hawaii.

Dr. C. H. Gallagher, of the Division of Animal Health, is paying a short visit to Scandinavia. His time will be spent between the Carlsberg Laboratory in Copenhagen and the Wenner-Grens and Karolinska Institutes in Stockholm.

Before returning to Australia, he will attend a course on isotopes at Harwell in England.

Dr. E. L. Greacen, of the Division of Soils, left last month to spend about six months in Europe.

After spending some time at the National Institute of Agricultural Engineering in England, he will go on to a research institute at Braunschweig near Groningen in Holland. He will make visits to other European laboratories from there.

Dr. Greacen will return to Australia through the United States.

Mr. L. L. Muller, of the Dairy Research Section, left last month on a short visit to New Zealand. He will investigate improvements in methods for casein manufacture at the Dairy Research Institute at Palmerston North and the Rangitaiki Dairy Company at Edgecombe.

Mr. A. B. Whitehead, of the Chemical Engineering Section, C.R.L., left for America and Europe ten days ago.

After a heavy programme in America, embracing visits to establishments in fourteen States in Canada and the U.S.A., he will arrive in England early in April. There he will attend an International Mineral Dressing Conference in London, and pay short visits to Holland, France, and Germany.

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CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 13, MELBOURNE, APRIL 1960

A MEMORIAL TO SIR IAN CLUNIES-ROSS

AT a short ceremony on 9th March, the main laboratory building of the Division of Animal Physiology was named the "Ian Clunies-Ross Animal Research Laboratory" by Lord Casey.

Lord Casey was Minister-in-Charge of the Commonwealth Scientific and Industrial Research Organization during the period 1949-59 when Sir Ian Clunies-Ross served with such distinction as Chairman of the Organization.

The proceedings were opened by the Chairman, Dr. F. W. G. White. Dr. White read a message of good wishes from Dr. Cameron, who was prevented from attending by the opening of Parliament. The Chairman briefly outlined the overall programme of sheep and wool research and the role of the Division of Animal Physiology.

He referred to the Wool Research Fund, the manner in which it was raised, and the way in which it was administered by the Wool Research Committee. Dr. White then called on Professor H. R. Carne, Professor of Veterinary Pathology in the University of Sydney, to speak about Sir Ian Clunies-Ross.

Professor Carne, after referring to Sir Ian's outstanding personal qualities, spoke of his dedication to the thesis that Australia should undertake large scale research into the problems of its most important industry, the sheep and wool industry.

Largely as a result of Sir Ian's campaign in the immediate post-war years, woolgrowers had recognized, on an industry basis, the need for such research and the need to contribute towards its cost.

Professor Carne also spoke of Sir Ian's wider interests in international affairs and in education. Clunies-Ross, he said, had been the chief advocate for the establishment of the Murray Committee, whose report had persuaded Governments to subsidize the Australian Universities on a more liberal basis.

Lord Casey, in opening the laboratory, said that the minds of thinking Australians had been alerted in recent years to the rise in importance of man-made fibres, but well before this the best minds in the wool industry and C.S.I.R.O. realized that more research was needed if graziers were to grow more and better wool.

"The work of this Division," added Lord Casey, "is only one facet of a huge integrated programme of research to serve the needs of the sheep and wool industry."

Apart from the work done here research was being pursued in other places into diseases, pests, parasites, pastures, soils and wool textiles.

Professor H. R. Carne speaking at the ceremony.

"Although much of the research here is of a fundamental nature," he said, "it is all directed towards the highly practical aim of finding out how the sheep can be made to produce more and better wool.

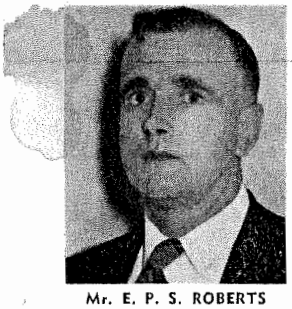
Mr. W. A. Gunn, Chairman of the Australian Wool Bureau, thanked Lord Casey for performing the official opening of the laboratory. Woolgrowers today were enthusiastic supporters of research, he said, and would continue to give it strong financial support in the future.

The new laboratory is on a 116 acre site at Prospect, New South Wales, about 20 miles from Sydney. The Division of Animal Physiology, under the leadership of Dr. I. W. McDonald, is pursuing an active research programme in the biology of the healthy sheep. The work is chiefly concerned with the quantity, quality, and efficiency of production of wool.

Part Time Executive Members

The Minister-in-Charge of C.S.I.R.O. (Hon. D. A. Cameron) announced on 17th March the appointment of two new part-time members to the Executive of C.S.I.R.O.

The vacancies were created by the recent amendment to the Science and Industry Research Act which increased the strength of the Executive from five members to nine.



Mr. E. P. S. ROBERTS

The two new part-time members are Lord Casey, who recently resigned from Parliament on his elevation to the peerage, and Mr. E. P. S. Roberts, a prominent Queensland grazier.

Lord Casey's association with C.S.I.R.O. was noted in the last issue of "Coresearch".

Mr. E. P. S. Roberts, who is aged 46, has been associated with C.S.I.R.O. as a member of its Advisory Council since 1957. After leaving King's School, Parramatta, he worked as a jackeroo on various properties in New South Wales, and became manager of a station at Goondiwindi in Queensland before the war.

During the war he served in the A.I.F. in the Middle East, New Guinea and Borneo. He was commissioned in the field in 1942.

After the war, Mr. Roberts purchased his own property at Toobeah, in Queensland, and became interested in the wider problems of the pastoral industries. His appointment will ensure that the point of view of the man on the land and the problems of northern Australia are kept constantly before the Executive.

New Chief for Entomology

Dr. Douglas F. Waterhouse, D.Sc., F.A.A., a distinguished insect physiologist, has been appointed Chief of the Division of Entomology.

His appointment follows the retirement this month of Dr. A. J. Nicholson, who has been Chief of the Division for 27 years. The Division of Entomology was one of the first divisions formed when the Council for Scientific and Industrial Research was set up in 1926.

Dr. Nicholson retires after a notable research career in the field of insect populations. He was a foundation Fellow of the Australian Academy of Science, a member of its first council, and has held the offices of Secretary (1954-1955) and Vice-President (1955-1957).

Dr. Waterhouse graduated B.Sc. with first-class honours and the University Medal from the University of Sydney in 1937. During the war he held the rank of Captain in the Australian Army Medical Corps. He was awarded the degree of D.Sc. from his University in 1952 and in the following year he shared the David Syme Research Prize with Dr. F. J. P. Dwyer.

Dr. A. J. NICHOLSON

Dr. D. F. WATERHOUSE

He has made two trips overseas in connection with his research work in insect physiology and toxicology, spending six months in Cambridge just after the war, and six months in New Haven, U.S.A., in 1955-56. In 1958 he was an Australian delegate to a World Health Organization seminar on "Resistance to Insecticides".

Dr. Waterhouse was elected to a Fellowship of the Australian Academy of Science in 1954.

ASTRONOMER FROM GERMANY

Professor Ludwig Biermann, an outstanding theoretical astronomer and astrophysicist, has just left Australia after a five weeks visit.

Dr. E. G. Bowen (left), and Dr. J. L. Pawsey (right) explaining to Professor Biermann arrangements for the giant radio telescope at Parkes. The background photographs illustrate various phases in its construction.

His visit was sponsored jointly by C.S.I.R.O. and the Australian National University.

He spent two weeks at the Divisions of Physics and Radiophysics, two weeks at Mt. Stromlo and a week at Sydney University.

Professor Biermann, who is Director of the Max Planck Institute for Astrophysics at Munich, was on the way home to Germany after a visit to California.

With officers of the Division of Radiophysics, Professor Biermann discussed his work on the connections between cosmic rays and the sources of cosmic radio waves.

As a main contributor to the theory of the turbulent or convective effects in the sun giving rise to the observed granulation of the photosphere, he was interested in the Division of Physics' technique for observing these effects in great detail.

Executive Meets Woolgrowers

The seventh meeting between C.S.I.R.O., its Advisory Council and representatives of the Graziers' Federal Council, the Australian Wool and Meat Producers' Federation, and the Australian Primary Producers' Union was held at Science House, Gloucester Street, Sydney, on the 8th-9th March.

Members of the Wool Research Committee and the Australian Wool Bureau were also present.

In opening the meeting, Dr. F. W. G. White, said that its purpose was to keep woolgrowers informed of what problems C.S.I.R.O. was attempting to solve on their behalf: its other purpose was to give C.S.I.R.O. an opportunity of receiving ideas and advice from the woolgrowers themselves.

In reviewing the work of the Division of Plant Industry, **Mr. Milton Moore,** Assistant Chief, told of the development of a successful method for establishing pasture on heavy clay soils in the irrigation districts of the Riverina.

As a result further pastoral development could take place in this region as the waters from the Snowy Mountains Scheme became available over the next decade.

It was also reported to the meeting that the Division has been making gratifying progress in plant improvement. This work falls into two parts: plant introduction and plant breeding.

An outstanding success of the plant breeders has been the production recently of a variety of subterranean clover resistant to the subterranean clover stunt virus.

This virus has caused alarming reductions in winter production in many areas in recent years as all the standard commercial varieties of subterranean clover are susceptible to it.

Dr. A. J. Nicholson, Chief of the Division of Entomology, reported that since the sheep blowfly was now exhibiting resistance to Dieldrin and Aldrin his Division was devoting much attention to this problem.

New wetting agents and carrier fluids for the insecticides had made them much more effective, Dr. Nicholson said.

Mr. F. N. Ratcliffe, Officer-in-Charge, Wildlife Survey Section, said that although myxomatosis was still active it could not be relied upon to keep rabbit numbers in check. Poisoning must now become the main method of control.

Rabbit control had now reached a stage where further major advances are unlikely until a thorough understanding of the physiology and phychology of the rabbit is obtained.

Dr. H. R. Marston, Chief of the Division of Biochemistry and General Nutrition, reported that two problems had arisen in the use of cobalt bullets. A certain percentage of sheep lost their bullets by regurgitation.

The second difficulty is due to bullets being inactivated by a coating which forms around them after they have been in the sheep's stomach for some time. Both these problems were being overcome and successful field trials had been carried out with a new type of bullet which appeared to be permanently retained, and a device for prevention of the formation of a surface coating.

Miss Helen Newton Turner described the work of the Division of Animal Genetics which aimed at formulating more effective methods of selection in sheep breeding. She reported the latest results to hand from the selection experiment at "Gilruth Plains".

Two-tooth ewes in the selected group, that is, those chosen primarily on the basis of fleece weight, are cutting one pound per head more wool than those in the unselected, or control group.

Another experiment reported by Miss Turner has shown that it is possible to select Merinos for higher twin-bearing capacity.

In discussing some of the work at The Ian Clunies-Ross Animal Research Laboratory, **Dr. G. R. Moule** said that while losses of ewes from pregnancy toxaemia were relatively low it was not so generally recognized that losses of lambs from undernourished ewes were widespread.

Ewes inadequately fed during the last third of pregnancy usually drop small lambs which have a slender chance of survival.

Dr. I. W. McDonald, Chief of the Division of Animal Physiology discussed the problem of sheath rot in wethers. The research evidence to date suggests that nutritional factors are the primary cause of sheath rot and current work is directed towards establishing the conditions under which the disease occurs.

Dr. F. G. Lennox, Chief of the Division of Protein Chemistry, described basic studies in the structure of proteins. He explained that basic research on protein chemistry had already led to advances in fellmongering practice and to an improved procedure that is being widely used in carbonizing wool in Australia.

Mr. T. A. Pressley of the same Division told of new procedures for laundering all-wool hospital blankets. In conjunction with the Royal Melbourne Hospital, a successful method had been developed for sterilizing blankets by boiling during routine laundering.

Mr. J. G. Downes and **Mr. N. F. Roberts** of the Division of Textile Physics demonstrated pressure coring equipment for sampling baled wool without opening the bales and also the yarn evenness tester invented at the Ryde Laboratory and now being manufactured commercially.

From U.S. Forest Products

Late February and nearly March saw the first of what may well be regular reciprocal visits to our Division of Forest Products by research workers of the famous U.S. Forest Products Laboratory at Madison, Wisconsin.

The visitor was Mr. Ray Rietz, a senior officer of F.P.L. in charge of research in timber seasoning and timber physics.

Mr. Rietz's main purposes in coming to Australia were to attend and contribute to the Division's second Predrying Conference with industry in Launceston on 3rd March, to obtain the Division's views on future programming for U.S. research in seasoning and timber physics, and to examine seasoning installations, particularly those using predriers developed by the Division.

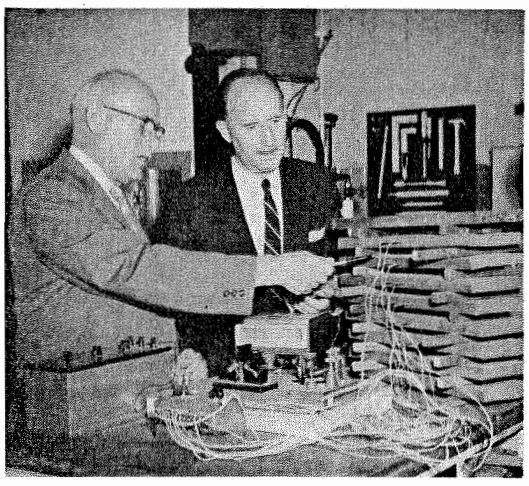
He said that the U.S. had become very interested in the Australian approach to the design and use of this equipment, and wanted more information about it.

During his 19-day stay in Australia Mr. Rietz visited the Mount Gambier area with Mr. George Wright and Dr. Walter Kauman, of the Division, to examine handling and seasoning practices developed for plantation softwoods, and he spent several days on the north coast of Tasmania with Mr. Stanley Clarke and Mr. Wright studying the processing, predrying, kiln drying and reconditioning of our difficult, collapse susceptible ash eucalypts.

Of special interest to him were the drying and processing problems introduced by collapse, and the effect that adoption of reconditioning could have in parts of the United States.

He also expressed intentions of following up the Division's recent work on pre-steaming to reduce drying time. He was particularly impressed with the moves in Tasmanian industry towards co-operative seasoning research by groups of companies working to an overall programme set up and supervised by the Division.

Mr. Ray Rietz (left) of the U.S. Forest Products Laboratory discussing electrical resistance methods of moisture measurement with Mr. George Wright in D.F.P.'s timber seasoning laboratories.



FISHERMEN'S LUCK

The best fish caught by C.S.I.R.O. people are not all caught in Fisheries Research Vessels.

Ken Prowse (Canberra Administrative Office) and Norman Robinson (Wildlife Survey Section) showed last month what could be done by keen fly fishermen.

In one days' fishing on the Eucumbene River they landed the catch shown in the photograph. All the fish were brown trout, taken from one pool on one pattern of dry fly. The total weight of fish was 35 pounds, after cleaning.

The proud anglers report that the 7¼ pound trout in the front of the picture provided a magnificent meal. It was soaked in milk for half an hour, rolled in breadcrumbs and baked in white wine — a perfect dish.

(The Editor hastens to state that bigger and better fish stories will not be published without photographic evidence.)

Overseas Visits

Dr. C. Barnard, of the Division of Plant Industry left last month on a six months trip, half of which will be spent in North America. He will visit the Universities of California, Oklahoma, Iowa, Chicago, Wisconsin, Indiana, Illinois, Ohio, Yale, Harvard, Cornell, Toronto, London, Oxford, Cambridge, Manchester, Leeds, Edinburgh, Glasgow and Paris.

Dr. A. R. King, of the Division of Physical Chemistry will leave this month on a visit to France, the United Kingdom, and North America. His particular object is to visit centres of research into fire control.

Mr. S. F. Smerd, of the Division of Radiophysics left last month on a three months' visit to Europe and North America. His main purpose is to arrange for the editing of the I.G.Y. Annals on Solar Radio Emission, for which he is responsible.

Dr. P. A. Trudinger of the Biochemistry Section of the Division of Plant Industry left last month to take up a research associateship at Haverford College, Philadelphia, for twelve months. He will work with Professor Santor on microbiological sulphur metabolism.

Dr. L. J. Webb, of the Division of Plant Industry, is en route to the U.K., where he will make a series of visits from his base at the Imperial Forestry Institute at Oxford. He will leave in August for South America, where he will spend six weeks studying tropical rain forests before returning to Australia.

Dr. M. Lipson, Chief of the Division of Textile Industry, referred to the solvent scouring process developed in the Geelong Laboratory. Some 20 million pounds of wool tops had now been produced in industrial operations from wool solvent scoured by this method.

An automatic controller for the Noble comb, also devised at Geelong, was finding wide use, 24 units being already in operation in Australian mills and 60 additional units in course of manufacture.

Mr. G. W. Walls of the Division of Textile Industry, described research aimed at reduction of the wastage that occurs as a result of breaking of wool fibres during the processing from fleece to tops.

Mr. R. J. Bray of the Department of Science and Tech- Wool Secretariat, London, renology of the International ferred to the proposal to establish technical developmental companies in the United Kingdom and the United States.

These companies will provide technical assistance for industries using wool and operate patent, trade mark and certification schemes.

OPEN DAYS AT COAL RESEARCH

Four hundred and fifty people visited the North Ryde laboratories of the Coal Research Section on Thursday, 3rd and Friday, 4th March, when the Section held two Open Days.

Among the visitors were representatives from the coal industry, technologists from other industries using coal and coke, scientists from other research laboratories, and a number of members of the State Government.

The N.S.W. Minister for Mines (Hon. J. B. Simpson) spent a morning looking at the exhibits in the company of Mr. C. St.J. Mulholland, Under-Secretary of the Department of Mines.

Other members present included Mr. E. Hearnshaw (M.L.A. for Eastwood), Mr. H. E. Jackson (M.L.A. for Gosford), and Mr. T. P. Murphy (M.L.A. for Concord).

A distinguished scientific visitor was Dr. M. R. Lemberg, F.R.S., Head of the Biochemical Department of the Institute of Medical Research at the Royal North Shore Hospital.

In the pilot plant laboratory were displayed some interesting small scale carbonizing plants in which the coke, tar, and gas-making properties of coals could be assessed.

A number of instruments for measuring critical data in the coke-making process were on view, including an ingenious differential thermogravimetric balance which will be displayed at the Institute of Physics Exhibition of Scientific Instruments this year.

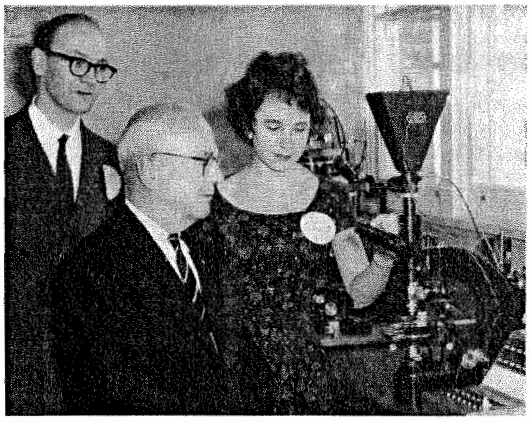
In the same building a series of retort samples showed the various stages in the transformation of coal into coke.

The Coal Chemistry group displayed a number of techniques for the analysis and identification of coals, hydrocarbons, and coal-tar fractions.

A range of spectroscopic equipment was on display, including ultra-violet, visible, and infra-red spectrophotometers and a large quartz spectrograph.

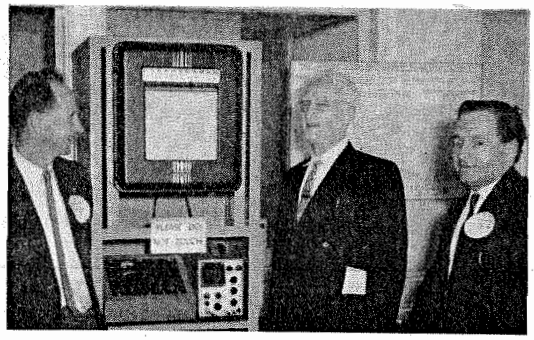
In the petrology exhibit a number of beautifully coloured very thin slices of coal were shown. Examples of fossil spores and pollen grains embedded in coal were on display.

Altogether, there were over 100 exhibits and displays on view, embracing carbonization, coal chemistry, coal tar, combustion, evaluation of coal resources mineral matter and spectroscopy, petrology, and the physical chemistry of cokes and carbons.



Dr. G. H. Taylor (left) and Miss M. Kristoff discussing a microscopic exhibit with Dr. R. J. Noble, formerly Under-Secretary for Agriculture in N.S.W.

Mr. H. R. Brown with Mr. E. Hearnshaw, M.L.A., the Hon. J. B. Simpson (Minister for Mines), and Mr. H. E. Jackson, M.L.A.



Dr. R. A. Durie discusses infra-red spectrophotometry with Dr. M. R. Lemberg, F.R.S., and Mr. J. D. Brooks.

Mountain Holiday Home

A group of employees of the Division of Building Research have formed a club with the object of buying a house at Mt. Beauty, Victoria, for use as a holiday resort by members of the club.

Mt. Beauty township is about 70 miles east of Wangaratta at the head of the broad Kiewa Valley, where the East and West Kiewa Rivers unite as they emerge from their steep valleys in Victoria's highest alpine bloc.

Mt. Bogong, 6,500 feet, dominates the skyline a few miles from the town. The East Kiewa river rises in the Bogong High Plains, a series of saucer-shaped valleys at over 5,000 feet ringed with peaks of 6,000 feet and more, in the heart of the Alps.

The township was built by the State Electricity Commission of Victoria to house workers and their families during development of the Kiewa Hydro-Electric Scheme, which has put the headwaters of the Kiewa River to work with a number of dams and power stations.

With the Scheme nearing completion, the S.E.C. staff is being reduced and houses at Mt. Beauty are being offered for sale.

The Building Research group proposes to buy a 3-bedroom house to be used in turn by shareholders as an inexpensive holiday home for their families and friends, along the lines of the Anglesea Holiday Club, which has operated within Victorian divisions of C.S.I.R.O. for many years.

The district offers a variety of holiday activities at all times of the year; golf, tennis and swimming at the modern township, or hiking and driving in the mountains, not to mention fishing in the numerous streams.

In winter months Victoria's finest ski runs in the Falls Creek area are accessible daily by car at a distance of 19 miles.

U.K. INDUSTRIALIST HERE

Dr. A. W. Childs, Head of the Research Department of Albright and Wilson Ltd., the British chemical manufacturing firm, is at present on a visit to Australia.

During his stay he has been visiting a number of C.S.I.R.O. laboratories in company with Dr. H. W. Strong, managing director of Albright and Wilson (Aust.) Pty. Ltd.

Dr. Childs is interested in the vast and rapidly expanding field of organo-phosphorous compounds, the chemical and physical properties of which fit them for application in many fields, including solvent extraction of rare metals, polymer flame proofing, ore flotation and insecticides.

Dr. I. W. Wark, Director of the Chemical Research Laboratories, with Dr. Strong and Dr. Childs.

Consumers' Association

Towards the end of last year an Australasian Consumers' Association was formed with its headquarters in Sydney and its first actively developing branch in Western Australia.

The President of the Association is the Lord Mayor of Sydney, Alderman H. F. Jensen, who accepted the office at the inaugural public meeting. Dr. R. G. Wylie, of the Division of Physics, is actively assisting the Association in a private capacity as a member of its Council.

The Association is along much the same lines as two American associations and a more recently formed English association which have been outstandingly successful.

It will purchase goods of various brands in just the same way as any member of the public and will subject those goods to tests to determine their suitability for their purpose and the value which they represent to the consumer.

In the Association's journal, which is to be called "Choice", brands will be compared and goods will be rated as to their merits.

The Association is registered in Sydney as a Company limited by guarantee and can derive no income from advertising or from industry in any other way. It is governed by a Council whose members can receive no remuneration for their services.

The present Council, which is under the Chairmanship of Professor R. H. Thorp, Professor of Pharmacology in the University of Sydney, consists of fifteen people drawn from various professions and includes two housewives.

There are two categories of members of the Association, namely, Ordinary Members, who may participate in the meetings of the Association and who are eligible for election to the Council, and Associate Members, who, in common with the Ordinary Members, receive the publications of the Association, including "Choice".

Ordinary Membership is to be regarded as indicating willingness to play an active role in the Association. Only those not associated in a responsible way with the manufacture or handling of goods for sale to the public are eligible for Ordinary Membership and applications for such membership must be approved by the Council. The annual subscription is £2 for Ordinary Members and £1 for Associate Members.

The first issue of "Choice" has been prepared and is expected to appear in April. As the Association develops, it will set up its own testing establishment with its own staff, but the first tests must be made by established organizations or by the members themselves; all tests will be under the guidance of panels of technical experts.

The Association is currently endeavouring to build up its Associate Membership. People interested in becoming Members should write to the Honorary Secretary, Mrs. I. M. Sheahan (Box 4736, G.P.O., Sydney) for membership forms.

Essay Competition

The A.C.T. Group of the Royal Institute of Public Administration invites entries for an Essay Competition to be decided in 1960. There will be a First Prize of £40, a Second Prize of £20 and two further prizes of £10 each.

Entrants may choose any subject relating to the development, improvement or critical appraisal of some specific contemporary or historical aspect of public administration in Australia.

Entries close on 31st August, 1960.

Further information may be obtained from the Secretary at Head Office.

High Prices

Last month sensational prices were paid for twelve C.S.I.R.O. Brahman and Afrikander cattle.

The cattle, which were surplus to research requirements, were auctioned at the National Cattle Breeding Station at Belmonth, near Rockhampton.

Over 300 people with a grandstand view round the ring saw Brahman bulls sell to 2,800 gns., Afrikander bulls to 2,500 gns., and two Brahman cows to 1,400 gns. The 12 cattle brought a total price of 19,700 guineas.

This was the first time in the history of Australian stud beef cattle auctions that Afrikanders had been offered.

Proceeds from the sale will not be paid to Consolidated Revenue. The money will go to the Australian Meat Board, which owns the property. It is likely that the Board will make the money available for research.

Printers Moving

The Publishing Section of Head Office is to move to new quarters this year.

An old factory building in Rokeby Street, Collingwood, a short distance from Head Office, has been acquired. The factory will be fitted out and remodelled.

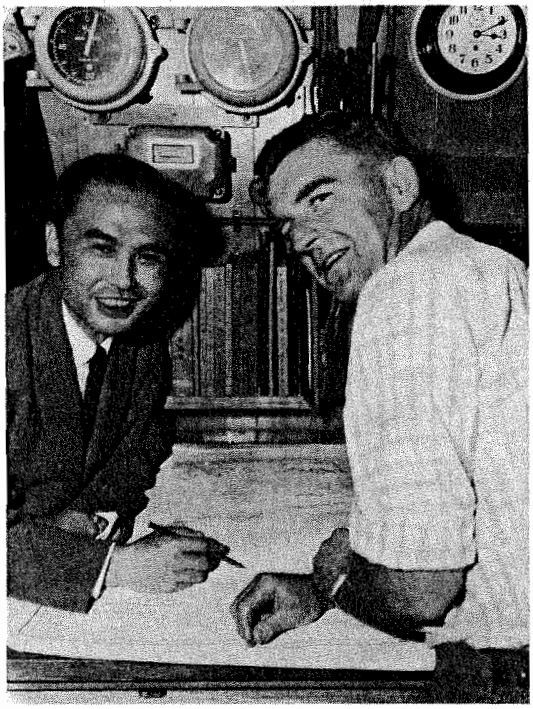
This move will provide less cramped accommodation for the Publishing Section, and will free part of the third floor of Head Office for much-needed further office accommodation.

Doctorate

Mr. D. E. Weiss, of the Division of Physical Chemistry, has been awarded the D.Sc. degree of the University of Adelaide.

Since joining C.S.I.R.O. in 1948 he has been studying industrial adsorption processes.

LOOKING FOR TUNA



Australian Consolidated Press photo.
Mr. Robins on the "Shoyo Maru".

Mr. J. P. Robins, of the Division of Fisheries and Oceanography, recently took an opportunity to join the Japanese tuna research vessel "Shoyo Maru" as an observer.

The vessel left Sydney on 16th February to investigate the region to the south of the Great Australian Bight. Of twelve fishing stations occupied on the cruise, none was within 200 miles of the Australian coast. The vessel arrived in Fremantle on 8th March.

The longline method of fishing was used to catch fish. This particular line fished to depths of 75 fathoms, was 15 miles in length, and carried 825 hooks.

The catch rate (i.e., number of fish/100 hooks) of fish was low, but the distribution of the various species of tuna caught in this area conforms with the results gained from longline fishing experiments carried out from F.R.V. "Derwent Hunter" in eastern Australian waters.

Hydrological and planktological observations were made at each fishing station. Tuna larvae net hauls were made each night, but no recognizable tuna larvae were collected.

The "Shoyo Maru" is 160 ft in length, weighs 600 tons, has a complement of 48 and is a very seaworthy vessel. It carries many navigational aids, such as direction finder, radar and automatic pilot. It was built in six months in 1956 for approximately £180,000.

APPOINTMENTS TO STAFF

Mr. J. G. Allpress has been appointed to a Fellowship in Surface Chemistry in the Division of Tribophysics. Since graduating with honours in 1958 he has been undertaking research on the infra-red spectra and constitution of the mixed oxides of uranium in the Chemistry Department of the University of Melbourne. His post-graduate work has been supported by a C.S.I.R.O. senior studentship.

Mrs. Pauline Armarego has been appointed to a temporary position in the Division of Plant Industry. She graduated Ph.D from the University of London in 1957, and was a Senior Demonstrator in the Chemistry Department of the University of Melbourne during 1958-59. She will assist Dr. J. E. Falk in the Plant Biochemistry Section.

Dr. M. J. J. Bik, a graduate of the University of Amsterdam, has been appointed to the staff of the Division of Land Research and Regional Survey. His first appointment within the Division will be as a geomorphologist in this years New Guinea survey team.

Mr. G. F. Flanagan has been appointed to a vacancy for a physicist in the Division of Protein Chemistry. He has a fellowship diploma of the Royal Melbourne Technical College. Mr. Flanagan has been employed for twelve years in the research laboratories of the P.M.G.'s department, and was acting Senior Physicist at the time of his transfer.

Miss Monica Harkins, an M.A. graduate of the University of Melbourne, has joined the staff of the Translation Section at Head Office. Since taking her B.A. degree, she has held a German Government Scholarship for a year at the University of Freiburg.

Miss Ruth Henderson, a Scot, has been appointed to a position of mycologist in the Division of Forest Products. She is a graduate of the University of Western Australia, and has recently submitted her thesis for the M.Sc. degree.

Mr. R. M. Lowe, a recent graduate in chemistry from the University of Melbourne has joined the Division of Tribophysics. He will participate in research on metal surfaces including evaporation and thermal etching.

Dr. H. D. STRANZ

Dr. H. D. Stranz recently arrived from Germany to take up a research appointment with the Division of Meteorological Physics. He obtained his doctorate from Leipzig in 1940. He has held a number of interesting positions since the war, the last of which was with the Meteorological Service of the Belgian Congo.

Mr. J. K. Raison has joined the Wheat Research Unit. He has previously been employed by Timbrol Ltd., and more recently by Mauri Bros. & Thomson Pty. Ltd., while pursuing part-time studies for his degree at the University of New South Wales.

Mr. T. McL. Spotswood has joined the staff of the Coal Research Section. An honours graduate from the University of Tasmania, he has been working with the Department of Supply since 1950. During 1950-1952 he was seconded to the Explosives Research and Development Association in the U.K. Mr. Spotswood recently submitted a Ph.D thesis to the University of Adelaide.

Miss Judith Maynard, a recent graduate from the University of Melbourne, has joined the staff of the Organic Chemistry Section of the Chemical Research Laboratories. She will operate and maintain the principal physical instruments of the Section.

Mr. B. W. Wilson, who has been employed as a part-time assistant at the Division of Protein Chemistry, has now been appointed to the Division of Fisheries and Oceanography, following his graduation. He will participate in barracouta investigations on the F.R.V. "Thyrsites".

Dr. R. E. Wright, a geneticist, has been appointed to the staff of the Division of Plant Industry. He took his first degree at the University of Adelaide, and spent the years from 1952-57 at Wisconsin, taking the M.S. and Ph.D. degrees, the latter under Nobel Prize winner, Professor J. Lederberg. In 1958 he held a French Government Scholarship and undertook research at the Laboratoire de Genetique Physiologique near Paris.

CONFERENCES ABROAD

Dr. G. D. Aitchison, Officer-in-Charge of the Soil Mechanics Section, is on a 6-weeks' visit to the United Kingdom and Europe. He has been invited to present a paper to a conference organized by the British National Society of Soil Mechanics and Foundation Engineering.

Dr. I. W. Wark, Director of the Chemical Research Laboratories, left last week for London, where he has been invited to give the Wernher Memorial Lecture to the Institute of Mining and Metallurgy. On his return journey, he hopes to spend a week in Moscow, studying the functions of the U.S.S.R. Academy of Sciences.

Mr. W. M. Willoughby leaves next month for the United Kingdom, where he will attend the eighth International Grassland Congress at Reading and the summer meeting of the British Grassland Society in Harrogate. In America, on his way home, he will attend a meeting of the American Society of Animal Production in Amherst, Mass.

Mr. K. S. Blaskett, of the Ore-Dressing Section left last month to attend the International Ore Dressing Congress in London. He will visit various laboratories in the U.K. and on the Continent, and will return to Australia via North America in about 5 months' time.

Professorship

Dr. G. R. A. Ellis, of the Upper Atmosphere Section, has been appointed to the Chair of Physics in the University of Tasmania.

He succeeds Professor A. L. McAulay, who occupied the Chair from 1927 until last year, when he resigned because of ill-health.

Dr. Ellis, who is aged 38, obtained his B.Sc. and Ph.D. degrees from the University of Tasmania. He joined C.S.I.R.O. in 1957 from the University of Queensland, where he had held a senior lectureship.

Dr. Ellis will take up his new appointment at the end of this year.

Melbourne Girls Win Big Prizes

If you haven't won a lottery or a big competition lately, don't be discouraged. Fortune has been smiling on C.S.I.R.O. staff lately.

Rex Cowper, an officer of the Division of Fisheries and Oceanography, is looking after his two young children this month, while his wife, Anne, takes a holiday in Mauritius.

Last October, Mrs. Cowper took part in "The Dulux Show" which the late Jack Davey compered for the Macquarie network.

Participants in the show are required to answer correctly as many general knowledge questions as they can within a space of two minutes.

Normally, before winning a prize, a contestant must win four times in consecutive weekly broadcasts. Anne Cowper tied with one of her opponents and had to undergo the ordeal five times.

In her final, all important match, she just managed to win by a margin of one question.

Mrs. Cowper's prize was a first class flight by Qantas to any port in the world.

Anne Cowper with her children, Richard and Margaret.

She decided to go to Mauritius to spend a month with her sister, who is married to Dr. Rene Nairgrot, a French physician practising there.

When Pat Lawrence of the Head Office Library Staff went to Mildura for her New Year holidays she hardly expected to make a profit out of it.

But, like many other holiday-makers, Pat bought one five shilling ticket in aid of the local charity, in this case the Mildura Ambulance Fund.

She noticed that there were 35,000 tickets to be sold, and that it would be drawn late in February.

Her surprise knew no bounds when the telephone rang from Mildura on Saturday, 20th February.

It was the raffle organizer ringing to tell her that she had won the first prize, a Holden Special Sedan and a "Roadmaster" caravan.

Pat has sold the car, and is buying a smaller model. But if anyone wants to buy a brand-new luxurious caravan . . .

Pat Lawrence shows the library girls her win.

Printed by C.S.I.R.O., Melbourne

CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 14, MELBOURNE, MAY 1960

Divisional Status for Coal Research

Mr. H. R. BROWN

The Coal Research Section has now been elevated to Divisional status. Mr. H. R. Brown, Officer-in-Charge of the Section since its inception, will become the first Chief of the Division of Coal Research.

The Section was established in 1948 following an extensive investigation of the need for coal research facilities in Australia by the Coal Utilization Research Committee.

In the first few years of its existence it was concerned with carrying out a comprehensive study on a national basis of the physical and chemical characteristics of Australian coals.

More recently it has extended its work into other fields of research which can assist in promoting a more efficient use and economic development of coal resources.

When the Officer-in-Charge was appointed there were no existing facilities, and since his arrival the site at North Ryde has been obtained, extensive and well-equipped laboratories have been set up and staff recruited.

Many of the staff have had to be obtained overseas because of lack of training facilities in Australia for fuel technologists. The present staff numbers 120, of whom 20 are Research Officers and 19 Experimental Officers.

Officers of the Section have established international reputations in some of the fundamental fields in which they are working, and on a practical industrial level in Australia the work of the Section has been instrumental in raising the standard of fuel utilization.

This work has also had important repercussions in the coal export industry since its surveys have provided the data on which much of the export trade has been built up.

MEDALLIST

The Australian Institute of Agricultural Science has conferred its highest honour on Dr. D. O. Norris, senior principal research officer in the Division of Tropical Pastures.

The Institute's medal was presented to him at a meeting in Melbourne on 24th March.

Dr. Norris has gained international recognition for his work on plant viruses, which led to the discovery of how to prevent potato varieties from "running out" and so gradually losing their productive capacity.

Just over five years ago he started work on finding out how legumes, such as clovers, could be made to grow well in pastures in tropical and sub-tropical areas. It is the lack of these legumes, with their ability to transfer nitrogen from the air to soil, which prevents the building up of soil fertility. Solution of this problem will be worth millions of pounds to Australia.

Dr. Norris' discovery that legumes originally developed in the tropics led to new lines of study. He also found that the old theory that lime in the soil was necessary to enable the bacteria associated with legumes to work was incorrect. Instead, he proved that they depend on the element, magnesium, opening up new possibilities for research and development.

Visitors Day at "Belmont"

On Tuesday 26th April, a Visitors Day was held at "Belmont", the National Cattle Breeding Station at Rockhampton, Queensland.

"Belmont" was purchased by the Australian Meat Board in 1952 to provide facilities for studies on the adaption of cattle to a sub-tropical environment. The property is of 7,000 acres and can carry 1,200-1,400 head of cattle when run for breeding.

The station was occupied by C.S.I.R.O. in 1953, and is now a field station of the Division of Animal Genetics.

A breeding experiment, using Hereford, Shorthorn, Afrikander and Brahman cattle, has been in progress since 1954 and is now giving useful results.

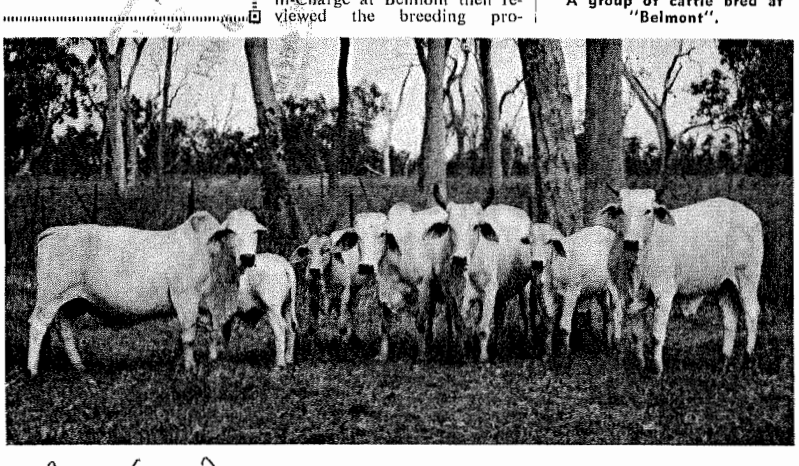
The Visitors Day programme was opened with remarks by Mr. J. L. Shute, Chairman of the Australian Meat Board, and Dr. J. M. Rendel, Chief of the Division of Animal Genetics.

Mr. J. F. Kennedy, Officer-in-Charge at Belmont then reviewed the breeding programme. He showed a number of the cattle to the visitors, and discussed their growth rates.

After lunch Mr. H. G. Turner, Officer-in-Charge of the Rockhampton laboratory, talked to the visitors about "Adaptation of Cattle to the Tropics". Mr. G. C. Ashton, a member of his staff, then spoke on "Cattle Nutrition".

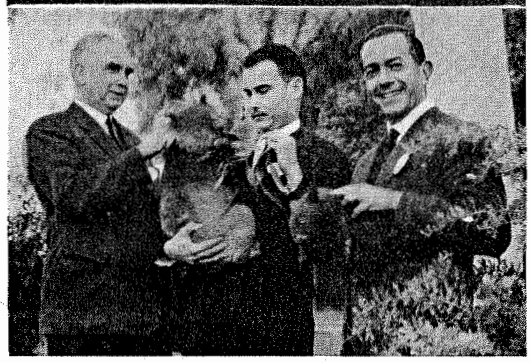
The final address was given by Mr. R. W. Hewetson, who spoke about "Conformation and Carcase Studies".

To complete the day, staff members conducted a question and answer session under the chairmanship of Mr. R. S. Wilson, Chairman of C.S.I.R.O.'s Queensland State Committee.



A group of cattle bred at "Belmont".

EXPERT PANEL



From left to right: Dr. N. R. Reid (F.A.O.), Dr. A. Provost (French Equatorial Africa), and Dr. A. M. Mendes (Angola).

Last month eight scientists from various parts of the world met in Melbourne to talk about the insidious disease pleuropneumonia of cattle.

The scientists were members of an Expert Panel set up by the Food and Agriculture Organization of the United Nations, together with the Office for Epizootic Diseases of Paris, and a Technical Commission for Co-operation in Africa south of the Sahara.

The Australian representatives were Dr. T. S. Gregory and Dr. A. W. Turner, both of the Division of Animal Health. The delegates from overseas came from Portuguese Angola, French Equatorial Africa, Kenya, Nigeria, and the United Kingdom. Dr. N. R. Reid from the F.A.O. Headquarters in Rome undertook the organization of the meeting.

Bovine pleuropneumonia is nowadays only firmly established in the northern parts of Australia, across the centre of Africa, in Spain and in Assam. It has been eradicated from the southern States of Australia, but still causes losses conservatively estimated at £2,000,000 per annum.

The meeting was held in Australia so that members of the Panel could hold discussions with Dr. Turner, who will retire later this year. Dr. Turner has been a world leader in research on this disease for the past quarter of a century and is still actively engaged on it.

The research work of the Division of Animal Health has won world-wide recognition and has proved of great assistance in controlling the disease in overseas countries as well as in Australia.

The overseas members of the Panel visited animal research laboratories in Sydney and Brisbane before returning to their home stations.

DRAMA IN THE AIR

One of the Cessna 310B aircraft belonging to the Division of Radiophysics made a perfect "belly-landing" at Mascot on 16th April.

The landing ended a four-hour drama for the pilot, George Martin, and his passenger William Withers, a cloud seeding officer.

They knew at 7 a.m. that the undercarriage of the aircraft would not lock, but had to wait until 11 a.m. until they exhausted their fuel to attempt to land.

The plane was returning from a rain-making experiment in southern N.S.W.

Shortly before 11 a.m. Department of Civil Aviation officials warned police, ambulance officers and firemen. Central district ambulance sent four wagons to the airport.

Firemen and crews from the airport were placed at points alongside the main runway.

All air movements were halted during the critical few minutes before 11 a.m.

George Martin circled the airport then made a practice landing run before turning into his final run.

As the aircraft came in the emergency siren was set off and hundreds of people, mainly airline passengers, lined the perimeter of the airport.

Ambulances and fire tenders raced along the bitumen strip as the Cessna made a fast landing, with both engines "feathered".

People cheered as the Cessna stopped and the two occupants jumped out.

Only slight damage was caused to the aircraft.

The pilot "feathered" the engines so that the propeller blades were horizontal and did not dig into the grass.

The aircraft was lifted by a crane and inspected by Department of Civil Aviation engineers.

Experienced airline pilots said the landing was "perfect".

Martin said that the top speed of the Cessna—a tricycle-undercarriage type of craft—was about 240 m.p.h.

He estimated his landing speed at more than 100 m.p.h.

A second Cessna 310B, belonging to Rex Aviation Company at Bankstown, and piloted by the firm's manager, Mr. Alex Simpson, flew in close formation with the disabled Cessna for nearly an hour over Botany Bay before it "belly-landed" at Mascot.

Rex Aviation's chief engineer, Mr. Dave Irons, accompanied Mr. Simpson in the second Cessna and gave advice over the radio to the C.S.I.R.O. Cessna pilot, Mr. Martin, in an endeavour to lock his undercarriage.

Mr. Simpson said the "belly-landing" caused between £300 and £400 damage to the Cessna.

CHILEAN PARASITOLOGIST

Dr. H. Gonzalez Fouquet, a Chilean, has arrived in Australia to spend ten months with C.S.I.R.O. on an F.A.O. Fellowship.

Dr. Gonzalez is Assistant Professor of Parasite Diseases in the School of Veterinary Medicine at the University of Chile, Santiago.

The purpose of his visit is to learn about recent progress in sheep pathology with special emphasis on parasitology.

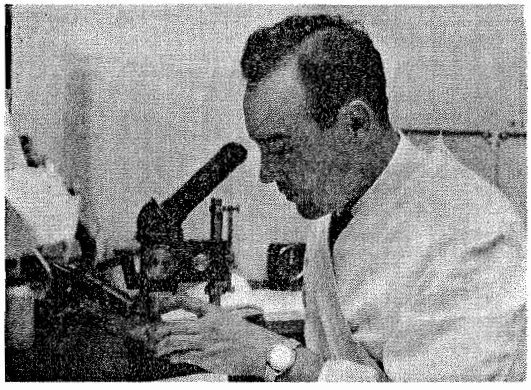
About half of the 6,500,000 sheep in Chile are afflicted with parasites, resulting in lower mutton and wool production.

Loss of wool due to parasitism has been estimated at about 1,500,000 pounds per year.

Dr. Gonzalez is at present spending four months at the McMaster Animal Health Laboratory in Sydney.

In July he will go to Brisbane for two months at the Veterinary Parasitology Laboratory, Yeerongpilly, and will spend most of September at the Regional Pastoral Laboratory at Armidale.

Dr. Gonzalez has already made his mark at the McMaster Laboratory — at lunch time in the table tennis room. He has played for Chile in international table tennis, and is more than a match for his new colleagues.



Former C.R.L. Man on Visit

Dr. Edgar Mercer, of the Chester Beatty Research Institute, Royal Cancer Institute, London, is at present spending six months leave in Australia.

Like his brother, Dr. F. V. Mercer, who is joint leader of the Plant Physiology Unit of the C.S.I.R.O. Division of Food Preservation, Dr. Edgar Mercer is known to many in the Organization, for he was formerly on the staff of the Chemical Research Laboratories at Fishermen's Bend.

In the course of his research on cancer Dr. Mercer is investigating the differentiation of cells, and he is especially interested in using the electron microscope for examining the role of the cell surface, and the intercellular material in initiating and maintaining differentiation.

The Division of Food Preservation is availing itself of Dr. Mercer's skill with the electron microscope, and his knowledge of the fine structure of cells to press on with its investigations on why the spores of certain bacteria responsible for food poisoning are so difficult to kill by heat treatment.

It is hoped that the fine structure of the spores revealed under the electron microscope may contribute to the solution of this long-standing problem.

MISS BUILDING INDUSTRY

Miss Venloe Francis, a laboratory assistant in the Mechanics and Physics of Materials Laboratory at the Division of Building Research, has been sponsored by a group of building firms and organizations as "Miss Building Industry" in "The Sun" Miss Teenage Quest that is now being held to raise funds for the Royal Women's Hospital, Melbourne.

The contest is in two sections — one for the most money raised by a contestant, for which the prize is a motor car, and the other for "Miss Teenage", for which the prize is a round the world trip by Qantas.

Miss Teenage will be selected by judging on April 30, and results will be announced on May 5.

Overseas Trip for Chairman

The Chairman, Dr. F. W. G. White, left Australia on 19th April for a visit to the United Kingdom, Europe, and the United States.

En route to London, he made short stopovers in Bangkok, Delhi, and Karachi, to see something of the research in progress in Asian government research organizations.

In England, Dr. White will attend the second international Wool Textile Research Conference in Yorkshire.

He will also be present at the tercentenary celebrations of the Royal Society of London, which was founded in 1660. He will present a message of congratulations from C.S.I.R.O. to the Society.

In June, Dr. White will read a paper to the World Power Congress in Madrid, and visit Germany to see C.S.I.R.O.'s new giant radio telescope in the course of construction.

After attending a meeting of British Commonwealth Research chiefs in England during August, he will return to Australia, spending four weeks in America on the way home.

QUALIFIED

Ajit Bhogal, an Indian architectural student who has been studying for a diploma while working in the Architects' Section at Head Office has gained his diploma and has been elected an Associate of the Royal Australian Institute of Architects.

Messrs. R. J. McKelvie (Protein Chemistry), **R. G. McLeod** (Physics), and **W. N. Green** (Chemical Research Laboratories) have now completed their apprenticeships in their respective trades of carpentry and joinery, fitting and turning, and sheetmetal working.

Conference in Academy Building

The biophysics group in the Division of Plant Industry is organizing a discussion on "Ionic Behaviour in Polyelectrolyte Systems" on 30th May and 1st June, 1960. The meeting will be held at the Australian Academy of Science Building in Canberra.

The subject is one which provides questions of interest in a number of fields and one which it is hoped will bring together biologists, physiologists, biophysicists, and physical chemists concerned with different aspects of it.

A number of C.S.I.R.O. people will travel to Canberra to take part in the discussion. They include Dr. A. B. Hope (Food Preservation, Sydney), Mr. M. Raupach (Soils, Adelaide), Dr. W. G. Kaumann (Forest Products, Melbourne), Mr. J. A. Spink (Tribophysics, Melbourne) and Mr. E. F. Woods (Protein Chemistry, Melbourne).

Other papers will be read by Drs. J. N. Phillips and N. A. Walker (Plant Industry), Dr. A. R. Gilby (Entomology), and representatives of the Universities of Adelaide, Queensland, Melbourne, Tasmania and New England.

MINERAL DEVELOPMENT LABORATORIES

A large contract research establishment recently constituted in South Australia, is looking for contract work from C.S.I.R.O.

The establishment, which is called the Australian Mineral Development Laboratories, was reconstituted by Act of Parliament from the Research and Development Laboratories of the South Australian Department of Mines.

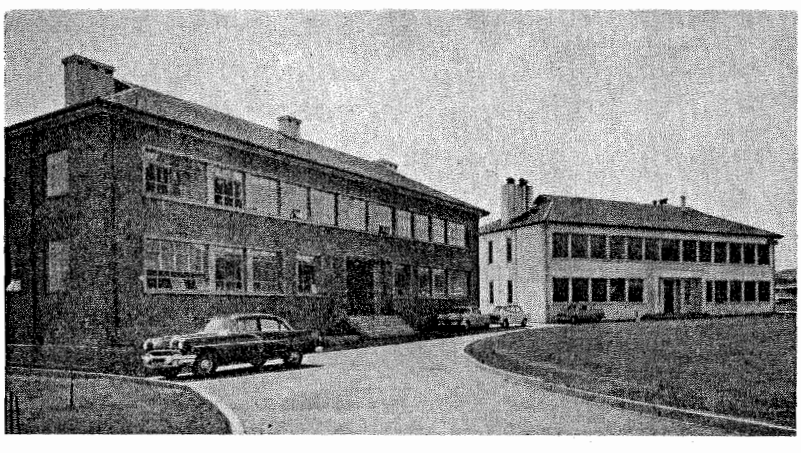
The Laboratories will undertake minerals research and development on a contract basis for the Australian mining industry and for other bodies interested in minerals utilization. Among these are the State and Commonwealth Governments and some of their instrumentalities, including C.S.I.R.O.

Under a five-year agreement, the South Australian Government has guaranteed to contribute £135,000 per annum for the support of the Laboratories, the Commonwealth Government £45,000, and the Australian Mineral Industries Research Association, which has been formed by the mining industry, £45,000.

Charges for investigations carried out for the guarantors will be offset against their guarantees.

The appointment of Dr. L. W. Coffer, from Columbus, Ohio, as Director of the Laboratories was announced last month.

The two Assistant Directors are Mr. A. L. Keats and Mr. P. Dixon, a former member of the Staff of the Chemical Research Laboratories.



The Laboratories at Parkside, South Australia.

Busmen's Holiday

Three officers who are taking their furlough abroad this year will interrupt their leave to take up short periods of duty in England.

Mr. R. Birtwhistle, of the Division of Mathematical Statistics, will spend three or four weeks visiting British research institutions. He will also attend the 8th International Grasslands Congress at Reading.

Mr. T. Greaves of the Division of Entomology will also visit a number of research institutions. He will present a paper to the XIth International Congress of Entomology in Vienna in August.

Dr. A. W. Rodwell, of the Division of Animal Health, is interrupting his furlough to work for three months in the Department of Veterinary Medicine at Cambridge, under Professor W. I. B. Beveridge.

RESUSCITATION

Dr. George Rogers and Mr. Clyde Garrow, of the Division of Protein Chemistry, have designed a mask for use in the "mouth-to-nose" method of artificial respiration.

This follows a request to C.S.I.R.O. from the Royal Life Saving Society of Australia.

In recent years, medical opinion has tended to discount the efficacy of the standard Holger-Neilsen method of applying artificial respiration, and the "mouth-to-nose" method is now recommended whereby the rescuer breathes directly down the nose of the victim.

This method has many advantages, but is difficult to teach. People dislike practising the method both for aesthetic reasons and for fear of infection.

The new mask contains a pad of wool felt, which effectively filters bacteria and minimizes the risk of transmitting infection.

Premier Opens High Voltage Engineering Laboratory

On 1st April the new high voltage engineering laboratory of the Department of Electrical Engineering, University of Queensland, was opened by the Premier of Queensland, Hon. G. F. R. Nicklin, M.L.A.

Included in the 200 guests were the members of the Executive of the Electricity Supply Association of Australia and of the Electrical Research Board, both organizations having arranged to hold their meetings in Brisbane immediately before the opening.

C.S.I.R.O. is represented on the E.R.B. by the Chairman, Dr. White, and the Chief of the Division of Electrotechnology, Mr. Lehany. Mr. W. F. Evans, of Head Office, is Secretary of the Board.

The new laboratory is being equipped for the carrying out of a wide variety of testing and research on insulating materials. The work will be directed towards a better understanding of the performance of insulating systems subjected to high voltages and should result in the improvement of the design of electricity supply systems.

This laboratory will be a centre for training at both undergraduate and graduate level; further, the co-operative nature of its activities will result in engineers from industry becoming better informed on high voltage phenomena.

Close liaison has been established with the National Standards Laboratory, and with the recent extension in voltage to one million volts, the facilities of the University laboratory will enable further investigations to be carried out on a method of accurate measurement of high voltages recently developed by N.S.L.

The equipment shown in the photograph is one million volt, one amp, power frequency testing transformer set valued at £43,000, which was contributed by the electricity supply authorities and the electricity supply industry.

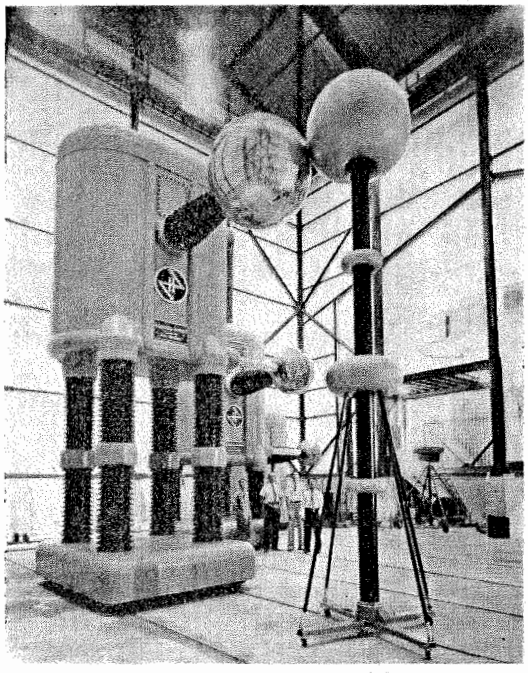
The set may be connected in cascade, for one million volts, or can be separated into three single-phase units, each with independent control.

Adequate inside clearances for the highest voltages to be used, electrical screening, acoustic treatment and an exceptionally large door were all problems which were successfully solved with minimum cost.

This door permits the use of the power frequency and impulse test facilities in an outside test area and has enabled the dimensions of the laboratory to be reduced considerably.

The new laboratory building and its equipment have been provided as a result of close co-operation between the University and industry.

The University is confident that the spirit of co-operation which exists between this industry and the staff of the new laboratory will thus be further strengthened in the future.



Courtesy Southern Electric Authority, Queensland.

Prize Winner

Dr. J. P. Funk, a Research Officer with the Division of Meteorological Physics, has been awarded one of the Darton prizes for 1960.

Two of these prizes are awarded annually by the Royal Meteorological Society for the most meritorious papers on instrumental metrology published during the preceding year.

Dr. Funk's award is in recognition of his paper "An improved polythene shielded net radiometer". The instrument is being manufactured by the Melbourne firm of Middleton & Co. Pty. Ltd., and a number of Divisions are already using it.

It is of interest to note that this is the second year in succession that one of these prizes has been awarded to a member of the Meteorological Physics Division.

Mr. R. J. Taylor was awarded a prize in 1959 for his paper, "A linear unidirectional anemometer of rapid response".

DEATH OF RADIO ASTRONOMER

Charles Alexander Shain, an outstanding member of the radio astronomy group at the Division of Radiophysics died on February 11th at the early age of 38 years.

Shain studied physics at the University of Melbourne and graduated with 2nd Class Honours in 1942. He immediately entered the 2nd Australian Imperial Force but was discharged on medical grounds late in 1943. He then joined the staff of the Radiophysics Laboratory, where he remained until his death.

Mr. C. A. SHAIN

During the remaining stages of the war he worked on radar countermeasures, and from 1945 on various aspects of dekametre wave radio astronomy.

His work in radio astronomy began with a study of moon echoes at a frequency of 20 Mc/s. This work, which was an immediate follow-up of the pioneering American and Hungarian experiments, led to the recognition of the causes of the fading of moon echoes.

Using parts of the same equipment, he then began observations of the distribution over the sky of relatively low frequency (20 Mc/s) cosmic radio waves, which he continued until his death.

Alex Shain was a wonderful colleague in the laboratory, imaginative, well balanced, exceedingly unselfish, and a real friend to all.

In his home community he was a leader in Church affairs. In the Anglican Church in the Sydney suburb of Turramurra, where he lived, he was, among other things, Sunday School Superintendent, lay reader and the leader of a Bible Study Group. He was a man who examplified the principles of Christianity in all his dealings with men.

He leaves a widow and three children of school age.

NEW NAME

The Cement and Ceramics Section changed its name to the Cement and Refractories Section on 11th April.

Within C.S.I.R.O. the Division of Building Research has now taken over the field of ceramic research.

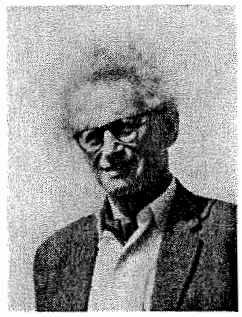
ADVICE ON DIELECTRICS

Professor H. Frohlich, F.R.S., Professor of Theoretical Physics in the University of Liverpool, spent the period from 22nd March to 10th April in Australia on the invitation of the Division of Electrotechnology.

Professor Frohlich has made important contributions to the theory of dielectric constant, the theory of dielectric breakdown in solids and the theory of superconductivity in metals.

He is the author of the most standard and widely used book on the theory of dielectric constant and dielectric loss.

In addition to discussions with the dielectrics group of the Division of Electrotechnology, he had discussions with other solid state physicists in the NSL/RP building and with physicists in the Universities of Sydney and New South Wales.



Prof. H. FROHLICH

During a brief stay in Melbourne, he visited the Divisions of Tribophysics and Chemical Physics.

The Informer

Mr. R. C. McTaggart, of the Division of Building Research, was recently admitted as a member of The Institute of Information Scientists Ltd., a British organization that has for its objects the promotion and maintenance of high standards in scientific and technical information work and the advancement of the collection, collation, evaluation and organized dissemination of scientific and technical information.

EMERITUS

The Council of the University of Adelaide has conferred the title of Professor Emeritus on Dr. L. G. H. Huxley, in recognition of his distinguished service both to science and to the University.

LITERARY SECTION

Trials of the "Derwent Hunter"

It was the "Derwent Hunter" that seldom put to sea,
With the Skipper, Mate, and one T.A., and a rollicking crew of three.
From eastern capes to western bays her trawl was often shot,
But the catch they caught was often nought and rarely worth a jot.

✦ ✦ ✦

Now sailors drink, and sailors eat, but they don't like raw fish,
"I'll get a cook," said the skipper bold, "who can cook us a dainty dish."
So very soon they got a cook, and a greasy cook was he,
He could boil an egg, he could mash a spud, and could make a cup of tea.

✦ ✦ ✦

When they put to sea the waves were rough, and he couldn't cook for nuts,
The sullen crew and the T.A., too, complained of their empty guts.
To save a row, they turned her bow, and made for Beauty Point,
Where they placed an ad. for a willing lad who could grill and cook a joint.

✦ ✦ ✦

They signed one on, and soon were gone round the wild Tasmanian Coast,
And they lived like kings on steak and things, and casseroles and roasts.
They returned at last and made her fast, at the shallow end of the pier,
But as soon as he got his apron off, the cook got on the beer.

✦ ✦ ✦

He drank all day and he drank all night, and a very full cook was he,
And when he guzzled all his pay he went back to the F.R.V.
Now the only way from pier to ship, was a wobbly narrow plank,
Head over tip went the sozzled cook, and down in the drink he sank.

✦ ✦ ✦

They heaved him out with a Yo-heave-ho, and hung him out to dry.
When the Skipper said "You've got the sack," a tear was in every eye.
So away he went and next who came, was a cook who kept things hot,
But the fires he lit were all over the ship, and not just under the pot.

He departed, too, and the hungry crew were looking gaunt and pale,
When the next ad. brought, as a last resort, one cook—Hungarian—male.
Now the Slavs don't cook the same as us, and they dearly love their hash,
And Frankie Moravic, cook grade one, was a beaut on the old goulash.

✦ ✦ ✦

At breakfast time it was on their plates, at night it was with their tea,
They had goulash porridge and goulash jam, for soup they had goulash puree,
They marooned him ashore at dead of night, some wanted to leave him for dead,
But they tipped a pot, all piping hot, of goulash over his head.

✦ ✦ ✦

Once more I guess, in the daily press, the same old ad. is seen,
"Wanted cook, with a cookery book, for a crew that's hungry and lean."
And still tied up in Melbourne Port, is the good old F.R.V.,
With a Skipper, Mate, and one T.A., and a mournful crew of three.

Indian Scientific Couple

Mr. G. N. Bhat, a chemical engineer from the Indian Institute of Science, Bangalore, has arrived in Australia to spend a year at the Chemical Research Laboratories. He holds a Colombo Plan senior fellowship.

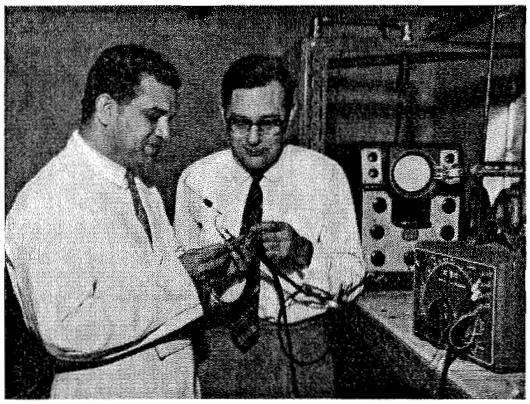
He is working in the Chemical Engineering Section on the direct reduction of iron ore, the use of fluidized-bed techniques, and the hydrogenation of brown coal.

The fluidized-bed technique may be used for the reduction of iron ores using carbon dioxide and hydrogen gases produced by the gasification of low-ranking Indian coals, of which India has abundant resources.

Mr. Bhat brought to Australia his wife, Dr. Maya Bhat, and his seven year old son Madan. Dr. Bhat, who is also on the staff of the Indian Institute of Science, is a bacteriologist.

While she is here she will work under Professor S. D. Rubbo in the Bacteriology Department of the University of Melbourne.

Mr. Bhat with Dr. J. D. Blackwood of the Chemical Engineering Section.



OVERSEAS VISITS

Mr. Ian Langlands, Chief of the Division of Building Research, has been invited to visit New Zealand early in May as a guest of the Committee of Management of the Architecture and Engineering Section of the Ninth New Zealand Science Congress that is to be held in Wellington from the 12th to 17th of May.

As Chairman of this Section Mr. Langlands will give an address on the subject "Building Research". He has also been invited to deliver the closing address to the whole Congress, and on this occasion he will speak on "The Australian Building Scene".

Dr. E. K. Bigg, of the Division of Radiophysics, is at present on a short visit to the United States. He attended an International Seminar on Solar Weather Relationships, in California and a Cloud Physics Conference in Washington. Dr. Bigg returns to Australia this week.

Mr. D. A. Forss, of the Dairy Research Section, leaves this month on a short visit to Europe and North America. He will attend the third Gas Chromatography Symposium in Edinburgh and a meeting of the American Dairy Science Association next month. In July he will be present at the Eighth Annual meeting on Mass Spectrometry at Atlantic City.

Dr. J. H. Piddington, of the Division of Radiophysics, left last month for a trip to the United States and Europe. He is at present spending two months at the University of Maryland as a visiting Research Professor.

Mr. P. G. Schinckel, of the Division of Animal Physiology, recently returned from a short visit to New Zealand, made at the invitation of the New Zealand Wool Board. He visited the Ruakura Animal Research Station and Massey College in the North Island, and Lincoln College and the Wool Industries Research Institute in the South Island.

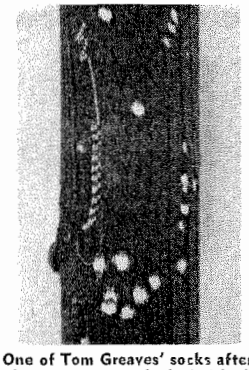
Dr. J. R. Vickery, Chief of the Division of Food Preservation and Transport, leaves this month on a short visit to the United States. He will take part in a symposium on meat preservation at the International Conference of the Institute of Food Technologists. On the way home he will present a paper to the Pacific Rim Food Conference at Honolulu.

Hazards of Science

Tom Greaves, of the Division of Entomology, has learned the hazards of science the hard way.

Asked to collect 600,000 meat ants (or six gallons), he used direct methods; he stamped on the meat ants' nest, arousing them so that they came swarming out to the attack.

Stamping in a quick-time dance, he lured the ants in a solid body towards a previously placed trough containing alcohol.



One of Tom Greaves' socks after the meat ants had finished.

Stepping nimbly across the trough, he continued to dance while the ants surged to their doom.

The supply of ants was required for a team of chemists at the University of New South Wales, under the leadership of Professor G. W. K. Cavill, who are studying the chemistry of ant secretions and excretions which have possibilities as insecticides and antibiotics.

APPOINTMENTS TO STAFF

Miss Pamela M. Bell has joined the staff of the Wheat Research Unit, where she will study enzyme reactions in dough. She graduated B.Sc. in biochemistry at the University of Sydney last year.

Dr. J. D. Colwell, who has joined the Canberra staff of the Division of Soils, is a Sydney graduate in agricultural science. From 1952-1955 he undertook research for the Ph.D. degree at Aberdeen. Since 1955 he has been on the staff of the Agricultural Research Institute at Wagga, N.S.W.

Mr. M. S. Graham has been appointed to the staff of the Film Unit. He is an arts graduate from the University of Tasmania and has been, for the past three years, script writer and assistant editor of the Tasmanian Government Film Unit.

Dr. G. L. Kesteven, who resigned from C.S.I.R. in 1947, has rejoined the Division of Fisheries and Oceanography. During the last thirteen years he has held a series of appointments with F.A.O., the last of which (1945-1960) was Chief of the Fisheries Biology Branch in Rome.

Dr. J. H. Russell has joined the Organic Chemistry Section, where he will work with Dr. J. R. Price on the Chemistry of Natural Products. Russell, who is a diplomate of Swinburne Technical College, recently graduated Ph.D. from the University of Basle in Switzerland.

Dr. K. A. Kini, a graduate of the Universities of Mysore and Bombay, has been appointed to a fellowship in the Division of Coal Research. Since graduation, Dr. Kini has been working at the Central Fuel Research Institute in India. During 1953-54 he held a post-doctoral fellowship at the University of Pittsburg, U.S.A.

Mr. K. P. SUMPTER

Mr. K. P. Sumpter recently arrived from England to take up an appointment with the Division of Chemical Physics. He was previously Head Glassblower at Associated Electrical Industries Research Laboratory at Aldermaston.

Mr. P. E. Cloutier has joined the staff of the Tobacco Research Institute at Mareeba. An agricultural science graduate from Sydney, he will work on the plant and water relations of the tobacco plant, and root growth and distribution.

Mr. J. J. Monaghan has been appointed to fill a vacancy for a mathematician/theoretical physicist at the Division of Physical Chemistry at Fishermen's Bend. Last year he graduated B.Sc. (Hons.) with first class honours at the University of Western Australia.

Mr. V. D. Sterns, formerly of Latvian nationality and now a naturalized Australian, has been appointed to the Chemical Engineering Section. Since graduating from the University of Melbourne in 1958, he has been Chief Chemist of the Russell Manufacturing Company, a subsidiary of Repco Ltd.

Mr. D. Vaux, formerly of the Fisheries Laboratory at Lowestoft in England, has been appointed to the staff of the Division of Fisheries and Oceanography. He will be responsible for the design and execution of the Division's work in fisheries oceanography, in particular with the programmes on tuna, barracouta and crayfish.

FULL CIRCLE

ONE of C.S.I.R.'s earliest employees, who resigned in 1930 after seven years' service, has rejoined the Organization after an interval of thirty years.

He is Mr. Thomas McMurtrie, a scientific instrument maker who learned his craft under Professor T. H. Laby, F.R.S., in the Natural Philosophy Department of the University of Melbourne.

Mr. McMurtrie worked with the late Mr. I. H. Boas and with Mr. L. R. Benjamin on the manufacture of paper pulp from Australian hardwoods.

In those days, the research laboratory was in a wing of the Brunswick Technical School, and the instrument shop was in a stable behind the old Head Office building.

Mr. T. McMURTRIE

He was the first scientific instrument maker employed by C.S.I.R.

He helped to construct the first pilot plant, and was present when the first paper made from Australian wood came off the machine.

He left C.S.I.R. in 1930 and formed the Austral Argo Engineering Company to manufacture cinematographic equipment. He sold this business last year.

Mr. McMurtrie has now returned to his old craft of scientific instrument making, and has joined the staff of the Division of Protein Chemistry.

Marksmanship

Mr. Peter Fox, of the Wildlife Survey Section, has been making a name for himself in the sport of pistol shooting.

During a recent competition organized by the Canberra Pistol and Miniature Rifle Club, he achieved the notable score of 556 points in the pistol rapid fire event.

Following this performance, his name was entered in the Golden Book of the world's best shooters maintained by Hämmerlie's, the Swiss gun makers.

Shortly after this performance, Fox surpassed his earlier performance with a score of 560 points.

During the Easter holidays he took part in the Olympic trials and National titles. He was placed third in the National rapid fire pistol event, narrowly missing Olympic selection.

MYERS' MATCH

The final of the "C" grade competition in the Albury and Border District Cricket Association will go down in the records as "Myers' Match", according to the "Border Morning Mail".

The Sailors, Soldiers and Airmen team won their first premiership largely through the efforts of Ken Myers, of the Wildlife Survey Section.

In the crucial second innings, Ken came to the crease when the score was 2/5. He went on to make 90 runs out of the side's total of 187.

When the other side, Bandiana, went in to bat, he took 4/41 in 14 overs. This, along with the 3/36 he had taken in the first innings, made him the undisputed hero of the match.

SMALL REQUEST

The following letter, written in a childish hand, was received at Head Office last month.

Dear Sir/Madam,

Would you please forward by return mail the Division of food Presevation and Transport and the division of plant Industry.

Yours sincerely,

CLARKE MEDAL

The Royal Society of New South Wales has awarded its Clarke Medal for 1960 to Dr. A. B. Edwards, Officer-in-Charge of the Mineragraphic Section.

The Clarke Medal is awarded annually to persons who have made distinguished contributions to the Natural Sciences in Australia.

Dr. Edwards has already been honoured by the Society by being asked to deliver the Clarke Memorial Lecture in 1951. He is well known for his prolific writings on various geological subjects and is a recognized authority on ore minerals.

Dr. A. B. EDWARDS

Dr. Edwards joined C.S.I.R. in 1935 as an Assistant Research Officer in Mineragraphic Investigations under Dr. F. L. Stillwell, whom he replaced as Officer-in-Charge in 1953. During this period (1935-53) he was awarded the David Syme Prize and Medal (1937) and the D.Sc. degree.

Since 1955 he has been Geological Advisor to the State Electricity Commission of Victoria and during the period of 1958-61 is acting as Observer on the Commission of the International Union of Pure and Applied Chemistry.

Dr. Edwards has made many contributions to geological literature. His book entitled "Textures of Ore Minerals and their Significance" was first published in 1947, and a second edition was issued in 1954.

Printed by C.S.I.R.O., Melbourne

CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 15, MELBOURNE, JUNE 1960

Minister Opens Bread Research Institute

"The work of the Bread Research Institute of Australia will have an important bearing on the future of our exports," said Dr. D. A. Cameron, Minister for Health and Minister-in-Charge of C.S.I.R.O., on 16th May.

"If our exports are to be increased satisfactorily we must pay attention to the quality as well as the quantity of our primary products.

The world population is increasing at such a rate that it will be soon difficult to feed them all," he added.

Dr. Cameron was performing the official opening of the new laboratories of the Bread Research Institute at North Ryde, a suburb of Sydney.

About 300 bread manufacturers, wheat growers, members of the Australian Wheat Board, and flour millers were present.

Dr. Cameron said that it was good to see such an excellent relationship between the bread manufacturers who had started the Institute and the Government which contributed to its costs through C.S.I.R.O.

The important thing to note, he said, was that the Institute owed its existence to the initiative of the members of the bread manufacturing industry.

Dr. Cameron was welcomed by Mr. W. Sloan, President of the Council of the Institute and a member of the Advisory Council of C.S.I.R.O.

Mr. Sloan remarked that the occasion was being attended by bakers from every State in Australia and from New Zealand.

He thanked all those people who had played key roles in the establishment of the Institute.

Dr. D. W. Kent-Jones, who visited Australia in 1947 to advise on the establishment of the Institute, made a special trip from London to be guest of honour at today's opening.

He said the Institute had promoted mutual understanding between scientists and the bread industry.

Scientists could help improve the quality of bread here. Advances in cereal chemistry in the last 10 years had been amazing.

He believed the future was equally promising. Dr. Kent-Jones said Australia should be proud of the Institute, which had a world-wide reputation.

The new Institute comprises laboratories covering some 14,000 square feet, on a three acre site at North Ryde, which was made available by C.S.I.R.O.

The total cost of the building was about £75,000, of which £30,000 was contributed by C.S.I.R.O.

During the last thirteen years the Institute has been housed in laboratories on Pacific Highway, North Sydney, which it has now outgrown.

The new site will allow room for expansion, and has the advantage of being in close proximity to the laboratories of the Division of Food Preservation and Transport, now under construction.

The Bread Research Institute was established in New South Wales in 1947, following an enquiry by Mr. Justice Kinsella into the bread industry.

At first the Institute was supported only by New South Wales bakers, but subsequently it obtained support from all States.

In 1950, it approached the Commonwealth Government for support, and was recognized by C.S.I.R.O. as an industrial research association.

As a result, it has received an annual grant from C.S.I.R.O., related to its industrial income.

This year the C.S.I.R.O. grant will be about £15,000.

With funds made available from the Wheat Industry Research Council, C.S.I.R.O. has recently established a small Wheat Research Unit for biochemical investigations of wheat quality.

The Bread Research Institute has agreed to house this unit in its new laboratories and the Director of the Institute will act as Officer-in-Charge of the C.S.I.R.O. unit.

The work of the Institute has had a very marked effect in improving the standards of the baking industry and is recognized by bakers throughout Australia with whom it keeps in close touch.

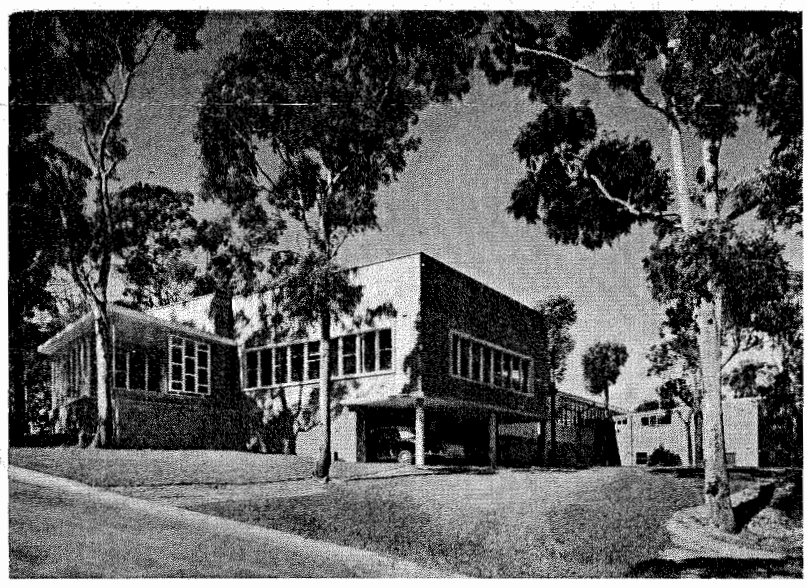
It has provided a testing service for flour and other raw materials used in the industry and, by means of demonstrations by travelling bakers and a series of newsletters and publications, it has brought knowledge and practical advice to bakeries throughout the country.

It has also built up an important programme of fundamental research in various aspects of wheat and flour quality, the properties of doughs and other subjects.

This work has been done in close association with C.S.I.R.O., the State Departments of Agriculture and some of the universities.

The Institute's influence now extends strongly to the flour milling industry where its work has been largely responsible for the establishment of standards of flour quality.

This has been important to the bread industry, which is thus enabled to insist on definite quality specifications for the flour it buys, and has been particularly important for building up the export trade in wheat and flour.



The new laboratories of the Bread Research Institute at North Ryde.

UNIVERSITY POSTS

Three officers of C.S.I.R.O. have accepted important posts in different Australian universities.

Dr. R. N. Robertson, who was appointed to the Executive last year, has been appointed to the Chair of Botany in the University of Adelaide.

He will, however, be able to give nearly two more years to C.S.I.R.O., as he will not take up his Chair until 1962.

At Adelaide, Dr. Robertson will succeed the late Professor J. G. Wood, who was Chairman of the South Australian State Committee and the Editorial Board of Standards.

Dr. W. N. Christiansen, a distinguished member of the radio astronomy group in the Division of Radiophysics has resigned to take up the Chair of Electrical Engineering at the University of Sydney.

He is the second C.S.I.R.O. man to occupy this position.

His predecessor, Professor D. M. Myers, was a former Chief of the Division of Electrotechnology. Professor Christiansen has already taken up his new duties.

Dr. Angela Milne, a research officer on the staff of the Division of Building Research, has been appointed principal of the University Women's College in Melbourne, in succession to Miss Myra Roper.

DR. ANGELA MILNE

Dr. Milne, Scottish born and a graduate of the University of Aberdeen, first came out to Australia in 1953, on a fellowship granted by the International Federation of University Women.

Visiting the United States

Dr. H. E. Dadswell, Assistant Chief, Division of Forest Products, will leave in the middle of June for a three month visit to the United States.

He has been invited to be one of the principal lecturers at a Special Field Institute in Forest Biology sponsored by the School of Forestry, North Carolina State College.

He will then take in the TAPPI Biology Committee Conference in Seattle on August 24th-26th at which he will be Chairman of one of the sessions.

Later, he will attend the Fifth World Forestry Congress, also at Seattle.

Dr. T. J. Marshall, of the Division of Soils, left last week on a visit to Europe and North America. He will attend an International Congress of Soil Science at Madison, Wisconsin. He is a vice-president of the Soil Physics section of the Congress. Before returning home Dr. Marshall will spend three months at the University of California participating in a research project on soil compaction.

Dr. G. H. Taylor, of the Division of Coal Research leaves next week for Madrid, where he will attend the World Power Conference. After visiting coal research establishments in France, Germany and England, he will proceed to North America, where his visits will include Pennsylvania State University and the U.S. Bureau of Mines.

Dr. W. H. Steel will fly to America this month to take part in a Conference on the Coherence Properties of Electromagnetic Radiation, to be held at the University of Rochester. Dr. Steel will return to Australia via Europe early in August.

Elected to Academy

The Chairman, Dr. F. W. G. White, and the Chief of the Division of Animal Genetics, Dr. J. M. Rendel, have been elected Fellows of the Australian Academy of Science.

Dr. White's citation reads, "Distinguished for his contributions to the physics of radio and radar and for his outstanding work for science in Australia as Chief Executive Officer, Deputy Chairman and now Chairman of C.S.I.R.O."

Dr. Rendel was "Distinguished for his researches on animal genetics, especially the study of breeding systems in relation to genetic gains in economic characters".

Among the other four new Fellows were Professor A. E. Alexander, a member of the Advisory Council, and Professor G. M. Badger, who is associated with C.S.I.R.O. through his membership of the Advisory Committee for the Australian Journal of Chemistry.

FILM AWARD

The Film Unit's most recent effort, "The Biological Control of Insects", has won high honours at the current Melbourne Film Festival.

It has been awarded a silver medal, the highest distinction given at the Festival; only four films are accorded this honour each year.

The film will be screened in the educational films section of the Festival.

OBITUARY NOTICES

Dr. P. L. GOLDACRE

Following a brief illness, Dr. Peter L. Goldacre of the Division of Plant Industry, Canberra, died on 16th April at the age of 34 years.

Educated at Sydney Boys' High School and Sydney University, he joined the Division of Plant Industry in 1947 as biochemist.

He first investigated the enzyme system which oxidises the plant hormone, indolylacetic acid.

This study was continued at the California Institute of Technology during 1951-52, where he received the Ph.D. degree.

By training and early experience he was a biochemist; but, on his return to Australia, he became keenly aware that many of the basic questions of plant biology were not ready for investigation by the techniques of classical biochemistry.

It was with the basic and broad questions of biology that his curiosity lay, but one must justify such idealism by posing questions that can be tackled experimentally.

This meant years of struggle for the clarification of problems.

It is part of the tragedy of Peter Goldacre's early death that it came when his work had just begun to produce rewards.

He asked "HOW" of tissue differentiation.

He investigated the process of regeneration in the adventitious formation of organs and the restoration of excised organs.

He postulated that the basic cause of self-perpetuation in plant meristems is the production of a cell division stimulator.

Experiments with roots supported his idea.

In his last year he detected a cell division stimulator in apple fruitlets during their most active period of cell division.

And all the while he derived greatest delight from his insights into the subtleties of nature.

His research reflected his attitude to life.

He had a clear perception of what was good or bad, what interesting or dull, and he pursued good and interesting things with enthusiasm, quite untrammelled by convention.

His spirit revolted against woolly-thinking and pretence and he attacked them with colourful directness — a characteristic which his colleagues came to rely upon.

Biology has lost prematurely one of the few who was aware of the basic questions of living systems, and whose experimental approach was broad and bold enough to attack them.

Dr. C. A. McCHESNEY

The Meat Research Laboratory of the Division of Food Preservation and Transport, Brisbane, lost one of its most promising research officers when Colin Arthur McChesney was drowned on 23rd April at the early age of 29.

McChesney came to Australia in 1957 immediately after completing his Ph.D. at the University of Leeds, where he had been working on biochemical aspects of the metabolism of sulphur bacteria.

At the Meat Research Laboratory, McChesney quickly assimilated the essential background to meat bacteriology and tackled the difficult problem of the mechanism of the inhibition of psychrophilic meat spoilage organisms by carbon dioxide — a problem to which his biochemical outlook was eminently suited.

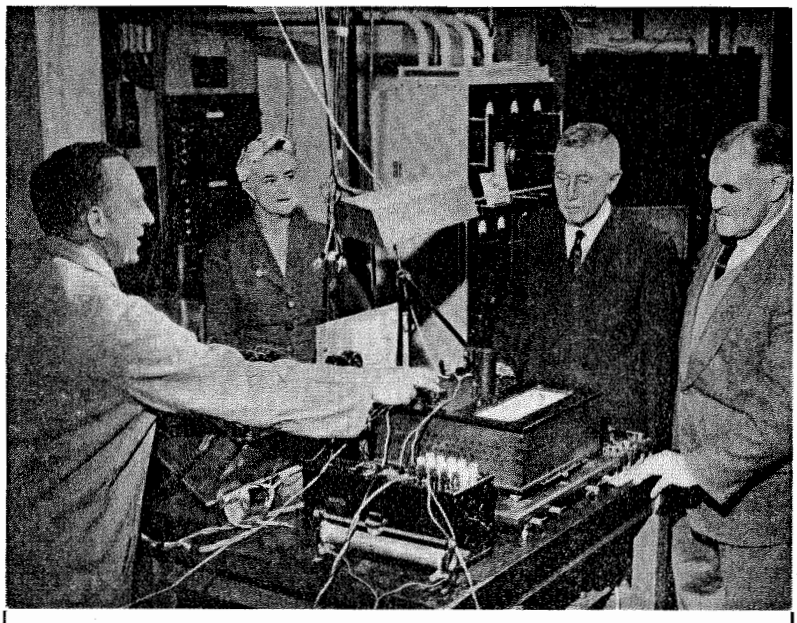
He had made considerable progress at the time of his death.

He was, however, far from being an ivory tower worker and his work on meat slaughter hygiene appears likely to lead to important developments in carcase dressing operations.

McChesney was a very popular member of the staff and a leader in many staff activities, particularly chess and table tennis.

He had an extensive range of interests, read widely and took a practical interest in his fellow men, particularly those less fortunate than himself.

He leaves a widow and two young children.



Since Dr. D. A. Cameron was appointed Minister-in-Charge of C.S.I.R.O., he has made a number of visits to the Organization's laboratories The picture shows him visiting the Division of Electrotechnology with his wife on 9th May. On the left is Mr. D. B. Armitage, and on the right, Mr. F. J. Lehany.

Study of Savannah

Dr. Monica Cole, an English geographer from the University of North Staffordshire, arrived last month on a six months' visit.

Her chief reason for coming to Australia is to complete a book on the savannah lands, or tropical grasslands of the world.

Dr. MONICA COLE

She has already covered the savannah lands in Latin America and Africa.

Dr. Cole has already published two books, one of which may become a standard work on South African geography and geology.

On the voyage from England she completed a third, and posted the manuscript to her publisher from Colombo.

She bought a Holden utility in Melbourne, and set off for Brisbane, where she is holding discussions with officers at the Cunningham Laboratory.

Next month she will set forth alone with camera, notebook, and sleeping bag to explore the backblocks of Queensland and the Northern Territory.

SCHOLARSHIP

The Victorian Women Graduates Association is calling for applications for the first Lady Leitch Scholarship.

The Scholarship is open to all members of the Australian Federation of University Women for study in any country on any subject, and is of the value of £700.

Information concerning applications can be had from the Secretary of the V.W.G.A., Miss Meriel Wilmot, 68 Hawksburn Road, South Yarra, S.E.1, Victoria.

Professor From New York

Professor S. N. Milford, Chairman of the Physics Department, St. Johns University, New York City, is spending two months of his sabbatical leave with the C.S.I.R.O. Division of Physics.

Professor Milford is a former graduate of Melbourne University.

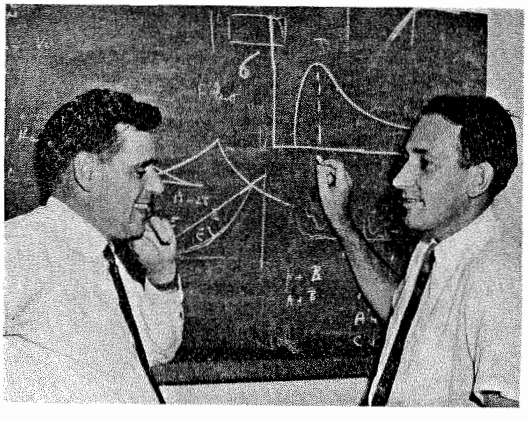
He left Australia in 1946 to study for his Ph.D. at London University and has since remained overseas.

Having completed his Ph.D. in 1948, he spent two years at the Institute d'Astrophysique in Paris and finally joined the Staff of the Physics Department at St. Johns University, New York, in 1952.

His main interest is in theoretical astrophysics and in basic collision processes of astrophysical importance.

While in Sydney, he will be engaged in theoretical discussions on the excitation of spectral lines in stellar atmospheres.

Professor S. N. Milford (right) discussing a theoretical problem with Mr. J. T. Jefferies.



Charity Fund

A little over a year ago a charity fund was started at the Division of Forest Products, and, so far, a total of over £285 has been collected and £185 disbursed to various charities.

Contributions vary from 6d. to 5/- per pay day, and over half of the Division's staff contribute to the fund.

Disbursements of £50 have been made, together with a number at £5.

Each year a proportion of the total (roughly a fifth) is put into a special fund to provide for the purchase of some item of equipment, such as an air conditioner or refrigerator, by a hospital or other institution.

The fund is administered by a committee of five and contributors have the final vote on major donations.

METALLURGICAL AWARDS

Dr. W. Boas, Chief of the Division of Tribophysics, has been awarded the Silver Medal of the Australian Institute of Metals.

This is the highest honour the Institute can confer on one of its members, and Dr. Boas is only the third person to receive the honour.

The award recognizes outstanding contributions to physical and secondary metallurgy.

The citation for the award says that it was given to Dr. Boas "because of his leadership and the inspiration he has given to young scientists, and the contributions he has made to physical metallurgy."

The medal was presented to Dr. Boas at the Institute's annual meeting at Port Kembla last week.

The Victorian branch of the same institute recently awarded the 1960 Florence Taylor medal to Mr. G. W. West, another Tribophysics officer.

This award is given for the best paper given to the Institute each year.

DOCTORATES

Mr. J. R. Philip, of the Division of Plant Industry, has been awarded the Doctor of Science degree by the University of Melbourne, in recognition of his outstanding contributions to the theory of infiltration and other hydrological subjects.

Mr. R. F. Riek, of the Division of Animal Health has been awarded the degree of Doctor of Veterinary Science by the University of Queensland. Dr. Riek's special field of interest is in tick-borne diseases, and he is a member of the F.A.O. Expert Panel on tick-borne diseases of livestock.

Mr. Sydney Sze Yih Young, of the Division of Animal Genetics, has been awarded the Ph.D. degree of the University of Sydney. Dr. Young, who is Chinese-born, is a graduate of the Nantung University of Shanghai. He was a wool importer before coming to Australia in 1949.

RADIATION USE

Last week, a conference was held in Sydney on the technological uses of radiation.

Organized by the Australian Atomic Energy Commission, the three day conference was the first of its kind to be held in Australia.

About a hundred overseas delegates came from the United Kingdom, the United States, New Zealand, and the International Atomic Energy Commission.

Australian participants included members of the staff of A.A.E.C., C.S.I.R.O., universities and industrial companies.

Among the uses of radiation discussed at the meeting were the sterilization of pharmaceuticals, the preservation of food, promotion of chemical reactions, pest control, and plant breeding.

Delegates from C.S.I.R.O. included Dr. D. F. Stewart, Dr. J. C. Boray, Mr. I. G. Pearson, Mr. N. P. H. Graham, and Mr. M. D. Murray, all from the McMaster Animal Health Laboratory, Mr. S. W. Bailey and Dr. R. D. Hughes (Entomology) and Dr. R. D. Brock and Dr. J. V. Possingham (Plant Industry).

Exploring Six Miles Under the Sea

Dr. Wyrtki, a bright-eyed Hamburg born oceanographer who came to Australia 18 months ago to work for C.S.I.R.O. is a man well qualified to talk about the ocean deeps.

He prophesies that one day the ocean could be used to change Australia's climate — to change the wind currents and alter the humidity and transform the deserts into fertile fields.

All by a simple exchange of heat from the warm and cold layers of the sea.

He and a party of five scientists recently returned to Sydney aboard the Royal Australian Navy survey frigate Gascoyne after a 7,900 mile cruise.

Fitted with the latest recording gear, H.M.A.S. Gascoyne took them over 500,000 square miles of water as far east as New Caledonia and as far north as Manus Island.

The main purpose of the voyage, according to Dr. Wyrtki, was to investigate circulation of the water at various depths, its composition, the speed at which it moves, the distance light penetrates it, the biology of the surface layer — down to 500 feet — and the fertility of the various areas.

For the layman nothing else he and his party explored on the six weeks cruise is half as interesting as the Planet Depths, an enormous trench nearly six miles deep, in the ocean bed.

The Trench was discovered by the German survey ship Planet about 1904, but Dr. Wyrtki and his party were the first to examine it in detail.

It took them an hour to lower their recording bottle into the trench, another hour to take readings and samples and a third hour to hoist the apparatus to the surface.

Even then they could not reach the bottom, for the cable to which their bottle was attached only extended to 26,000 ft.

They recorded the extreme bottom depths with an echo sounding machine and found that the bottom layers of water that fill the trench come from the icy Weddell Sea in Antarctica, 10,000 miles distant, and that it takes water something like thousands of years to reach the trench.

The temperature of the water at the bottom of the trench is three degrees above freezing point (35 deg. F.) and the water pressure at the bottom reaches the fantastic level of 15,000 lb. per square inch.

Water in the trench is not stagnant, Dr. Wyrtki said. It is moving, yet so slowly that it may take 100 years to pass through.

Contrary to what people may expect, he concluded, the water in the trench, being free of contamination, is extremely clear.

The recent cruise is only one of a series the Division of Fisheries and Oceanography has planned.

At the close of next summer they will be off again to examine another stretch of the unknown seas that lie off Australia's shores.

COLD COMFORT

Some unusual research has been going on at the Division of Building Research lately, but it has nothing to do with the building industry.

The Division has been playing host to Dr. Grahame Budd, a medical officer of the Antarctic Division of the Department of External Affairs.

Dr. Budd is carrying out a physiological investigation to find out whether there is such a thing as general acclimatisation to cold.

If it does occur it is considered that members of Antarctic wintering parties should be likely candidates for exhibiting it.

Five series of tests have been carried out.

The first, in December 1958, and the last, in April 1960, were carried out in one of the conditioning rooms at the Division of Building Research.

The other three were carried out at Mawson, Antarctica, in April, September and December, 1959.

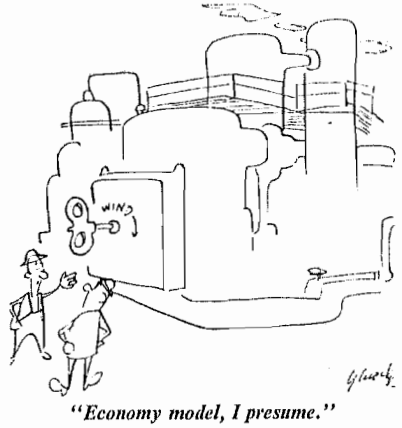
For the experimental work four volunteers who were all likely to experience considerable exposure to cold during Antarctic field work were used as subjects.

During every test each man was exposed to a standard cold stress.

He was exposed nude, lying supine on a nylon mesh mattress, to a temperature of 50°F. with minimum air movement for 95 minutes, and was not permitted any voluntary exercise.

Readings were taken of his heat output, deep temperature and skin temperature at five sites, and his shivering pattern was observed.

Preliminary work for the investigation was carried out at the Division of Human Physiology, Medical Research Council, London.



"Economy model, I presume."

With acknowledgment to "Chemical Engineering News"

Bacterial Fertilizers

A group of fertilizer companies has offered to provide a sum of £1,000 per annum for three years to help the Division of Soils launch an investigation into bacterial fertilizers.

The problem which Dr. Swaby and his colleagues in the Division's microbiology group hope to solve may be stated as follows:—

On many soils, superphosphate provides a ready source of phosphorus.

On others, particularly soils of the south-western parts of Western Australia and of the southern part of South Australia, the rate of fixation of the phosphorus in unavailable form is high.

For acid soils of this type covering millions of acres a slower acting fertilizer giving a more continuous supply of phosphorus would be a great advantage.

Instead of manufacturing superphosphate chemically, it is proposed to use biological means, by compounding roughly ground phosphate and sulphur, and inoculating with a sulphur oxidizing organism to produce sulphuric acid.

This has been done in a preliminary way and might be managed by pelletizing the rock phosphate-sulphur-micro-organism and drilling in as fertilizer.

Solvent Scouring Plant Opened

A new wool scouring process worked out by C.S.I.R.O. and applied commercially for the first time in the world was the most significant advance in the woollen industry for many years, the Premier of South Australia (Sir Thomas Playford) said last month.

He pressed a button which put into operation the new £100,000 solvent de-greasing wool scouring plant at the premises of G. H. Michell & Sons Ltd., Hindmarsh, South Australia.

Industrialists and textile manufacturers, many from interstate, gave up their cigarette lighters and matches before they inspected the plant, which has flame-proof motors, switchgear and lights, and elaborate built-in fire prevention devices.

Members of the Australian Wool Bureau and C.S.I.R.O. officers also inspected the plant.

Sir Thomas Playford said stronger fabrics and garments would result from the new process, which was about four times faster than the old soap-soda cleaning method.

Much credit was due to the firm's own engineers for building a plant which put the C.S.I.R.O. devised method into operation in the first and only large-scale commercial plant of its kind in the world.

Mr. R. J. Michell, chairman of the company, said it took C.S.I.R.O.'s Division of Textile Industry about 10 years to develop the process.

The solvent-scouring method used white spirit virtually to dry-clean the wool, and was a major advance in textile technology.

"In the long run, this development could mean millions of pounds for Australia," Mr. Mitchell said.

THE BALL IS ON AGAIN

This year the C.S.I.R.O. Annual Ball will take the form of a Dinner Dance, which will be held at the Royale Ballroom, Melbourne, on Saturday, June 25th.

Sherry will be served at 6.30 p.m. and dinner at 7.15 p.m.

Dancing will continue until midnight and a floor show will add to the entertainment.

Keen rivalry between the ticket secretaries, Lynette Simpson (left) and Lois Marquard (right). Both want to sell a ticket to Committee member Myles Grindal.

Tickets are available from Divisional representatives of the Ball Committee or from Lois Marquard or Lynette Simpson at Head Office (JA 6611).

Unusual Stenographer

Eighteen-year-old Aileen Hartley, a stenographer, started work with the Staff Section at Head Office last week. Aileen has been blind from birth.

As long ago as 1957 Mr. Jack Coombe, Staff Officer at Head Office, held discussions with the Blind Institute concerning the employment of blind people by C.S.I.R.O.

As a result of these discussions, Aileen has been trained with her future duties clearly in mind.

Although Aileen was able to learn touch-typing at a business college in the conventional manner, special techniques had to be developed so that she could take and "read" shorthand.

She takes her shorthand with the aid of a tiny keyboard with five or six keys. Each time she hits a key, an impression is made in Braille dots on a tape which is fed through the machine.

A shorthand system, using combinations of the keys, has been worked out, and Aileen can run her fingers over a finished tape and "read" what is on it.

With this method, she has achieved a speed of eighty words per minute shorthand, and she can type at thirty-five words per minute.

Because she cannot see, Aileen cannot erase a mistake, and must exercise great care not to make any. As a result, her work is of a very high standard.

The employment of blind people in this way is still far from becoming common. Aileen is the first blind stenographer in Victoria, and only the second blind person employed by the Commonwealth in the whole of Australia.

Miss Aileen Hartley demonstrating her shorthand technique to the Governor of Victoria and Lady Brooks.

Courtesy of The Herald and Weekly Times Ltd.

Phi Beta Kappa

Mr. D. G. Perrin, an officer of the Film Unit who is studying cinema at the University of Southern California, has achieved the high distinction of election to the Phi Beta Kappa fraternity.

Phi Beta Kappa is an honour society for students who make exceptionally high grades and who meet other stringent requirements.

Don Perrin is one of twenty-five students from his University chosen for election to the society this year.

Mr. D. G. PERRIN

Phi Beta Kappa was founded at the College of William and Mary at Williamsburg, Virginia, on 5th December, 1776.

It was a social club of five students.

In 1771 the College of William and Mary was closed, its buildings being occupied for military purposes.

The society would have ceased to exist had it not been for a grant made in 1779 to Elisha Parmele, one of its members, to establish "meetings" or chapters at Yale and Harvard.

In 1826 the society changed its character, becoming non-secret and purely honorary. It admits to its membership a certain proportion of the scholars of highest standing, usually in the classical courses, and members of the graduating class.

CONFERENCE AWARD

Mr. R. V. Dunkle, of the Engineering Section, has received advice from the American Society of Chemical Engineers that his paper entitled "Radiation Interchange Within an Enclosure" has been awarded the Conference Award of the Third National Heat Transfer Conference.

Mr. Dunkle shared the award with his co-author, Mr. J. T. Bevans. Before coming to Australia last year, Mr. Dunkle held a professorial post at the University of California.

CRAFTSMANSHIP

The story of the outstanding apprentice, Eckhard Bez, was partly told last year (Coresearch No. 5).

He has now set the cap on his apprenticeship by winning the Bronze Medallion for the outstanding apprentice in his trade again, in his final year.

The medallion was presented to him by the Governor of Victoria in the Melbourne Town Hall on 10th May.

Eckhard was also awarded the Apprenticeship Commission's 1960 Bronze Medallion for Craftsmanship for the best exhibit in his trade.

This was a specimen manipulator for an electron diffraction camera which he had constructed completely by himself.

He has also been awarded by the Melbourne Technical College the Beasley Prize for the best marks in the final examination for his year.

During his apprenticeship Bez has also won the Bronze Medallion for Craftsmanship in 1958 and 1959, the Beasley Prize in 1959, the J. L. William Prize in 1958, and the R. G. Holloway Prize in 1959.

The Bronze Medallion for Craftsmanship has not been won by the same apprentice in three consecutive years in any trade before.

Although Bez did not win the Silver Medallion for the outstanding apprentice of all trades (Apprentice of the Year), he was in the last four, which is a creditable placing among the 19,000 apprentices in Victoria.

APPOINTMENTS TO STAFF

Miss Margaret Cox, an honours graduate from the University of Melbourne, has been appointed to the staff of the Division of Entomology. For the past two years she has been working for the M.Sc. degree in the Department of Chemistry at Melbourne.

Dr. W. F. Dudman, an Edinburgh graduate, has been appointed to the staff of the Commonwealth Research Station, Merbein. Since taking his Ph.D. in 1954 he has been at the Colonial Microbiological Research Institute in Trinidad. Dr. Dudman is at present making a brief stop-over in Hong Kong for the purpose of seeing his parents. He will arrive in Australia shortly.

Mr. H. Kobler, a graduate in both science and engineering from the University of Sydney, has joined the Division of Physics. Since graduation, he has been working with Standard Telephones and Cables Ltd., except for two years with Decca Radar Ltd. in the United Kingdom.

Mr. B. R. Meldrum has joined the Division of Coal Research. He graduated in chemistry from the University of Sydney in 1958. Since graduation, he has been employed as a chemist by Mauri Brothers and Thomson.

Miss Vanessa Merry has joined the staff of the Division of Animal Health and will be stationed at the McMaster Laboratory. After graduating from Sydney in 1958, she went to England, where she was employed at the Wellcome Veterinary Research Station in Kent.

Dr. J. H. Palmer has been appointed to the staff of the Irrigation Research Station at Griffith. After graduating at the University of Sheffield he accepted a post at University College, Jamaica. He has remained there until this year, with a break of one academic year at the University of Leeds, and shorter sojourns at Harvard and Oxford.

Mr. R. Schodde, an honours graduate from the University of Adelaide, has joined the Division of Land Research and Regional Survey. He will undertake taxonomic research, particularly with New Guinea flora.

Dr. O. C. Straub, a veterinary graduate from Hanover, has accepted a short term appointment (for a few months only) at the Animal Health Laboratory, Parkville. For the past four years he has been working in the Faculty of Veterinary Medicine at the University of California.

Forthcoming Broadcasts

Two forthcoming broadcasts involving C.S.I.R.O. people will take place this month.

A talk by Dr. I. W. McDonald, Chief of the Division of Animal Physiology, will be given in the "Farming Today" programmes over New South Wales country stations.

Times include 12.15 p.m. 1st June (2QN Deniliquin), 7.0 p.m. 4th June (2GR Griffith), and 6.30 p.m. 24th June (2GN Goulburn).

The programme in the "You and Your World" series which will be broadcast from stations in the Macquarie network during the week commencing June 5th will be on the subject of "Timber", and will feature the work of the Division of Forest Products.

ASSIGNMENT IN THAILAND

Mr. F. G. Nicholls is off to Asia again.

He has been asked to advise the Government of Thailand on the organization of scientific research.

His task is sponsored by the United Nations Technical Assistance Administration.

He will review existing research facilities in Thailand, and make recommendations about organizing and extending research, to provide a sound technical basis for the economic development of the country.

Mr. Nicholls leaves Australia on 12th June, 1960, and expects to be away for a year.

He recently spent three months in various Asian countries.

Most of this time was occupied with his job as adviser to the Pakistan Scientific Commission.

Since his return, he has been examining C.S.I.R.O.'s participation in foreign aid programmes.

It is clear that the Organization will be more intimately involved in this work in the future.

New Zealander

Dr. W. M. Hamilton, Secretary of the Department of Scientific and Industrial Research, New Zealand, paid a short visit to Australia last month.

He was on his way to London to take part in the meeting of the British Commonwealth Scientific Committee.

In Sydney Dr. Hamilton paid a short visit to the Ian Clunies Ross Animal Research Laboratory, and in Canberra he discussed the development of the phytotron with Dr. Frankel and officers of the Division of Plant Industry.

In Melbourne Dr. Hamilton spent a couple of days at Head Office and paid a visit to the Division of Building Research.

While in Australia, he also visited the A.A.E.C. establishment at Lucas Heights, the Universities Commission and the Institute of Agriculture in Perth.

Public Service Golf Competition

In Victoria, a Commonwealth Public Service Golf Association has been formed.

Sixteen departments have provisionally agreed to join the Association, and C.S.I.R.O. has been asked to enter a team.

The teams are to consist of five players, and the competition may be held once a fortnight on Sunday mornings, as soon as courses have been arranged.

It is also possible that a Public Service Golf Championship will be held as a finale to the pennant competition.

Any C.S.I.R.O. golfers who are located in Melbourne and who are interested in playing should contact Mr. Allen Gray at Head Office.

SPRINT CHAMPION

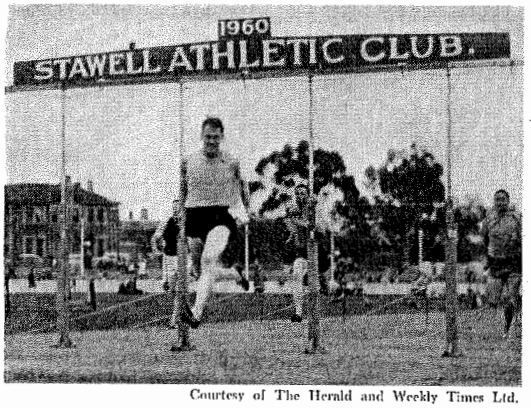
John Vavasseur, a clerk in the accounts branch at Head Office ran a close third in the 1960 Stawell Gift.

The Gift is claimed by many people to be the world's greatest professional sprint event.

John, who is aged 24, was trained by Jack Cumming, trainer of two Stawell Gift winners, and the winner of the 1960 Bendigo Thousand.

John has put his prize money towards the purchase of a block of land.

John Vavasseur winning his heat at Stawell.



Courtesy of The Herald and Weekly Times Ltd.

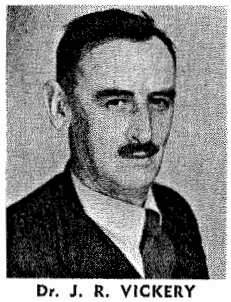
International Award to Chief

The Institute of Food Technologists, which has its headquarters in the United States of America and branches in many countries, has chosen Dr. J. R. Vickery, Chief of the Division of Food Preservation and Transport to receive its 1960 International Award.

Dr. Vickery is the first Australian to be so honoured.

The award, which is a suitably engraved silver salver was presented to Dr. Vickery on 17th May, when he attended the 20th Annual Meeting of the Institute of Food Technologists in San Francisco.

The award is made annually by the Institute of Food Technologists to a member "who has made outstanding efforts to promote the international exchange of ideas in the field of food technology or whose work has led to such exchange of ideas or to better international understanding in this field".



Dr. J. R. VICKERY

SHORT STORY

Mr. E. A. Jackson, who recently transferred from the Soil Survey and Pedology Section of the Division of Soils to join the writing group in the Agricultural Research Liaison Section, has been awarded first prize (£100) in the short story section of a literary competition held in conjunction with the Northern Territory Centenary of Exploration.

Mr. Jackson was stationed at Alice Springs from 1957 until his recent transfer to Melbourne and used a Central Australian background for his winning entry.

TENNIS SUCCESS

Mr. H. Crockford, a chemist on the staff of the Regional Pastoral Laboratory, Deniliquin, won the Southern Riverina Singles title at the Easter tournament held at Deniliquin.

The tournament attracted 300 entries including many "A" Grade pennant players from Melbourne.

Mr. Crockford, a recognized pennant player in Melbourne prior to coming to Deniliquin, has played in the final for the past four years, winning three times and being runner-up once.

From Uganda

Dr. C. W. Rose, of the Physics Department at Makere College, Uganda is spending several months of his sabbatical leave in Australia.

Initially, he is spending a few months with the Soil Physics Section of the Division of Soils at Adelaide, where he is working on soil-water relationships.

Dr. Rose has also visited the Cunningham Laboratory in Brisbane.

In June, he intends visiting the C.S.I.R.O. laboratories at Deniliquin and Merbein. He will also visit the Divisions of Meteorological Physics and Land Research and Regional Survey before returning to East Africa in September.

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CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 16, MELBOURNE, JULY 1960

BIRTHDAY HONOURS

EXECUTIVE MEMBER KNIGHTED

Sir ARTHUR COLES

Courtesy "The Herald"

Dr. B. T. DICKSON, C.M.G.

A member of the Executive, a former Chief of a Division, and a member of the Advisory Council were honoured by Her Majesty in the recent Birthday Honours list.

Mr. A. W. Coles, who has been a part-time member of the Executive since 1956, had a knighthood conferred on him. He is the fourth brother in his family to receive this honour, an Australian, and probably a British Commonwealth record.

Sir Arthur is one of four brothers who founded G. J. Coles & Co. Ltd., one of Australia's largest retail organizations. They began operations in Collingwood, Victoria, in 1914, but the war interfered with their plans.

Sir Arthur enlisted as a private, was wounded three times, and commissioned. He and his brothers started again in 1919. Their low-price, high-turn-over policy succeeded and the chain began.

Sir Arthur was managing director of the firm from 1931 to 1944.

He has also been Lord Mayor of Melbourne (1938-40), Member of Parliament for Henty (1940-46), and Chairman of the Australian National Airlines Commission (which operates T.A.A.) from 1946-50.

He has also been Chairman of the Geelong College Council for the past twenty years.

Dr. B. T. Dickson, the first Chief of the Division of Plant Industry, became a Companion of the order of St. Michael and St. George.

Dr. Dickson came to Australia from Canada in 1927, to form the Division. He had previously been Professor of Plant Pathology and Professor of Economic Botany at McGill University.

He was the foundation president of the A.C.T. branch of the Australian Institute of Agricultural Science and became President of the Institute in 1945. He won the Farrer Memorial Medal in 1952.

Since his retirement in 1951, Dr. Dickson has been active on behalf of a number of committees and U.N. agencies. He is also Chairman of the Council of Canberra University College.

Professor N. S. Bayliss, F.A.A., Head of the Department of Chemistry in the University of Western Australia, was appointed Commander of the order of the British Empire (C.B.E.).

Professor Bayliss is associated with C.S.I.R.O. as a member of the Advisory Council and is Chairman of the Western Australian State Committee. He is also a member of the Board of Standards for the Australian journals of scientific research, which is appointed jointly by C.S.I.R.O. and the Australian Academy of Science.

Professor Bayliss is also a member of the Australian Universities Commission.

Royal Society Celebrates Three Hundredth Year

Three of C.S.I.R.O.'s four Fellows of the Royal Society will leave Australia this month to take part in the celebrations attending the three hundredth anniversary of the Society.

Dr. O. H. FRANKEL, F.R.S.

They are Dr. O. H. Frankel, Chief of the Division of Plant Industry, Dr. H. R. Marston, Chief of the Division of Biochemistry and General Nutrition, and Dr. D. F. Martyn, Officer-in-Charge of the Upper Atmosphere Section.

After the London celebrations Dr. Marston will fly to America, where he will attend the 5th International Congress on Nutrition in Washington. He will also pay a visit to The King Ranch in Texas.

Dr. Martyn will attend a number of international conferences as well as the tercentenary celebrations. He has also been invited to deliver a number of lectures before the U.S.S.R. Academy of Sciences.

Dr. H. R. MARSTON, F.R.S.

Parliamentarians Study C.S.I.R.O.

A group of six back benchers on the Government side of the House of Representatives recently asked the Minister-in-Charge of C.S.I.R.O. (Dr. Cameron) to arrange for them to meet senior officers of the Organization.

The group, which is particularly interested in the problems of rural industry, wanted information about C.S.I.R.O. the way it operates, and the fields of research in which it is engaged.

The members of the group are Mr. J. M. Fraser (Wannon, Vic.), Mr. J. Murray, M.B.E. (Herbert, Q'land), Mr. C. R. Kelly (Wakefield, S.A.), Dr. A. J. Forbes, M.C. (Barker, S.A), Mr. J. D. Anthony (Richmond, N.S.W.) and Mr. D. F. Fairbairn, D.F.C. (Farrer, N.S.W.).

During May, the members visited the Organization's laboratories at Black Mountain, Canberra, in company with Dr. R. N. Robertson. A week or two later they met Mr. C. S. Christian, who gave them a comprehensive account of C.S.I.R.O. and its workings.

In the opening stages of the discussion, Mr. Christian gave the members an account of the way in which C.S.I.R.O. is organized, the roles of the Executive, the Advisory Council and the State Committees, the Divisional structure of C.S.I.R.O., the place of the Executive and Chiefs in general planning and administration, and the existence of Industry Funds and Committees with strong industry representation.

The members were particularly interested in Industry funds, and the part that the Committees play in determining C.S.I.R.O. programmes and the priority of certain projects.

Members felt that industry should have a strong say in the choice of projects, but were quick to see the point that science could often see ways in which industry could be helped which would not be obvious to members of the industry itself.

The future expansion of the Organization was actively discussed, and the question was raised as to whether C.S.I.R.O. was becoming too big.

Mr. Christian expressed the Executive's view that, as the principal Commonwealth Research Organization, C.S.I.R.O. was not in danger of getting too big. To say that C.S.I.R.O. should not become bigger was tantamount to saying that Australia did not need more research.

Expenditure on C.S.I.R.O. in relation to the total value of production represented quite a small percentage, a good deal less than many large companies were themselves prepared to spend on industrial research.

Finally, the group was anxious to find out how C.S.I.R.O. approached the problem of getting information across to farmers. This led to a full discussion of the general responsibilities of State Departments of Agriculture as compared with those of C.S.I.R.O.

Members were interested to hear of the methods by which the Agricultural Research Liaison Section made research results available to extension workers.

Armidale Appointment

Mr. W. M. Willoughby, of the Division of Plant Industry, has been appointed Research Leader at the Regional Pastoral Laboratory, Armidale.

He has served as an officer of the Division since joining C.S.I.R.O. in 1938. He has been at Canberra, except for a two-year spell at Deniliquin just after the war.

Mr. Willoughby's special research interest is in pasture utilization and related animal topics. At Armidale he will have excellent opportunities to pursue his own personal research.

Mr. Willoughby is at present on an overseas trip. He will take up his new duties when he returns in two or three months.

MALAYAN GOVT. SCHOLARSHIPS

The Government of Malaya is offering scholarships to young men and women from other parts of the Commonwealth.

The scholarships will be tenable for two academic years. They will provide for tourist air travel to and from Malaya, tuition, examination and book fees, a grant for travel within Malaya, and a basic maintenance allowance of £875 p.a.

A slightly higher amount will be paid to married scholars.

Particularly good facilities exist for research in the fields of tropical agriculture, forestry, and fisheries.

Applicants, who must have been under 35 on the first of May, 1960, can obtain further information and application forms from the Registrar of any University.

Courtesy "Technology"

A Long Struggle for Recognition

Working on the staff of the Division of Building Research is Dr. Orest Georgoussis who qualified as a medical practitioner at the University of Athens.

Until just recently he was not able to practise in Australia because his medical qualifications were not recognized here.

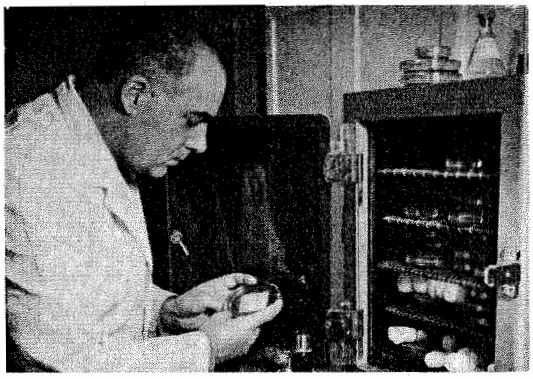
Since the end of 1956 when he came to Australia he has sought to be permitted to practice medicine, and at last, after satisfying the medical authorities by examination that he is a fit and proper person to practise as a medical practitioner, his name was added to the medical register last month.

While in Australia Georgoussis was employed for a time at the Commonwealth Serum Laboratories on vaccine production but in 1957 he joined the Division of Building Research where he is assisting with the paint on plaster investigations.

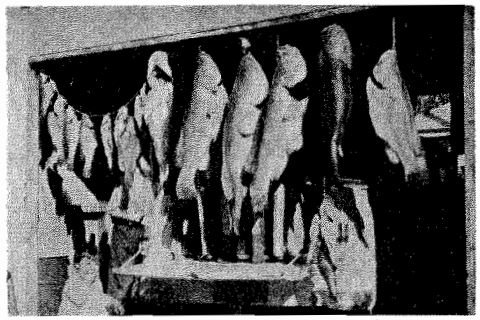
At present he is engaged on the investigation of the behaviour and effectiveness of fungicides in paint.

Before he came to Australia Georgoussis was a medical officer at the "Theochair Cozziko" and "King Fouad" Hospitals in Alexandria, Egypt.

Dr. Georgoussis at work in his laboratory at the Division of Building Research.



BIGGER FISH TO FRY



The challenge implied in the fish story about the achievements of Ken Prowse and Norman Robinson ("Coresearch" No. 13) has been taken up by Fred Whitford, of the Irrigation Research Station at Griffith.

On a trip up to Menindie, on the Darling, just after Easter, Fred's party made the catch shown in the photograph.

On the left hand side of the photograph are a string of yellow-bellys, each weighing 4-5 pounds.

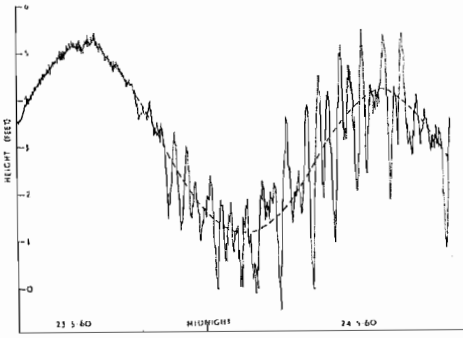
On the right are six Murray cod, whose combined weight was 161 pounds.

The largest fish weighed 45 pounds.

Fred is prepared to give interested anglers exact directions to the spot, and advice on the technique required.

TIDAL WAVE AT CRONULLA

The severe earthquakes in Chile towards the end of last month caused unusually large tsumanis ("tidal waves") on the east coast of Australia.



The accompanying figure is a tracing of the tide chart showing how the usual regular tidal record was disturbed by the tsumanis.

This record was obtained from the tide recorder operated at Cronulla by the Division of Fisheries and Oceanography.

The dashed line is an estimate of the undisturbed tide level.

The first definite departure from normal was at 10.15 p.m. on May 23, and the disturbances continued, but with gradually decreasing intensity, until May 28.

The greatest change from trough to crest was 4 ft. 6 ins. This change took place in about fifteen minutes, at 4.30 a.m. on May 24.

TECHNICAL ASSOCIATION NEWS

The editor of "Coresearch" has agreed to make space available for regular contributions from the C.S.I.R.O. Technical Association.

It is hoped that this will enable members of the technical, laboratory, and library staffs to be kept informed of the Association's activities.

The elections for office bearers in the C.S.I.R.O.T.A. have now been finalized, and a number of active Branch Committees have been formed. It is felt that the time has been reached for an all-out drive for increased membership.

Those non-members who are not fully aware of the activities of the Association should contact their divisional delegate or their State secretary.

Results of General Elections for 1960-61

Central Council
E. Murray (Coal Research), *Federal President*
W. Menzies (Animal Genetics), *General Secretary*
J. Battrick (Metrology), *General Treasurer*
H. Borham (Coal Research), *Asst. Secretary*
C. Howarth (Radiophysics), *A.C.T. Delegate (Proxy)*
T. Riley (Metrology), *Vic. Delegate (Proxy)*
N. Thorndike (Radiophysics), *S.A. Delegate (Proxy)*
J. Lobb (Metrology), *N.S.W. Chairman*

N.S.W. Branch
J. Lobb (Metrology), *Chairman*
R. Jeffs (Coal Research), *Secretary*
D. Rose (Food Preservation), *Treasurer*
Delegates—R. Delandro (Coal Research)
G. Gordon (Fisheries)
K. Boehme (Food Preservation)
R. Coyte (Animal Physiology)
R. Glazier (Metrology)
J. De Vries (Physics)
C. Howarth (Radiophysics)

A.C.T. Branch
W. Bruce (Plant Industry), *Chairman*
Miss K. Mowle (Land Research), *Secretary*
R. McInnes (Entomology), *Treasurer*
Delegates—K. Keith (Wildlife)
D. Havenstein (Entomology)
R. Pullen (Land Research)
J. Parnell (Plant Industry)

Victorian Branch
J. Little (Fodder Conservation), *Chairman*
H. Heath (Forest Products), *Secretary*
E. McArthur (Forest Products), *Treasurer*
Delegates—R. Esdaile (Tribophysics)
S. Rutherford (Forest Products)
B. Banks (Publishing Section)
W. Rogers (Dairy Research)
R. Maclean (Textile Industry)
F. Smith (Chem. Research Labs.)
T. Precious (Chem. Research Labs.)
J. Etheridge (Animal Health)

South Australian Branch
R. Buckley (Biochemistry), *Chairman*
M. Hughes (Soils), *Secretary*
Miss J. Hawkes (Math. Stats.), *Treasurer*
Delegates—Miss D. Tidswell (Math. Stats.)
J. Pickering (Soils)
P. Monk (Biochemistry)

Western Australia
N. E. Stewart (Wildlife)

Queensland
T. Elich (Plant Industry)

"Gazette"
H. Borham (Coal Research), *Editor*

C.S.R. TO BUILD A PHYTOTRON

The Colonial Sugar Refining Company will spend £300,000 on a new sugar cane plant research centre to be built on a three acre site at Indooroopilly, Brisbane.

The centre will be known as the David North Plant Research Centre after a retired officer of the C.S.R. company, who did much pioneering work on control of plant diseases and on cane breeding.

The scientist in charge of the establishment will be Dr. K. T. Glasziou.

The purpose of the plant research centre is to obtain basic knowledge about the physiology of the sugar cane plant.

Research will be directed towards gaining an understanding, for example, of how the plant manufactures and stores sugar, and how one variety makes more sugar than another.

The basic knowledge obtained is expected to be helpful in cane breeding and in various fields of sugar cane agriculture.

The main feature of the David North Plant Research Centre will be a phytotron — a series of laboratories of special design containing rooms and green houses for growing sugar cane under conditions where the temperature, wind, humidity, light and other factors are strictly controlled.

Air-conditioning plant will simulate varied climatic conditions.

Conditions in some of the rooms will be controlled to such a degree that to avoid contamination by insects and micro-organisms, staff working on the project, or visitors, will be required to wash and change clothing before entering.

The phytotron at the David North Plant Research Centre is expected to be completed and in operation during 1961.

The long term effects of C.S.R. work in this field should help the Australian sugar industry reduce the costs of producing sugar.

Visit of Thai Physics Chief

Mr. Manoon Prachankhadie, a Thai physicist, is at present on a visit to Australia.

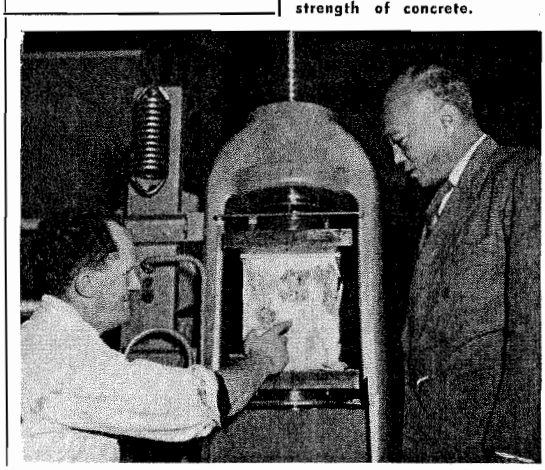
He is Chief of the Division of Physics and Engineering in the Department of Science, Ministry of Industry, Bangkok.

A graduate of the University of Sto. Tomas, Manila, he undertook post-graduate studies in ceramics in America in 1953.

He has since toured industrial plants in Hong Kong, Japan, the Philippines, Indonesia, Malaya, Ceylon, Pakistan, India, and Burma.

He has been for several weeks with the Division of Building Research. In August, he will spend a week at the Chemical Research Laboratories.

Ted Mattison, of the Division of Building Research, shows Mr. Manoon Prachankhadie a machine for measuring the strength of concrete.



Three More Laboratory Buildings Under Way

Tenders have recently been let for three new buildings which will relieve some of the worst accommodation problems in C.S.I.R.O. They are new laboratories for the Divisions of Plant Industry and Soils and for the Irrigation Research Station at Griffith.

At Canberra, a new three-storey laboratory is under construction, and a single-storey extension is being made to the genetics building. Altogether, 26,000 square feet will be added, at a contract price of about £200,000.

Housed in the new buildings will be most of the equipment purchased from a $75,000 grant from the Rockefeller Foundation (See "Coresearch" No. 2).

In the basement of the genetics extension, a special room with concrete walls three feet thick is being built to house the two radioactive cobalt sources and the 250 KVP X-ray equipment.

The three-storey building, which will accommodate the Biochemistry, Biophysics and Agrophysics sections of the Division, will house the new "Spinco" ultracentrifuge and the mass spectrometer bought from the Rockefeller grant.

It is expected that the building will be occupied by Easter of next year.

In Adelaide, construction of Soils Laboratory No. 2 has just begun. The Division of Soils was formerly housed in the buildings of the Waite Institute.

The first of the two major buildings to rehouse the Division was opened in March last year (see "Coresearch" No. 1).

The second laboratory building is much larger than the first, having a total floor area of 22,300 square feet, and costing some £175,000.

It will accommodate about 42 people in the first instance, with a little room left over for expansion.

The building is a three-storey structure in cream brick, running east and west. The main excavation work is already completed, and the retaining walls are in place.

It is expected that the building will be ready for occupation by this time next year.

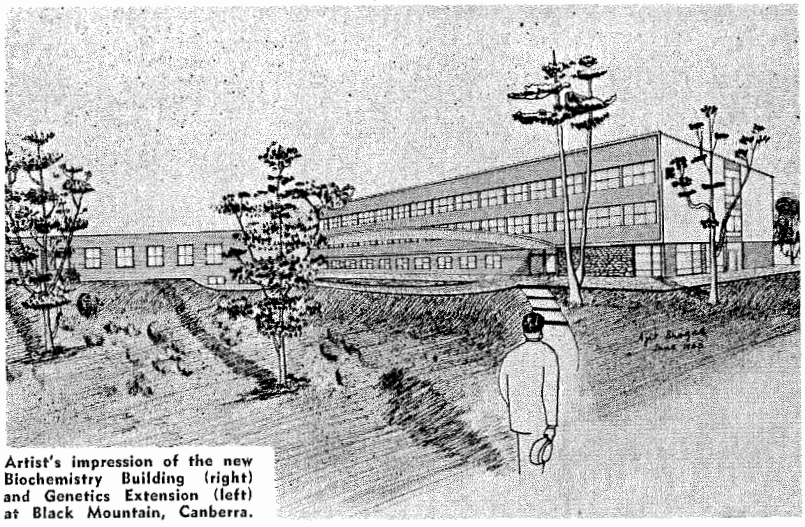
A new laboratory building, costing £61,000, is under construction at Griffith.

The building, of 7,630 square feet, will be of two storeys.

There will be two laboratories and a "growth" room incorporating an isotope room on the ground floor. On the first floor will be a lunch room, kitchenette, conference room, enlarged library, office and a store.

Three additional laboratories will also be made available in the main building by conversion of the existing library, lunch room and conference room.

Construction has started on the new Soils Laboratory in Adelaide.



Artist's impression of the new Biochemistry Building (right) and Genetics Extension (left) at Black Mountain, Canberra.

In the new building the conference room and lunch room are connected by a folding partition. When this is open, a space of 54 ft. x 30 ft. will be available for larger conferences and other functions.

Foundations for the Griffith building are already in place. Although it is not scheduled to be finished until next February, the contractors, Clarke Constructions of Wagga, hope to be off the job before Christmas.

BLANKETS FOR ROYAL BRIDE

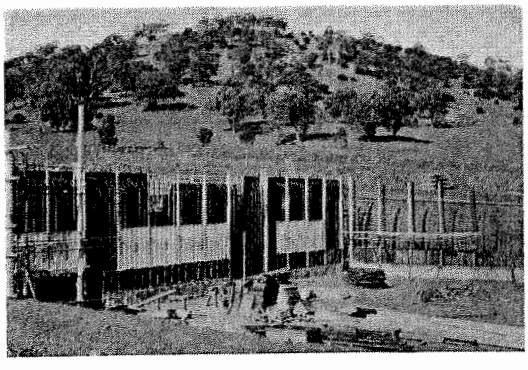
Rose-pink pure wool blankets bound in matching satin were air-mailed to London as a wedding gift to Princess Margaret from the Australian Wool Bureau.

Miss Nan Sanders, Australian Wool Bureau Promotion Director, who personally chose the blankets, said they were some of the first pastel coloured blankets to be produced using a new C.S.I.R.O. process.

The blankets are moth-proof, shrinkproof, and can be boiled.

This development is of major importance to both hospitals and housewives.

Due to the C.S.I.R.O. wool research team, blankets can be frequently laundered and sterilized, provided soap and alkaline detergents are avoided.



Transistor Radio Used in Sheep Grazing Trials

Although almost all of Australia's sheep are kept on pasture throughout the whole year, little information is available on the amount or type of food they eat.

Experiments are now in progress at the Ian Clunies Ross Animal Research Laboratory to estimate the food intake of grazing sheep.

The early results have shown that, under adverse weather conditions such as cold wind and rain, the food intake of some sheep falls.

Further information on the reaction of sheep to such stresses is being sought by a study of grazing behaviour.

The time spent by a sheep in grazing, ruminating and resting is being measured by the apparatus shown in the photograph.

The movement of the sheep's jaws opens a small switch which causes a signal to be sent from a transmitter on the sheep's back to recording apparatus in the laboratory.

When the sheep is hungry, as many as 120 jaw movements may be recorded each minute; later the sheep begins to select its feed more carefully and there are longer and longer pauses between jaw movements.

Eventually the sheep lies down and rests.

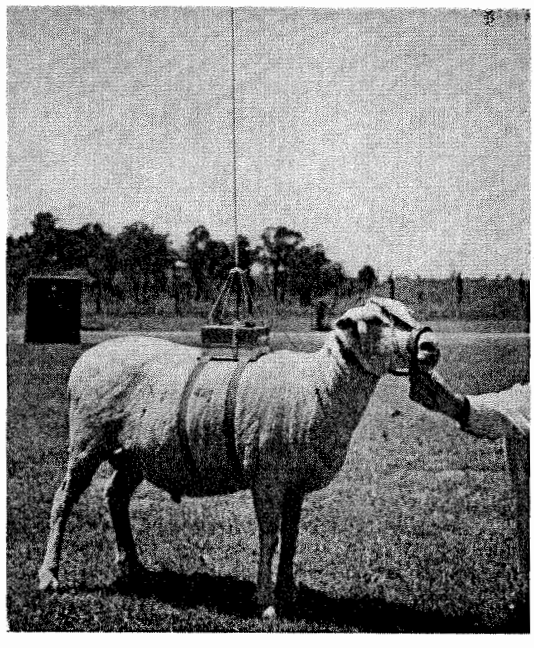
Some rumination occurs during the day but most takes place at night.

During rumination the sheep regurgitates a bolus of food from the rumen, chews it at a steady rate of about one jaw movement per second for 50 seconds and then swallows it. Ten seconds later, the whole process is repeated.

The regularity of the rumination pattern allows rumination time to be distinguished from grazing time.

The transmitter transmits on a frequency of 40.2 megacycles per second at a power of 100 milliwatts, giving a range of about 400 yards.

The above frequency was allotted to the laboratory by the P.M.G. with authority to operate four transmitters at a maximum power of 1 watt each.



DEMASTED

A Division of Fisheries pearling research vessel lost a mast in heavy winds and seas last month.

The vessel was the "Paxie", a 56 foot steel ship chartered for work in North Australian waters.

"Paxie" lost her oregon mast off Cape York peninsula, on the way to Thursday Island from Cairns.

"Paxie" is motor-powered, but carries a sail which she uses for work on pearling grounds.

OVERSEAS VISITS

Mr. K. C. Bremner, of the Division of Animal Health, set off for Cambridge last week on an overseas studentship. He will work as a research student in the Institute of Animal Pathology with Dr. E. J. L. Soulsby.

Dr. K. A. Ferguson, of the Division of Animal Physiology, left last week for Europe, where he will attend the first International Congress on Endocrinology in Copenhagen. From Denmark he will go to Russia to see sheep physiology laboratories in Leningrad, Moscow, Kiev, and Kharkov. He will return to Australia via North America, arriving in November.

Mr. A. F. A. Harper, of the Division of Physics, left last month on an overseas visit of five months' duration. He will visit University and Government laboratories in thirteen countries, including South Africa, the United Kingdom, the United States, Russia, and Japan.

Mr. R. Ingpen, artist in the Agricultural Research Liaison Section, leaves this month on a three months' visit to Europe and North America. He will study at first hand current practices and trends in scientific illustration and the graphic arts so far as these may be employed in the effective dissemination and promotion of research results.

Dr. G. L. Kesteven, Assistant Chief of the Division of Fisheries and Oceanography, left for London a fortnight ago to act as scientific adviser to the Australian delegation to the International Whaling Commission. Dr. Kesteven spent a few days renewing contacts with his former colleagues in F.A.O., Rome. He is due to arrive back in Sydney tomorrow.

Dr. J. M. Thomson, of the Division of Fisheries and Oceanography, leaves this month for North America, where he will spend six months studying the tolerances, behaviour, and orientation of fishes. Most of his time will be spent at the Universities of Toronto and Wisconsin, with shorter visits to Honolulu, San Francisco, and Los Angeles.

Mr. D. E. Yabsley, of the Division of Radiophysics, leaves next week for America. He has been granted leave to take up a position for one or two years at Cornell University. He will be concerned in the construction of the University's new 1,000 feet antenna which is to be set up in Puerto Rico.

WOOL SCIENTISTS MEET IN U.K.

The 2nd International Wool Textile Research Conference was held at Harrogate, Yorkshire, from 18th - 28th May. About 400 delegates attended from 18 countries, the majority coming from textile research centres in the United Kingdom.

The largest overseas delegation consisted of 26 from Australia, most of whom were from the C.S.I.R.O. Wool Research Laboratories. Seventy-seven papers were presented covering a large range of topics from fundamental studies on the chemical and physical structure of wool to new methods of processing and improved performance of woollen garments.

New ideas on the molecular structure of wool were propounded, which should affect the former theories, which were mainly based on X-Ray studies.

In addition, new developments in worsted processing, which could shorten operations and reduce fibre wastage, were put forward.

Finally, each delegate was in a position to see his research relative to that being carried out in the rest of the world, and could modify his programme accordingly.

In addition to the normal Conference sessions, several discourses were held in which leading figures spoke on specialized subjects.

At the first of these, Dr. F. W. G. White gave an outline of C.S.I.R.O. research in the field of wool production.

Dr. J. C. Kendrew of University of Cambridge gave the second, which was on the structure of globular proteins.

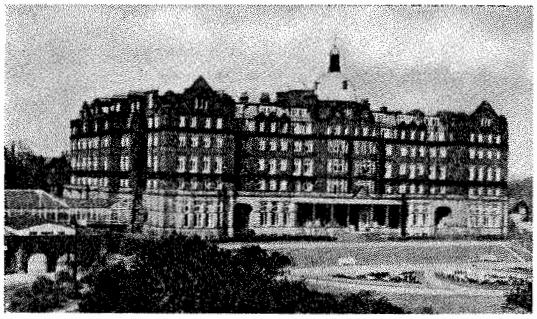
Dr. D. Tabor, also of Cambridge, gave the third on friction of polymers and fibres whilst the final talk was by Dr. C. H. Bamford of Courtauld's Fundamental Research Laboratory, who spoke on synthetic polypeptides and natural proteins.

In addition to scientific meetings, visits were arranged to the Wool Industries Research Association, the Department of Textile Industries of the University of Leeds, Bradford Institute of Technology and Huddersfield College of Technology.

A reception by the British Wool Federation at the Wool Exchange, Bradford, gave delegates an opportunity to meet some of the leaders of the British wool textile industry.

Visits were also made to several of the leading woollen and worsted mills in the Yorkshire area.

Following the 1st International Wool Textile Research Conference in Australia in 1955 and the one just concluded at Harrogate, it would appear that such meetings will now take place in different centres at regular intervals of 5 years, which seems a reasonable period in which to review progress in the various phases of wool textile research throughout the world.



The Conference was held at the Majestic Hotel.

Some idea of the extent of the proceedings can be obtained from the fact that the preprints occupy 900 pages.

Of the papers presented, 30 came from the United Kingdom, 20 from Australia, 9 from U.S.A., 7 from Germany and the remainder from other countries.

The Conference Organizing Committee, under the Chairmanship of Professor J. B. Speakman of Leeds University, performed a marathon task in editing the papers and arranging for their printing and distribution so that delegates could study them prior to the Conference.

In all sessions, discussion was most vigorous. Delegates with particular specialized interests were able to arrange several informal discussions outside normal Conference sessions.

These contributed greatly to the scientific success of the Conference as well as building good personal relations between research men from various organizations.

"Gather round chaps, I'm on to something really big."

Courtesy "The New Scientist"

Noughts and Crosses

Members of the Staff of the Division of Building Research have been doing nicely from a television quiz game called "Noughts and Crosses".

In the game, two contestants strive to get three marks in line on the board. A mark is secured by correctly answering a quiz question on subjects such as "Music", "Sport", or "History" which are shown on the vacant spaces on the board.

John Russell, a physicist in the Mechanics and Physics of Materials section, started in January and successfully survived several rounds.

Unfortunately his winning run was interrupted by a serious illness, and it was several months before he could return to the programme.

He was beaten in the first round after his return, but was able to console himself with the thought that he had won over four hundred pounds.

Divisional photographer, Eric Smith, impressed with John Russell's performance, decided to try too.

Although he did not quite come up to John's standard, he did manage to win £135 before being defeated.

Eric Smith pondering a sticky question from compere Geoff. Raymond.

Engineers Meet

The Mechanical Engineers Association (Australia) Incorporated will hold a Mechanical Engineering Symposium in Sydney from 18th to 21st July.

In conjunction with the Symposium, an Exhibition will be held at which engineering firms will display their wares. Both the Symposium and the Exhibition will be at the Sydney Showgrounds.

On the first and last nights of the symposium, lectures will be given by distinguished speakers.

The second of these lectures will be given by Professor L. G. Huxley, who will discuss C.S.I.R.O. research in the mechanical engineering field.

ENDOCRINOLOGIST

Professor Ian Chester-Jones, Head of the Department of Zoology in the University of Sheffield, arrives this week to spend a month in Adelaide at the laboratories of the Division of Biochemistry and General Nutrition.

Professor Chester-Jones is a distinguished comparative endocrinologist. His monograph, "The Adrenal Cortex", deals with the physiology of the cortex in every vertebrate class.

In Australia, he will discuss with officers of the Division the metabolic problems of sheep generally, and, in particular, the endocrinological aspects of carbohydrate metabolism, fatty acids, and the movement and excretion of electrolytes.

New Appointees

Dr. D. H. Colless, who has joined the Division of Entomology, has spent nearly all his professional life in Borneo and Singapore, except for a short time with the Division of Entomology in 1947.

He served with an A.I.F. malarial control unit during the war. After taking out his honours degree at Sydney in 1946 he returned to Borneo.

He moved to the University of Malaya in 1952 where he became a lecturer in, and later acting head of, the Department of Parasitology.

Dr. J. M. Jarvie has joined the staff of the Division of Coal Research. After completing work for his Ph.D. at Sydney in 1955 he went to America. He held a post doctoral fellowship at the National Research Council in Canada during 1956-57, and has since been employed as a research chemist in the petroleum chemicals division of E.I. du Pont de Nemours & Co.

Mr. R. Jones, an honours graduate of the University of Nottingham, has also joined the Division of Coal Research. Since graduating in 1958 he has been working with the pharmaceutical firm of Parke-Davis & Co. Ltd., and at the same time working as an external student towards a University of London Ph.D. degree.

Miss Lois Linton-Smith, a dietitian, has been appointed to the staff of the Dairy Research Section. She has held previous appointments at the Alfred Hospital and the Peter McCallum Clinic in Melbourne and the Post Graduate Medical School in London.

Mr. E. M. Reed, an honours graduate from Sydney, has joined the Division of Entomology. He will study the biological control of pasture cockchafers, a project supported from the Dairy Produce Research Trust Account.

Mr. J. R. Steven, who has been appointed to the Division of Coal Research served for four years in the Scots Guards before enrolling for a B.Sc. degree at the University of Edinburgh in 1948. He subsequently took an M.Sc. degree at Manchester. Since 1958, he has been working at the Federal Institute of Industrial Research in Nigeria.

New Engineering Chair at University of N.S.W.

Dr. D. G. Lampard, of the Division of Electrotechnology, has been appointed first incumbent of the new Chair of Communication Engineering in the University of New South Wales.

Dr. Lampard who is aged 33, has been an officer of the Division ever since his graduation with first class honours in 1950.

Dr. D. G. LAMPARD

In 1952 he was awarded an overseas studentship. He proceeded to Cambridge and took his Ph.D. degree in 1955. He subsequently held a visiting lectureship at Columbia University in New York.

Dr. Lampard's special research interests are in the statistical properties of electrical noise and the detection of weak signals in the presence of noise.

WOOD AWARD

Mr. W. M. McKenzie, an officer of the Utilization Section of the Division of Forest Products, has won the 1960 Wood Award given by the American magazine "Wood and Wood Products".

Mr. McKenzie, who is studying for his Ph.D. at the University of Michigan, won the award for his paper "Fundamental Aspects of the Wood Machining Process".

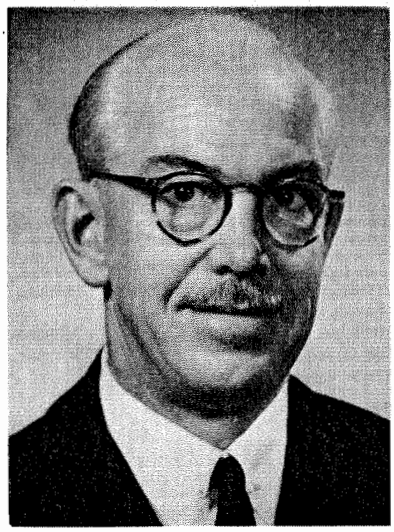
This is the second occasion on which an officer of the Division of Forest Products has won this Award. Previously it was won by Dr. E. L. Elwood, while he was working for his Ph.D. at the Yale Graduate School of Forestry.

Printed by C.S.I.R.O., Melbourne

CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 17, MELBOURNE, AUGUST 1960

Retirement of Two Senior Scientists



Mr. S. A. CLARKE

Dr. A. W. TURNER

Two of C.S.I.R.O.'s most senior scientists will retire this month. They are Mr. S. A. Clarke, Chief of the Division of Forest Products, and Dr. A. W. Turner, Assistant Chief of the Division of Animal Health.

Mr. Clarke will retire at the end of August. He was born in Perth, Western Australia, in 1900, graduated in engineering from the University of that State and became an Associate Member of the Australian Institute of Engineers.

Mr. Clarke has been associated with the Division of Forest Products since 1929. In that year, after 10 years' service as an officer of the Forests Department of Western Australia, he was lent to the newly formed Division of Forest Products as Officer-in-Charge, Seasoning and Utilization.

The following year he transferred to the permanent staff of the Division and in 1931 was appointed as Deputy Chief of the Division.

He held this position until 1944, when he succeeded to the position of Chief of Division on the retirement of the first Chief, the late Mr. I. H. Boas.

In making a major contribution to the fuller and better utilization of timber and wood products, Mr. Clarke has won the esteem and confidence of the Australian timber industry, and has established a reputation both in Australia and overseas for his ability to apply his engineering and scientific outlook to problems in the utilization of forest products.

Devoting himself in the first instance to the problems of sawmilling, timber seasoning, and timber grading, he subsequently became an authority on such widely different major activities as those of the pulp and paper, fibre board, and particle board industries.

During the latter years of the last war and for some time afterwards, Mr. Clarke was a member of the Australian Council for Aeronautics, an advisory body set up by the Commonwealth Government to keep abreast of latest developments in the aeronautics field.

Since 1930 he has participated actively in the work of the Timber Industry Committee of the Australian Standards Association, being appointed as Chairman of the Committee in 1944.

The world-wide reputation that the Division of Forest Products has gained is due in large measure to Mr. Clarke's leadership, and his services and advice have been widely sought. In 1945 he visited India at the request of the Government of Bengal to report on the possibility of manufacture of building boards from water hyacinth in connection with efforts being made to keep down that plant in Indian streams.

In 1958 he visited the United Kingdom at the request of the Department of Scientific and Industrial Research to investigate and report on the potential use of home-grown timber in paper making in the British Isles.

Since the inception of the United Nations Food and Agriculture Organization, Mr. Clarke has taken a keen interest in its work in relation to forest products, and in addition to being Chairman of the Asia-Pacific Regional Committee of Forest Products Research he is a permanent member of the F.A.O. Technical Panel on Wood Technology.

After graduating in veterinary science from the University of Melbourne in 1923, Dr. Turner joined the teaching staff of the Faculty for a short period before proceeding in 1926 to the Pasteur Institute in Paris on a Rockefeller Foundation grant.

He also spent a period at the Institute of Animal Pathology at the University of Cambridge before returning to Australia in 1928 to join C.S.I.R. and later to become a foundation member of the Division of Animal Health under Dr. J. A. Gilruth.

He quickly established himself as an outstanding scientist and his work in the late 1920's on "black" disease of sheep dramatically showed what scientific research could achieve for the primary industries.

The preventive vaccine he developed to control this devastating disease is estimated to be adding millions of pounds to the value of the industry's annual production.

It was shortly after the completion of this work that he took over control of the Townsville laboratory, beginning a lifetime association with research on contagious bovine pleuropneumonia. This work was transferred to Parkville in 1936.

He became Officer-in-Charge of the Parkville laboratory, only relinquishing his administrative responsibilities in 1954 because of indifferent health and a desire to concentrate on research. He continued to act as Assistant Chief, first of the Division of Animal Health and Production and, latterly, of the Division of Animal Health.

The convening in Melbourne in March this year of an international conference of experts on contagious bovine pleuropneumonia was a tribute to his work in this field, which has been of the greatest value to research workers overseas.

His distinguished research career has earned him an O.B.E., doctorates in veterinary science and in science, election to the Fellowship of the Australian Academy of Science, the Syme Prize and the Gilruth Prize. His services to veterinary science in Australia have had a significant effect upon the economic capacity of our primary industries.

Dr. Turner will retire on Tuesday, 16th August, the eve of his sixtieth birthday.

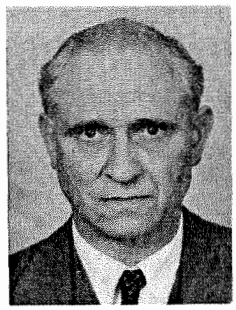
SUGAR RESEARCH LAB. ESTABLISHED

A new Sugar Research Laboratory will be set up by C.S.I.R.O., the Minister-in-Charge (Dr. D. A. Cameron) announced on 18th July. It will form part of the Chemical Research Laboratories in Melbourne.

The decision to establish the Laboratory has come after considerable discussion with representatives of the sugar industry, which is anxious to find new uses for the present surplus in Australian production.

The surplus corresponds to about a million tons of sugar cane per year. Australia's biggest sugar producer, the Colonial Sugar Refining Co. Ltd., has agreed to contribute £2,500 per annum towards the running costs of the Laboratory.

Dr. H. H. Hatt, D.Sc., Ph.D., will become leader of research in the new unit. He has already left on a four months' trip overseas to acquaint himself with sugar research in other parts of the world.



Dr. H. H. HATT

Before his present appointment, Dr. Hatt was Officer-in-Charge of the Organic Chemistry Section. His successor in this position will be Dr. J. R. Price, D.Sc., D.Phil., F.A.A.

A Message to the Royal Society

The Chairman, Dr. White, presented the following message of congratulation to the Royal Society last month, on the occasion of the Society's three hundredth anniversary.

"The Commonwealth Scientific and Industrial Research Organization in Australia sends by the hand of its Chairman, Dr. F. W. G. White, C.B.E., F.A.A., cordial and sincere congratulations to the Royal Society on the occasion of its Tercentenary.

The Organization is mindful of the significant role played by the Royal Society in the early discovery and exploration of our continent. James Cook, who was sent by the Society to observe the transit of Venus in Tahiti, discovered and explored the east coast of this land one hundred and ninety years ago.

Cook became a fellow of the Royal Society five years later, and Joseph Banks, the distinguished botanist who accompanied him in the barque 'Endeavour', subsequently presided over the affairs of the Society for forty-three years.

We take pride in the fact that the Royal Society has been pleased to elect a number of our scientists to its Fellowship. Our first Chief Executive Officer, Sir David Rivett, who for twenty-three years guided our fortunes, is a Fellow, as are four of our senior scientists.

We join with scientists from all over the world in acknowledging our debt to the Royal Society for its work in improving natural knowledge and in establishing and maintaining the highest standards of scientific activity. It is our hope that the Royal Society will continue to grow in stature and influence, as it has done during the past three hundred years."

Ecologist from Jodhpur

Mr. Y. Satyanarayan, a new appointee to the Arid Zone Research Institute at Jodhpur, India, recently arrived in Australia under the auspices of UNESCO for training in plant ecology.

He has been posted to the Division of Land Research and Regional Survey for training, and has joined the survey team working in the Hunter Valley.

The establishment of the Arid Zone Research Institute was recommended by Mr. C. S. Christian, who undertook a special UNESCO mission to advise the Indian Government late in 1958.

The Institute is still in the early stages of creation. Specialist training overseas for future staff members is now in hand.

DOCTORATES

Mr. Alan Walsh, Chief Research Officer in the Division of Chemical Physics, has been awarded the D.Sc. degree of the University of Manchester. The award recognizes his outstanding contributions to the science of spectroscopy.

Dr. G. F. Walker, of the Cement and Refractories Section, has been awarded the D.Sc. degree by the University of Aberdeen, for a thesis entitled "An Investigation of the Crystal Structure and Properties of the Vermiculite Minerals".

M.P.'s See Progress of Queensland Cattle Research

During the last week in June, the Government Members' Food and Agriculture Committee made a six-day tour of Northern Queensland. The members were making an intensive study of the area's potential for beef production.

Accompanying the party were C.S.I.R.O. Executive member Mr. C. S. Christian, the chairman of the Australian Meat Board (Mr. J. L. Shute), the president of the Merino Sheepbreeders Association (Mr. G. B. S. Falkiner) and the Dean of the Faculty of Veterinary Science at Queensland University (Professor J. Francis).

The tour began at Townsville, from which the party flew to Burketown, Normanton and Karumba.

Until now Karumba, on the shores of the Gulf of Carpentaria, has been known — if it has been ever heard of by most Australians — for its incredible loneliness, searing heat and bad-tempered crocodiles.

Key to Karumba's future fame is a cattle loading ramp, crudely built of rough logs and rope at the mouth of the Norman River.

Two months ago 300 head of cattle were herded down this ramp into a special ship for a four-day voyage to the new Australian Meat and Grazing Company's meatworks at Queerah, near Cairns.

This was the first large shipment by sea of fattened cattle from the Big Country of North Queensland, potentially one of the world's greatest beef-producing regions.

Danish steamship tycoon Mr. G. Clausen has initiated this unique service by penetrating the shallow waters of the Gulf with cattle ships of 10 to 12 ft. draught.

No longer will great mobs of cattle have to trek overland for three or four months from the sprawling domains of the cattle barons of the Gulf and Cape York Peninsula territory to the fattening pastures and meatworks on Queensland's east coast.

No longer will thousands of them die in the terrible heat and wild country, while the weakened, skinny survivors have to spend a year or so fattening on the coastal land.

The party comprised Mr. Jeff Bate, M.P. (leader), Senators G. Branson (W.A.), T. C. Drake-Brockman (W.A.), E. B. Maher (Qld.), R. C. Wright (Tas.), R. Wardlaw (Tas.), and the following members of the House of Representatives — H. G. Pearce (Qld.), H. V. Halbert (W.A.), John Murray (Qld.), R. King (Vic.), A. A. Buchanan (Vic.), W. C. Wentworth (N.S.W.), C. E. Barnes and H. N. Bandidt (Qld.).

The party next proceeded to Ingham where they saw the "Droughtmaster" herd of R. L. Atkinson and Son and the Brahman and Santa Gertrudis cattle on the property of Mr. J. Murray.

After inspecting tropical pasture experiments, tropical dairying, and the tobacco settlement at Clare, the party moved on to Rockhampton, and thence to the C.S.I.R.O. experiment at Rodd's Bay.

Mr. Norman Shaw, of the Division of Tropical Pastures, told the party that unimproved native grasses around Rodd's Bay carried only one beast to ten acres.

Under these conditions, he said, very few cattle would be turned off native pastures under four years old.

"The potential as we can see it now," said Mr. Shaw, "is to be able to carry a beast to two acres and market them at 2½ years of age, which is about eight to ten times the present level of production. We have not quite reached that stage, but we are about halfway there."

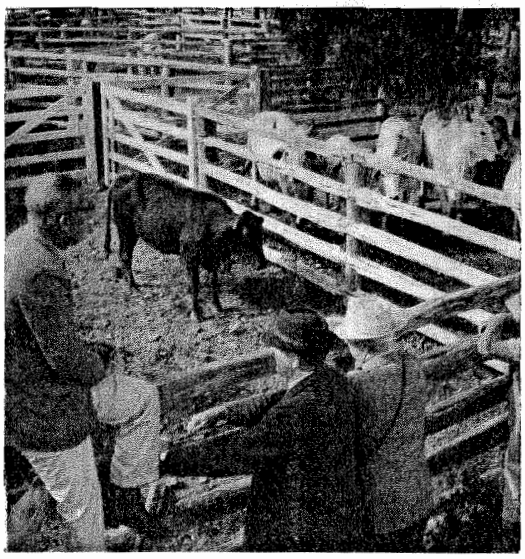
Basis of the work at Rodd's Bay has been the introduction of the Townsville lucerne legume with the application of superphosphate fertilizer.

Mr. Shaw indicated that, as a result of the improvement effected to native pastures, Rodd's Bay had been able to carry one beast to three acres, and had been turning off cattle a year earlier than normal marketing age.

This mixture of speargrass-Townsville lucerne was proving to be stable in the country from Bundaberg to St. Lawrence. There were 10 million to 15 million acres where this type of work could be undertaken with confidence.

On 23rd June the members visited the C.S.I.R.O. cattle research station at Belmont. The officer-in-charge, Mr. J. Kennedy, explained the Brahman, Afrikander and British breeds breeding programme.

Part of the work is directed to that phase which would allow the commercial beef breeder to predict which animals would have a degree of tick resistance and heat tolerance in the tropics.



Mr. John Kennedy, Officer-in-Charge at "Belmont", explains a cattle breeding experiment to Mr. Jeff Bate, M.P., and Senator Wardlaw.

With the trend towards young beef it becomes increasingly important that cattle produced and grown in the Northern Territory and Western Queensland should be transported to the fattening areas on the eastern coast and in southern districts at an earlier age, so they can be finished and ready for market at the two to 2½ year stage instead of, as at present, about four years.

The cattle tick is costing the Queensland industry a loss of £10 million yearly and is a challenge which must be met by elimination.

On the last day of the tour, the party saw some C.S.I.R.O. cattle tick research, and visited the Cunningham Laboratory in Brisbane. Members of the staff of the Division of Tropical Pastures delivered a series of short lectures and showed colour slides.

The party was convinced of the existence of a good deal of information that has already been put into practice, but equally of the need for more intensive research throughout the vast area of Queensland.

As many of the party had not visited these tropical rural areas before, it can be expected that the visit will lead to better understanding on the part of the Government members of the nature and problems of the region.

Life Insurance

The C.S.I.R.O. Life Insurance Plan, introduced by the A.M.P. Society, provides life insurance cover decreasing with age for a very moderate premium outlay. Premiums are deducted from members' salaries and remitted to the A.M.P. Society in bulk each fortnight.

Despite the fact that officers in the organization are already eligible for quite extensive superannuation benefits, a considerable number of male members have applied for this additional cover in the comparatively short period during which it has been available.

In the event of their death these participants have secured for their dependents an initial amount of almost £1,250,000 and for this substantial cover collectively pay less than £5,000 in premiums each year.

In addition they will share in five-yearly bonus distributions and may withdraw from the plan at any time should they so desire.

Although the main concentration of members occurs in the 30-40 age group, applications have been lodged by staff ranging in age from 19 to 58. These applicants represent all levels of employees.

It should be noted also that the plan is available to female members of the staff and is of particular interest to those with dependent relatives.

The plan was introduced to enable staff members to obtain a satisfactory life insurance cover for the minimum possible cost.

Application forms and deduction authorities are available at all C.S.I.R.O. laboratories. The scale of cover provided by a unit of assurance and the appropriate premium costs are shown on the reverse side of each application.

DR. B. Y. MILLS' RESIGNATION

Dr. B. Y. Mills has recently resigned his position as Senior Principal Research Officer with the Division of Radiophysics in order to accept a Readership in Physics at the University of Sydney.

Dr. Mills graduated Bachelor of Science at the University of Sydney in 1940, Bachelor of Engineering in 1942, Master of Engineering in 1950, and Doctor of Science in Engineering in 1959.

He is a Fellow of the Australian Academy of Science, and was awarded the Lyle Medal in 1957 for his researches in Physics.

He joined the Radiophysics Division in 1942 and took an active part in the Laboratory's wartime work on radar. Since then he has made notable contributions to the rapidly expanding field of radio astronomy.

He is internationally known as the "inventor" of a special form of radio interferometer which has come to be called the Mills Cross, and for his investigation into "radio stars" in the southern skies.

TECHNICAL ASSOCIATION NEWS

A problem which has been receiving the attention of Central Council recently is the low rate of membership of the Association among eligible people working on various outlying Field Stations.

An initial move has been made at Armidale by representatives of the Division of Animal Physiology.

Copies of the Gazette, along with information concerning our current activities, have been circulated to potential members, and it is hoped that these people will soon be members of our Association.

In those Field Stations which are part of a centrally located Division or Section, members will be represented by their Divisional delegate. Those groups, which are separate entities, will have a proxy to look after their interests on the Branch Committee in the State in which they are located.

Opportunities will be taken, whenever members of the Association do field trips to outlying stations, to maintain contacts. Wherever possible queries will be answered and the views of "outback" members presented.

The co-operation of members in the smaller centres is needed if their problems are to be clarified. Their advice and efforts can strengthen our Association.

Study Leave

Following representation by Central Council to Head Office, on behalf of one of our members who is proceeding with an external B.A. degree at New England University, it is pleasing to note the contents of H.O. Circular 60/55.

This Circular says that an officer or employee who is required by a teaching institution to be present on a full-time basis for short periods at some time in the Academic year will be able to make application for leave to the appropriate Chief or Officer-in-Charge.

Each application will be dealt with in the same way as applications for normal Study Leave. Eligibility and the amount of leave will be decided on the merits of each case.

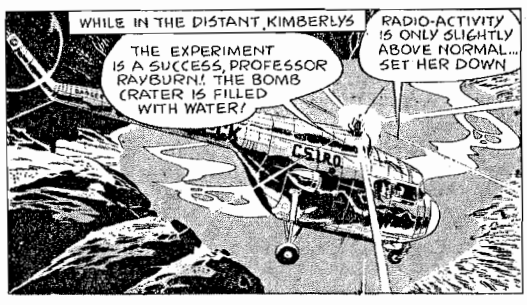
This is the second favourable decision concerning Study Leave which has resulted from conferences between Head Office and the Association during the last 12 months.

Stranger Than Truth

Mr. Nevil Shute has immortalized C.S.I.R.O. in a novel, and Mr. Fred Astaire has portrayed a research officer on the screen. Now readers of the "Sun-Herald", the Sydney Sunday paper, are seeing us in a new guise.

In one of the paper's cartoon strips, "Air Hawk and the Flying Doctors", the scene recently shifted to the C.S.I.R.O. research station in the Kimberleys. Here Professor Rayburn, who is in charge of the research team, employs his daughter, described as "a living doll", as his secretary.

It is hoped that, as the story develops, members of our staff will turn out to be "goodies" and not "baddies".



The Chemistry of Natural Products

This month one of the most important scientific meetings ever to be held in Australia will take place in Melbourne, Canberra and Sydney.

Dr. A. L. G. REES

It is a symposium on "The Chemistry of Natural Products" organized by the International Union of Pure and Applied Chemistry.

The term "natural product" is broadly used to describe any substance produced by the metabolism of micro-organisms, plants and animals.

Chairman and Convenor of the Symposium Organizing Committee is Dr. A. L. G. Rees, Chief of the Division of Chemical Physics.

Nobel Prize winner Sir Alexander Todd, F.R.S., will be the symposium president, and will deliver his presidential address on "Natural Product Chemistry—Retrospect and Prospect" in Canberra on 19th August.

The symposium will be officially opened on Monday, 15th August, in Wilson Hall, University of Melbourne. The opening address will be delivered by Professor A. Stoll of Basle, Switzerland.

On the same day, Professor R. B. Woodward of Harvard will deliver a symposium lecture on "The Total Synthesis of Chlorophyll". Dr. J. R. Price, Officer-in-Charge of the Organic Chemistry Section will deliver a special lecture in Melbourne on "Australian Natural Product Research".

Among the various lectures given to different sections of the symposium will be one on "The Direct Determination of Molecular Structure of Natural Products" by Dr. A. McL. Mathieson, of the Division of Chemical Physics.

In Sydney, Nobel Laureate Professor R. Kuhn of Heidelberg will deliver a symposium lecture on "Chemistry of the Gangliosides".

The closing ceremony will include an address by the doyen of British organic chemists, Sir Robert Robinson, President of the Royal Society from 1945-50, and a Nobel Prize winner.

Delegates to the symposium will soon begin to arrive from countries all over the world, including U.K., U.S.A., U.S.S.R., New Zealand, Canada, India, Pakistan, Holland, Hungary, Czechoslovakia, Germany, Malaya, Indonesia, Japan, Vietnam, Hong Kong, Ceylon, China, Norway, Sweden, Denmark, France, Switzerland, Israel, Italy, Mexico, and South Africa.

There will be a busy social programme, including a reception for overseas visitors by the Premier of Victoria.

GRUB SCREWS FOR SHEEP

"An improved method of protecting sheep and cattle from cobalt deficiency," was announced by the Minister-in-Charge (Dr. D. A. Cameron) last month.

The Minister explained that the "cobalt bullet", invented by scientists in the Division of Biochemistry and General Nutrition, had been adopted by graziers not only in Australia but also in other countries where sheep and cattle grazed on cobalt-deficient land.

Many millions of "bullets" had been sold since they first became available three years ago.

The "bullet" is a heavy pellet containing cobalt, an essential mineral in the diet of grazing animals. The heavy pellet lodges in the animal's fore-stomach, and remains there for a very long time. Traces of cobalt gradually dissolve from the surface of the pellets.

"During the last three years," said Dr. Cameron, "despite the widespread successful use of the bullet, two drawbacks have been encountered. Firstly, sheep sometimes regurgitated their 'bullets', and, secondly, there were cases in which a deposit formed on the surface of 'bullets', preventing the cobalt from dissolving."

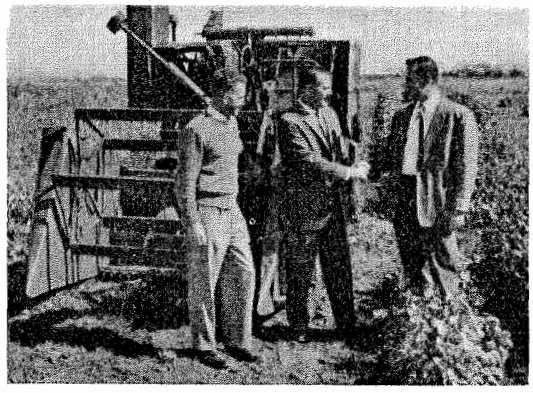
"Both of these difficulties," added the Minister, "have now been largely overcome. To prevent regurgitation, a heavier, denser bullet has been developed. It is very rare for one of these heavier bullets to be expelled."

Scientists have found a simple and effective method of preventing the formation of a film of deposit on the surface of pellets. They administer an engineer's grub-screw to the animal at the same time as the cobalt bullet.

The steel screw is also retained, and the churning of the stomach causes the screw and pellet to rub together. As a result the surface of the pellet is subjected to constant abrasion, and no deposit can form.

Farmers and graziers will shortly be able to obtain pellets made to the new specification.

GIFT OF HARVESTER



The agricultural engineering firm of Massey-Ferguson (Australia) Ltd. has presented an experimental harvester to the Division of Tropical Pastures Cooper Laboratory at Lawes.

Mr. P. A. Boyd (M-F Branch Manager) presents the harvester to Mr. L. Edye (Division of Tropical Pastures). Mr. D. Byth is on the right.

The Division of Tropical Pastures is conducting an intensive programme of introduction and plant improvement on several of the pulse crops.

At the present time, soya beans appear to produce the greatest yields of protein per acre, but several of the mung beans and cowpeas are also promising.

Mr. D. Byth of the Cooper Laboratory staff, will use the harvester in connection with large field trials of both pulse crops and legumes.

Owing to the extent of these areas the planting, maintenance, and harvesting of these plots are major problems which strictly limit the amount of work that can be carried out in each season.

This is particularly so with soya beans, in which the harvesting period is of critical importance.

For these reasons, the Division decided to mechanize the pulse crop programme.

Private industry was approached for assistance in this matter, and certain firms rendered invaluable assistance.

Massey-Ferguson generously donated the auto-header, and after some modification is carried out to allow the complete removal of seed residues, it will be ideal for the harvesting of research plots. The value of this machine in a research programme can not be over-emphasized.

Fresh Water from the Sea

An atomic power station operating a machine to extract the salt from sea water could provide water for developing millions of semi-desert acres in Australia within the next twenty years. This project is regarded now as a feasible possibility.

A few years ago it would have been thought of as flighty and imaginary, but modern research and economic studies have brought it to the stage where it can be realized in practice with no more than the application of known techniques.

Fresh water could be produced from the sea by this method within the framework of the present economic structure at a cost of 7/- to 8/- (Australian) for every thousand gallons. There exists a hope that within the next decade new discoveries will lower the cost.

The Officer-in-Charge of the Chemical Engineering Section (Dr. H. R. C. Pratt) recently told the Society of Chemical Industry of Victoria that South Australia will utilize all available natural water supplies in the next ten to fifteen years so that an atomic treatment plant for sea water will be essential for further development.

Such an installation would cost £50-90 million today, depending upon the size, but it could supply the whole of the city of Adelaide with fresh water and with 30 to 40 per cent of its power as well as producing large quantities of commercial salt.

It would also assure a steady supply of fresh water free from the weather variations which govern the natural supply.

Decline in Whale Population

"The humpback whaling industry off the West Australian coast is in a precarious position," the International Whaling Commission was told at its June meeting.

"It is clear now that the stock of whales on which the industry operates cannot sustain the whaling that has been taking place in both Antarctic and Western Australian waters."

Dr. G. L. Kesteven, Assistant Chief of the Division of Fisheries and Oceanography, was present as Scientific Adviser to the Australian delegation.

The Australian delegation persuaded the Committee that reduction of whaling should be effected first in the Antarctic, pending further study of information from which a more realistic diagnosis of the stock should be obtained.

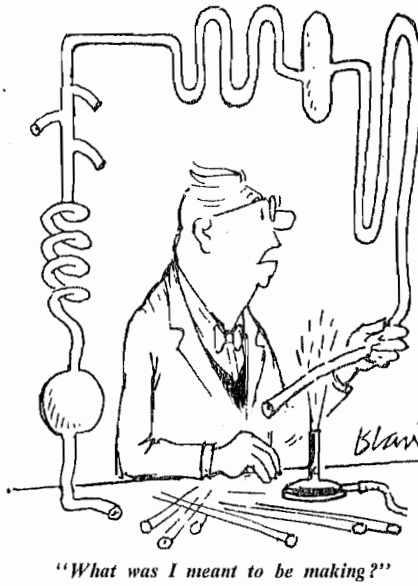
The condition of the stock exploited on the east coast is less precarious, but if a careful analysis of those stocks is made now the disasters of the west may be avoided in the east.

The Commission found that the condition of stocks of fin and blue whales exploited in the Antarctic corresponded in many ways with the condition of the humpback stocks.

However, it was not possible to make an effective diagnosis of the stocks of any of the species. It was decided, therefore, to set up a working party in December in Rome when all the available data will be reviewed.

In addition, a committee of three specialists in population dynamics has been set up to report to the Commission on magnitude of stocks, level of sustainable yield, and management measures.

When all data have been thoroughly sifted the Commission hopes, no later than July 1964, to bring the Antarctic catch limit into line with scientific findings.



"What was I meant to be making?"

Courtesy "Technology".

NEW QUARTERS

The Division of Physical Chemistry's High Pressure Laboratory is moving this week from its quarters in the Chemical Engineering Department, University of Sydney, to a new building erected for it at Ryde.

The new building has been erected in the grounds of "The Hermitage", the property occupied by the Division of Textile Physics.

Of two-storey brick construction, it cost £16,500 to build.

On its top storey the building has offices for the group's leader, Dr. S. D. Hamann, and two research officers. In addition, there are two laboratories, and a workshop.

Downstairs, there are two stores, one for the High Pressure Laboratory, and one for the Division of Textile Physics.

Instrument Display

This month, the Institute of Physics will hold an Exhibition of Scientific Instruments and Apparatus in the School of Chemistry, University of Sydney.

It will be open daily from 2 to 5 p.m. and 6.30 to 9.30 p.m., commencing on Tuesday, 16th August and closing on Friday, 19th August.

Admission will be by invitation only, and those wishing to attend may obtain invitation cards by ringing 68-0566, Extension 318.

GRAZIERS SUPPORT BEEF CATTLE RESEARCH

The new Beef Cattle Research Committee, created by the Cattle and Beef Research Act 1960, may have its first meeting this month.

The new Act, which received the Royal Assent in May, provides for a levy of two shillings per head on all cattle slaughtered for human consumption, and over 200 pounds dressed weight.

In a normal year this levy would produce a sum of about £320,000 for research. The Government has agreed to match the industry's contributions on a pound for pound basis.

Mr. Adermann, the Minister for Primary Industry, told the House of Representatives that the beef industry was the fifth important primary industry to put forward a plan to finance research into its problems.

Similar arrangements, designed to meet the particular circumstances in each case, already operate in respect of the wool, wheat, dairy produce and tobacco industries.

"The introduction of this legislation," he said, "marks an important step towards ensuring the future welfare of the Australian beef industry, since it opens the way to a concerted attack on vital problems which have been retarding the progress of this industry."

The Bill is the outcome of negotiations with primary producer organizations that have been proceeding for a considerable time. The general principles of the scheme were originally submitted by the Graziers' Federal Council of Australia. The plan has also been approved by the Australian Agricultural Council.

For the purposes of administering the Trust Account the legislation provides for the establishment of the Australian Cattle and Beef Research Committee.

It will consist of four representatives from the Graziers' Federal Council of Australia, two representatives from the Australian Wool and Meat Producers' Federation, and one representative from the Australian Dairy Farmers' Federation.

In addition, the Committee will include the Chairman of the Australian Meat Board, a representative of the Australian Agricultural Council, a representative from Australian Universities concerned with meat research, a representative of C.S.I.R.O. and a representative of the Department of Primary Industry.

Mr. C. S. Christian has been appointed as the C.S.I.R.O. representative on the Committee. Mr. R. S. Wilson, a member of our Advisory Council, is one of the representatives of the Graziers' Federal Council of Australia.

Million to One Chance

Here is a million-to-one chance for which there is indisputable proof.

Miss Eugenia Wardlaw of the Division of Biochemistry and General Nutrition was with a party of bird watchers on the shore of Lake Alexandrina, close to the Murray mouth in South Australia.

In the shallows Miss Wardlaw found three Unio freshwater mussels, which resemble cockles in appearance.

She showed them to a conchologist in the party, who answered her questions about the species. She was about to replace them in the water when a man said: "Better open them first. Might be a pearl in one."

The other members of the party smiled at each other when she proceeded to do so, but Miss Wardlaw did not suspect that it was an attempt at a leg-pull.

She knew that the big, splendid pink pearl in the Royal Crown of England had been found in a freshwater mussel in Scotland, her birthplace.

Inside the first mussel which she opened lay a small pearl of good shape and lustre.

When Miss Wardlaw presented her find to the South Australian Museum, she was told that countless thousands of those freshwater shellfish are used every year as bait by fishermen, but this was the first time that a pearl had been found in one.

The Australian Environment

Canberra's daily newspaper "The Canberra Times", recently reviewed at length the C.S.I.R.O. publication "The Australian Environment". Part of the review is re-published here.

"We are what we eat, it has been said, and we in Australia eat very well in comparison with most of our Asian neighbours.

In 'The Australian Environment', Third Edition (revised) 1960, issued by C.S.I.R.O. some of the reasons for this become evident.

In the economy of nature there is a proper sequence and this book follows it through its nine chapters.

First there is the land itself, which is a fertile rim around an arid and geologically ancient centre. Climate, with rain its principal constituent, is basic to agriculture, and then comes the quality of the soils where the rain falls or to which stored rain can economically be brought by irrigation.

Water added to good seed in good soil gives good pastures and good crops.

These last two in turn determine the quality of the diet of animals, such as sheep, cattle and pigs, as well as of human beings.

And the quality of animals used for food is a further element in the diet of humans.

Every stage in the economy of nature is the subject of intense research by C.S.I.R.O. scientists and this book gives a concise introduction to the organization's operation in these matters.

There are many interesting maps, diagrams and photographs to illustrate the text, while suggestions are made for further reading.

All students of Australia's economic geography will find it a valuable book of reference."

CHEESE MAKING MACHINE

The mechanized cheese-making plant invented by Mr. J. Czulak and his co-workers in the Dairy Research Section is divided into two parts.

The first machine converts granular coagulated milk curd into a smooth textured mass, which, after salting, pressing and curing, becomes cheese.

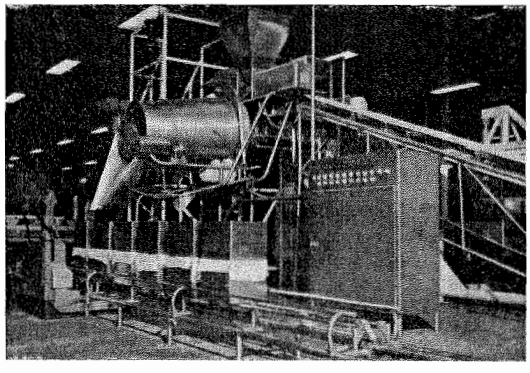
The second machine carries out three operations. Firstly, it slices the fused curd into strips. It then adds salt in the correct proportion, and feeds a predetermined weight of salted curd into containers called hoops, in which the curd is pressed.

A full-scale prototype of the second machine has been built by the firm of James Bell Machinery Pty. Ltd.

After trials at Highett it has been installed in the cheese factory of Kraft Foods Ltd. at Allansford, Victoria, where it is now in regular use.

The plant handles 6,000 pounds of cheese per hour. It can be operated by three men, whereas up to eight men were needed to carry out the milling, salting and hooping operations in the conventional manner.

The new cheesemaking machine installed at the Kraft factory at Allansford.



OVERSEAS VISITS

Mr. F. K. Ball, of the Division of Meteorological Physics, left last month to attend a meeting of the International Union of Geodesy and Geophysics at Helsinki, after which he will make an excursion to Lapland.

He will then spend four months each at the British Meteorological Office at Dunstable, and the Massachusetts Institute of Technology.

Mr. C. J. Brady of the Fodder Conservation Section, who was recently awarded an Australian Dairy Produce Board Studentship, left a week ago for the United Kingdom. He will spend two years working at the Rowett Research Institute, Aberdeen.

Mr. F. V. Gray, of the Division of Biochemistry and General Nutrition, left last month for North America and Europe. He will attend the fifth International Congress on Nutrition in Washington in September. Among his European visits he will include a short sojourn at the University of Helsinki, Finland.

Mr. L. E. A. Symons, of the Division of Animal Health, left with his family last month to spend two years in Canada. He has been awarded a grant to work at the Institute of Parasitology, McGill University, Montreal.

Dr. J. F. Turner, of the Plant Physiology unit, Division of Food Preservation and Transport, will leave this month for America. He will spend ten months working with Professor Martin Gibbs of the Department of Biochemistry and Nutrition at Cornell University, Ithaca, N.Y.

UNESCO MEETING

Dr. G. F. Humphrey, Chief of the Division of Fisheries and Oceanography, represented Australia at the Inter-governmental Conference on Oceanographic Research convened by UNESCO at Copenhagen from 11th to 18th July.

Dr. Humphrey, who is the chairman of the Australian National Committee on Oceanic Research, and a member of the Special Committee on Oceanic Research of the International Council of Scientific Unions, also attended meetings of the Special Committee at the time of the Copenhagen Conference.

The Inter-governmental Conference proposes to co-ordinate the activities of the international organizations interested in oceanography, and to consider the establishment of an international oceanographic commission to advise governments and international agencies such as UNESCO, the Food and Agriculture Organization, the World Meteorological Organization and the International Atomic Energy Agency on the conduct of future research in the oceans of the world.

New Appointees

Mr. J. H. A. Butler, an honours graduate from the University of Tasmania, has been appointed to the staff of the Division of Soils. Since his graduation in 1958 he has been on the staff of the Institute of Medical and Veterinary Science in Adelaide.

Dr. E. H. RAMSHAW

Dr. E. H. Ramshaw, a Cambridge graduate, has joined the staff of the Dairy Research Section. He will work with Mr. D. A. Forss on the isolation and identification of flavour compounds in dairy products.

Mr. N. F. Henschke has joined the Division of Biochemistry and General Nutrition. An analyst, he has been on the staff of the South Australian Department of Chemistry since 1955.

Mr. N. T. Clark, one of the first students to graduate in Rural Science at the University of New England, has joined the Division of Plant Industry. He will work with the team studying the utilization of pastures by grazing animals.

Mr. G. B. Taylor, a Sydney graduate in agricultural science, has joined the staff of the Division of Plant Industry, and will be stationed in Perth. He was formerly on the staff of the Victorian Department of Agriculture's Mallee Research Station at Walpeup.

Mr. K. L. WELLS

Mr. K. L. Wells has joined the Agricultural Research Liaison Section as Divisional Administrative Officer. Since graduating in Arts at Melbourne University he has been an officer of the British Colonial Administrative Service. At the time when Malaya was granted independence, he was Principal Assistant Secretary in the Prime Minister's Department in Kuala Lumpur.

New Members of Advisory Council

Three agriculturalists, one from South Australia, one from Victoria, and one from Queensland, have been appointed to the Advisory Council of C.S.I.R.O.

They are Professor C. M. Donald, Mr. P. Ryan and Dr. W. A. T. Summerville.

Professor Donald, who occupies the Chair of Agriculture at the Waite Institute, University of Adelaide, is no stranger to the organization.

He resigned from C.S.I.R.O. only six years ago, after twenty years service with the Division of Plant Industry, of which he became Assistant Chief.

Mr. Ryan has been on the staff of the Victorian Department of Agriculture since 1926, and was appointed Director five years ago.

He has been President of the Victorian division of the Royal Institute of Public Administration, and is a member of the Council of the University of Melbourne.

Dr. Summerville has been Under-Secretary of the Queensland Department of Agriculture and Stock since 1958. He has behind him a distinguished research career in the fields of entomology and plant physiology. He holds the D.Sc. degree of the University of Queensland.

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CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 18, MELBOURNE, SEPTEMBER 1960

New Chief Appointed

Dr. S. D. Hamann has been appointed Chief of the Division of Physical Chemistry at Fishermen's Bend, Victoria. He succeeds Dr. K. L. Sutherland who resigned to be Director of Research for the Colonial Sugar Refining Co. Ltd.

Dr. S. D. HAMANN

Dr. Hamann was born in Christchurch, New Zealand, in 1921. He graduated M.Sc. with first class honours from Canterbury College, having specialized in chemistry and physics.

He spent over four years in the Royal New Zealand Navy, being engaged for three years almost continuously in operational and technical research on radar.

At the conclusion of the war Dr. Hamann studied at the University of Manchester, and was awarded the Ph.D. degree in 1950.

He then returned to Australia and immediately joined the C.S.I.R.O. High Pressure Laboratory in the Chemical Engineering Department of the University of Sydney. He has been in charge of this laboratory since 1952.

Dr. Hamann is frequently invited to attend international conferences overseas, and has represented Australia at meetings of the International Union of Pure and Applied Chemistry in Zurich (1955) and Munich (1959).

Honoured by Institute

Among the seven distinguished agricultural scientists elected to Fellowships of the Australian Institute of Agricultural Science last month were three men closely associated with C.S.I.R.O.

They are Emeritus Professor Sir Robert Watt, Mr. C. S. Christian, and Dr. A. J. Anderson.

Sir Robert Watt's connection with C.S.I.R.O. goes back for many years. Sir Robert believes himself to be the only survivor of the Executive Committee of the Advisory Council of Science and Industry, which grew into the Institute of Science and Industry, which in turn preceded C.S.I.R.

Sir ROBERT WATT

In 1910 Sir Robert was appointed to the Chair of Agriculture at the University of Sydney, the first appointment of its kind in Australia.

He occupied the Chair with distinction for thirty-six years, retiring in 1946. From 1926-1946 he was Chairman of C.S.I.R.'s N.S.W. State Committee.

Sir Robert was the recipient of a knighthood in the last Queen's Birthday honours.

His election to the Institute's Fellowship is in recognition of his establishment of the standards for scientific agricultural training in Australia.

Mr. Christian, a Member of the Executive, was elected to a Fellowship in recognition of his work as Chief of the Division of Land Research and Regional Survey.

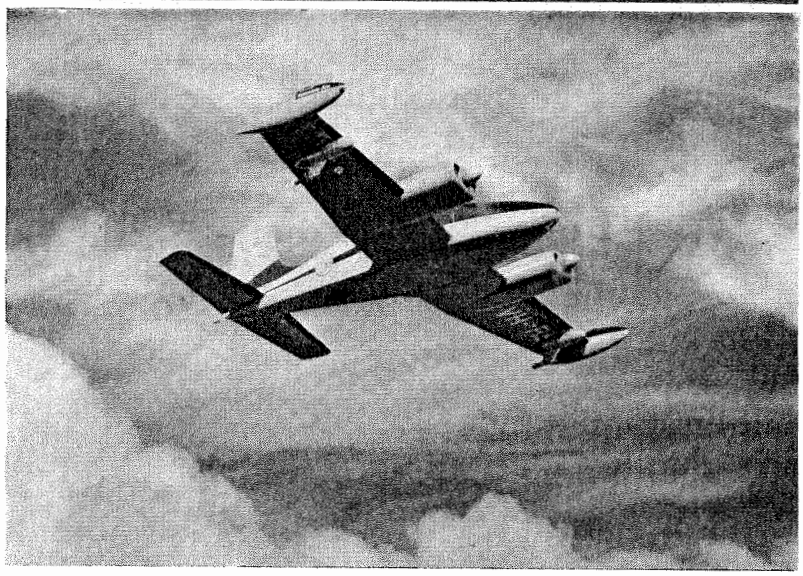
His land survey methods have led to scientific classification of 600,000 square miles of Australia and New Guinea.

Dr. Anderson, a senior principal research officer in the Division of Plant Industry, is distinguished for his work on trace element deficiencies in improved pastures.

He has made particularly important contributions to our knowledge of the role of molybdenum in plant nutrition.

Dr. Anderson was awarded the Medal of the Australian Institute of Agricultural Science in 1956.

ON A WING AND A PRAYER



One of the Division of Radiophysics' Cessna aircraft, flying blind in pitch darkness, weaved among mountain peaks to make an emergency landing at Canberra Airport last month after one of its two engines had failed.

The aircraft, which was being used for rain-making experiments landed safely after a hazardous one-hour flight. Police, Air Force, and Civil Aviation authorities combined to help the disabled aircraft in its plight.

A T.A.A. Viscount bound for Melbourne was diverted to find the Cessna and shepherd it 30 miles to Canberra. Another aircraft, bringing the Prime Minister (Mr. Menzies) from Melbourne, was held over for 10 minutes to enable the Cessna to land.

The Cessna was piloted by Captain George Martin and the senior cloud-seeding officer was Mr. W. Withers.

In April both men crash-landed their Cessna at Sydney Airport after the landing gear failed to operate. They were shaken by that experience, but when they stepped from their plane this time they said they would be ready to resume their work the next day.

Captain Martin said the engine failed at 5.45 p.m., when the plane was returning to Sydney.

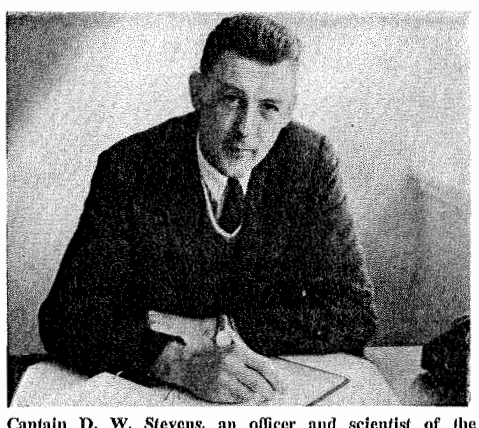
"We were up 6000 ft. in the darkness, but our machine was heavily iced, as snow had been falling over the district," he said. "When the engine cut out we dropped down to 3000 ft.

"I alerted Sydney tower of our troubles and decided to make for Canberra which was about 60 miles away. It was pitch-dark and I knew from the map we were surrounded by mountains well over 1000 feet above us.

"There was nothing for us to do except watch the altimeter, go for our lives, and trust to luck. To make matters worse, we were flying all the time through heavy cloud, but our luck held.

"To be on the safe side we decided to skirt along Lake George (near Canberra) so as to dodge the mountains, although this meant making the trip 100 miles instead of 60 miles. I know we must have just skimmed one mountain peak, but that was all we could do — just hope for the best.

"We saw the T.A.A. Viscount loom overhead and although the radio was failing we picked up fragments of conversations to learn that the aircraft would guide us into the airport."



Captain D. W. Stevens, an officer and scientist of the Geophysics Research Directorate of the United States Air Force, recently visited the Division of Meteorological Physics. The purpose of his visit was to study the Division's work and to hold discussions with our officers on problems of mutual interest in the atmospheric boundary layer, particularly turbulence and radiation. He spent six weeks with the Division and left a fortnight ago.

Resignation

Professor L. G. H. Huxley has resigned from the Executive in order to take up the position of Vice-Chancellor of the Australian National University in Canberra.

His resignation will take effect from the end of this month.

Meanwhile, Professor Huxley has gone to London to attend the XIIIth General Assembly of the International Scientific Radio Union.

He will return to Australia shortly before taking up his new duties.

VICE-REGAL

Two of C.S.I.R.O.'s more remote field stations have recently been honoured by Vice-Regal visits.

On Thursday, 14th July, His Excellency, Viscount Dunrossil, visited Katherine Research Station's Headquarters. He was welcomed by the Acting Officer-in-Charge, Mr. L. J. Phillips.

After meeting the staff, His Excellency inspected the office and laboratory.

Great interest was shown in the display that the staff had arranged for the Katherine Centenary celebrations.

This was re-arranged in the office and depicted the important aspects of the Katherine-Darwin Regional Survey and the research work done by the station on the Tipperary Land System.

A series of graphs emphasized the more important results from the research into agriculture and cattle fattening in the region.

His Excellency showed particular interest in the soil nitrogen studies, and the testing of crops on different soil types.

Before leaving the station, Viscount Dunrossil congratulated the staff on their results and wished them success in their future research work.

Also in July, the Governor of Queensland (Sir Henry Abel Smith) and Lady May Abel Smith made a visit to central and south-west Queensland, which included a call on "Gilruth Plains", the Division of Animal Genetics' field station at Cunnamulla.

B.H.P. GRANT FOR TINPLATE RESEARCH

The Broken Hill Proprietary Company, Australia's sole producer of tinplate, has made a grant of £6,000 to support tinplate research in C.S.I.R.O. The grant is for a year, after which the Company will review the research programme and consider the question of continued support.

The grant will be used to support investigations at the Division of Food Preservation and Transport, Homebush, New South Wales. The Division is the main centre in Australia for research on tinplate packaging problems.

One research project to be undertaken will be a study of the reasons why certain foods, such as canned pears, sometimes cause intense corrosion of tinplate. The reasons why some foods cause deep pitting of the tinplate will also be sought.

Both these problems often cause severe losses in the food canning industry.

Until 1957, when B.H.P. opened its new plant at Port Kembla, Australian supplies of tinplate were all imported. Now, however, the Company supplies hot-dipped tinplate for the majority of the food cans manufactured in Australia.

Now that tinplate is made in Australia, it will be possible for research workers to trace the history of the plate right back to the steel ingot, which will be very useful in corrosion studies. This was seldom if ever possible when all tinplate used in Australia was imported.

University Work in U.S.A.

Six officers of the Organization are currently proceeding to the United States to take up fellowships, studentships and assistantships in American universities.

Mr. C. J. de Mooy, of the Division of Soils, has been granted leave of absence for three years to work at Iowa State University. He will study the evaluation of soil fertility, working for a Ph.D. degree under Professor Pesek.

Mr. M. G. Kovarik, of the Engineering Section, left a month ago for a sojourn of twelve months overseas.

He will spend the academic year 1960/61 working with Professor H. M. Taeger in the Computation Centre at the Massachusetts Institute of Technology. In November, he will attend a conference on heat transfer in New York.

Mr. R. A. Perry, of the Division of Land Research and Regional Survey, left last week for the United States. He will spend seven months at the University of Arizona, Tucson, studying range management with Professor R. R. Humphreys.

Mr. B. L. Sheldon, of the Division of Animal Genetics, left recently to spend a year in America under a C.S.I.R.O. Post-Graduate Studentship. He will work at the Drosophila Genetics Laboratory of the California Institute of Technology at Pasadena.

Mr. G. F. Smith, of the Agricultural Research Liaison Section, left last week to take up a graduate assistantship at the University of Illinois. While in America he will attend a U.S. Department of Agriculture Communication Refresher School. He will return to Australia through the United Kingdom and Europe.

Dr. P. R. Whitfield, of the Division of Plant Industry, left last week to take up a fellowship in the Virus Laboratory of the University of California, Berkeley, under Professor H. Fraenkel-Conrat. At Berkeley he will work on the chemical structure of constituents of the tobacco mosaic virus.

TECHNICAL ASSOCIATION NEWS

Many of our members who are not actively participating in the affairs of the Association are unaware of many aspects of the overall policy of the Association on matters not generally publicized.

The Association wishes to seek the aid of those specifically affected by the following subjects. Written views and suggestions would be appreciated by the various Divisional Delegates, who are listed in "Coresearch" No. 16.

1. Equal Pay. This perennial subject has obviously been of great interest to our female members and, with their assistance, renewed efforts will soon be made in this direction.

With ever increasing numbers training in the technological field the prosecution of this matter becomes more and more urgent.

2. Juniors. Although junior members have not yet seen the rise in salary and margins which has been mooted in past months, many other aspects of their careers are perhaps equally important.

Such things as Technical College and University fees, subsidized payment of excess fares, reduction of age limit for adult salary and claims for tax exemption for fees and books are all important matters to the Association.

3. Superannuation. The ever diminishing power of the pound sooner or later forces all contributors to face the prospect of living on a pension commensurate with the number of units held at the time of retirement.

Constructive suggestions are needed to show how we can ensure a reasonable and stable standard of living on retirement.

These are but a few of the subjects under constant review. They require consideration by more than just the "few".

Mohammed Ullah Khan, from Pakistan, is at the present time in Australia on a UNESCO Fellowship in microclimatology, as part of UNESCO's major project on scientific research on arid lands. In the picture he is being shown a meteorological kite by Division of Meteorological Physics officers, Messrs. R. O. Simm (right) and C. J. Sumner (left).

WEEDS CONFERENCE

An Australia-wide Conference on weeds was held in Canberra last month. The Conference, the second to be sponsored by the Standing Committee on Agriculture, was opened by Mr. J. V. Moroney, C.B.E., Secretary, Department of Primary Industry.

In his address Mr. Moroney stressed the importance of agriculture in the Australian economy and the serious losses in production due to weeds.

Special reference was made to skeleton weed and to differences in farmers' attitudes to this weed in New South Wales and in the Mallee areas of Victoria and South Australia.

The importance of the environment in weed studies was emphasized by Mr. R. M. Moore, Assistant Chief of the C.S.I.R.O. Division of Plant Industry, who reviewed the Australian weeds problem in the first technical session of the Conference.

Mr. Moore discussed the origin of weeds and the ecological changes which preceded the invasion of weeds in temperate Australia.

Sessions were devoted to weeds in pastures, horticultural, and field crops and their control by ecological, biological, and chemical methods.

In addition, papers were presented on physiological aspects of the chemical regulation of plant growth and on the structure of chemical compounds in relation to their toxicities to plants.

Over seventy technical papers were discussed during the four days of the Conference, which in addition to research and extension workers from Commonwealth and State departments and instrumentalities, Universities and C.S.I.R.O., was attended by more than twenty delegates from the agricultural chemical industry.

C.S.I.R.O. delegates to the Conference included Mr. V. R. Squires, Dr. J. A. Carnahan, and Dr. P. W. Michael from the Division of Plant Industry, Mr. L. A. Edge (Tropical Pastures), Dr. G. O. Stride (Entomology), Mr. J. J. Basinski (Land Research and Regional Survey). Mr. A. J. Antcliff (Irrigation Research Station, Merbein), and Mr. K. Loftus Hills (Agricultural Research Liaison Section).

C.A.B. REVIEW CONFERENCE

This month a Review Conference of the Commonwealth Agricultural Bureaux will be held in the United Kingdom. The agricultural bureaux are supported by grants from the various countries of the British Commonwealth and exist to abstract and disseminate scientific information.

The Australian delegation to the conference will be led by Mr. W. Ives, Executive Officer at Head Office.

Other members of the delegation will include Sir Arthur Coles, a member of the Executive, Dr. J. Griffiths Davies, Chief of the Division of Tropical Pastures, Mr. D. A. Gill, formerly Chief of the Division of Animal Health and Production, Mr. F. Wilson of the Division of Entomology (now on secondment to ASLO, London), Dr. C. J. McGee, Chief of the Division of Science Services in the New South Wales Department of Agriculture, and Professor C. M. Donald, Professor of Agriculture at the Waite Institute, University of Adelaide.

Mr. W. IVES

Delegates to the conference will visit various agricultural bureaux in England and Scotland, and will hold a number of conference sessions to discuss the future policy of the bureaux.

F.A.O. Job for Dr. O. H. Frankel

Dr. O. H. Frankel, Chief of the Division of Plant Industry, has been invited to join the Research Sub-Committee of the 10 nation Advisory Committee of the F.A.O. Freedom from Hunger Campaign.

The Sub-Committee, composed of leading agriculturalists and biologists, will advise F.A.O. on research aspects of the various projects associated with the Campaign.

Dr. Frankel will attend the first meeting of the Sub-Committee which will be held in Rome from 4th to 7th October next.

Radioactive Rain Water

The Division of Meteorological Physics has been making measurements on the radioactivity of rain water which have provided valuable information of the world problem of how the stratospheric debris from nuclear explosions travels and spreads before falling to earth.

The clouds suffer only limited dispersion and retain their identity for months, showing evidence of a slow poleward drift at stratospheric levels.

In a recent paper read to a Commonwealth Meteorological Bureau Seminar, Dr. A. J. Dyer said that the amount of radioactive fallout in rain in Australia was now 100 times less than at its peak in late 1958.

Dr. Dyer also said that the peak had been recorded after Britain had exploded a hydrogen bomb at Christmas Island, in the Pacific.

Even then the level was not regarded as dangerous.

Since Russia, the U.S. and Britain had imposed a nuclear-test ban, this level had dropped considerably, he added.

Liaison Tour for Wool Men

Last month, the Agricultural Research Liaison Section held a liaison tour for wool selling brokers and representatives of producer organizations.

The group of forty people was conducted over C.S.I.R.O. laboratories, the Australian Wool Testing Authority and the Australian Wool Bureau.

At the Melbourne and Geelong Wool Research Laboratories, the party learned of C.S.I.R.O.'s fundamental work on the structure and chemical reactivity of wool, the study of processes used in conversion of greasy fleece to finished fabrics, and the improvement of finished wool products.

At the Parkville laboratories of the Division of Animal Health they saw something of the work aimed at minimizing losses in the sheep industry.

The aim of the tour was to show people in the wool industry something of the scientific and technical work being undertaken in the interests of their industry.

Delegates were impressed with the confident outlook of C.S.I.R.O. wool scientists, who are steadily achieving major improvements in wool processing in spite of the limitations of a research budget far smaller than that enjoyed by scientists working in the synthetic fibre field.

Plant Viruses

Research on the control of virus diseases which affect apples, pears, citrus, and small fruits, will be advanced by the recent acquisition of a controlled temperature phytotron cabinet at the Victorian Department of Agriculture's Plant Research Laboratory, Burnley Gardens.

In this cabinet, plants will be grown under continuously maintained high temperature conditions to eliminate certain viruses. Healthy stocks will then be available for multiplication to replace diseased stocks.

The cabinet was purchased with a grant received from the Commonwealth Reserve Bank in support of the Department's research work on fruit viruses.

It was constructed by the C.S.I.R.O. Engineering Section at Highett.

The Fascinating Story of Bird Migration

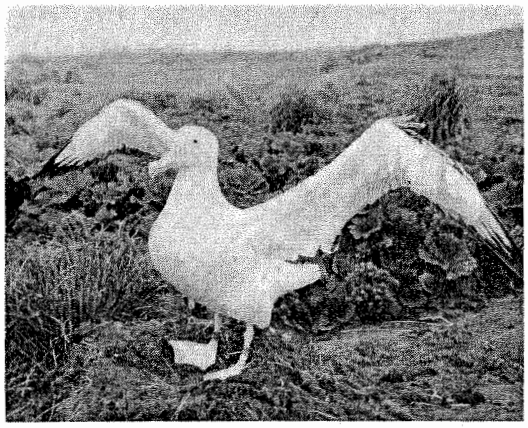
Australia's western coastline has received some of the world's most spectacular recoveries of banded birds. The earliest and most remarkable was that of an albatross released by shipwrecked French sailors at the Crozet Islands in 1887, and recovered 46 days later near Triggs Island — a distance of 3,027 miles.

More recently two recoveries of the giant wandering albatross indicate that the species may commute regularly between its breeding grounds at South Georgia and New South Wales coastal waters, where large number are seen in winter; the distance between these points is over 6,000 miles.

These records are surpassed, however, by two small sea-birds — an Arctic tern, banded in north-west Russia, and a common tern, banded in Sweden, both of which turned up at Fremantle in 1956. These, and many other long-distance recoveries, reveal the global nature of bird movements and emphasize the desirability of international co-operative bird study.

National bird-banding schemes have operated in Europe and North America for over 50 years, and data gleaned from marked birds have given valuable information on migration, ecology, population dynamics, behaviour, control of pest species, conservation, and game management.

A wandering albatross at nest. The wing spread of this species averages ten feet.



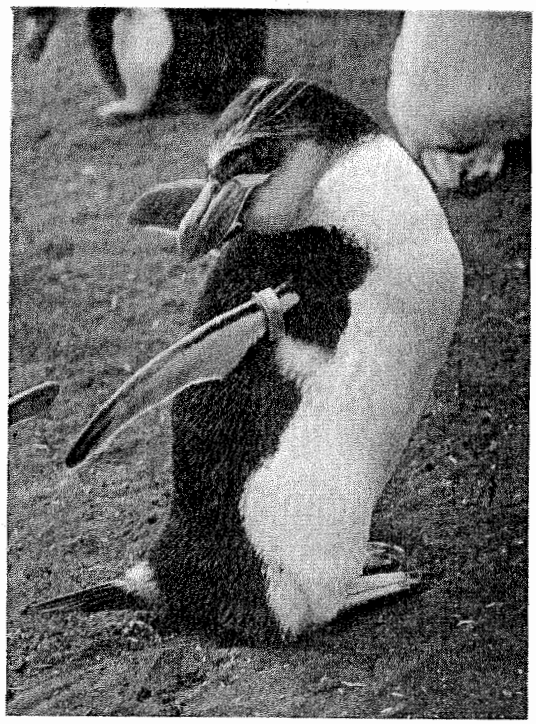
The Australian bird-banding scheme, inaugurated in 1953, is run by the Wildlife Survey Section in collaboration with State fauna authorities. Bands and equipment are supplied to approved ornithologists, professional and amateur, throughout Australia and its territories.

To date over 100 co-operators have banded 130,000 birds, of which nearly 12,000 have been recovered.

The Scheme has provided bands and service for the investigation of pest species, including the magpie goose, crows, starlings and silvereyes; for game birds, such as ducks; for species of medical importance (dengue and Murray Valley encephalitis studies have implicated wild birds as carriers), and for conservation studies on the mallee fowl, lyrebird, straw-necked ibis, and other Australian endemics.

Experience gained during the last six years, including the development of special types of bands and new or modified trapping techniques, will extend the work to include other species of economic importance, such as shags, parrots, cockatoos, and pelicans.

Recruitment of banders in outback areas, and in external territories, e.g., New Guinea, will widen the scope of the Scheme's work and, it is hoped, offset the present bias of recoveries from more densely populated centres.



In the matter of recoveries the Scheme leans heavily on public interest and support. Banders, of course, supply many records of live-trapped birds, but John Citizen, exemplified by the duck-shooter, fisherman and beachcomber, contributes 90 per cent. of the recoveries.

In the last two years the banding office in Canberra has received some 8,000 letters reporting banded birds; these reveal the magnitude of Australian intrinsic interest in wild life, and also the good public relations of C.S.I.R.O.

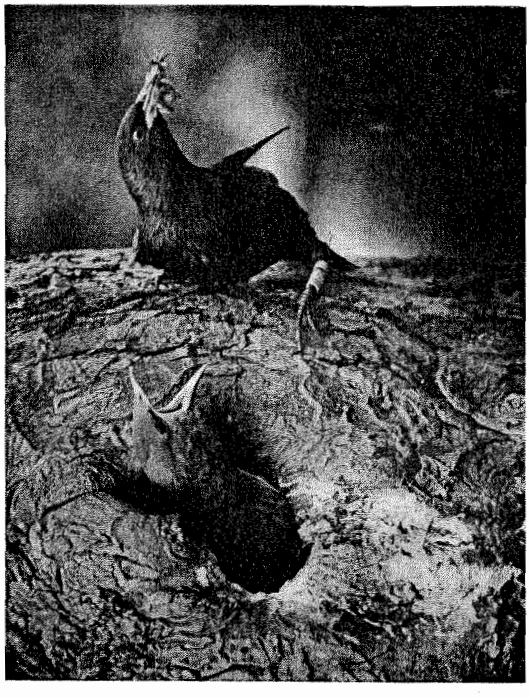
Most writers express the hope that they are helping the work of the Organization by returning the band; fewer than 0.1 per cent. mention a reward.

We acknowledge this help by letter, thanking the finder for his co-operation, and giving full banding details of the bird reported, together with an illustrated leaflet summarizing the aims and results of the Scheme. Banders are also encouraged to publicize banding in every way possible so that in time, we hope, the reporting of bands will become a routine public obligation.

The essential information required on a recovery is: band number, date, and place and method (e.g., shot, found dead or injured, caught on fishing-line, etc.). All reports should be sent to the Secretary, Australian Bird-banding Scheme (C.S.I.R.O., Wildlife Survey Section), P.O. Box 109, Canberra City.

Mother starling feeding her young. She is wearing a numbered band and also a coloured plastic band for easy identification.

The Royal Penguin is found only on Macquarie Island where it breeds in countless thousands. This handsome fellow, with his golden crest, red bill and pink feet, seems puzzled by his flipper-band — a special design for penguins whose legs are too short to carry leg-bands.



SINGING ELECTRONIC BRAIN

CSIRAC, the electronic brain at the University of Melbourne, has learned to sing. Its song is the result of several days' mathematical and musical gymnastics by Professor T. M. Cherry.

In his spare time Professor Cherry conceived a complicated punched-paper programme for the computer, enabling it to hum sweet melodies through its speaker.

CSIRAC (when not engaged in serious computation) plays games with the massive cunning of a two ton child.

Mr. G. W. Hill, of the Division of Mathematical Statistics, who helps tend the brain in the University's physics department, invited an "Age" reporter to match wits with the computer in a match game. Ten matches were placed on a table.

CSIRAC reproduced them as points of eerie blue light on one of its tiny TV screens. The winner would be he/it who picked up the last match.

The control board of the electronic computer CSIRAC. Mr. G. W. Hill is standing.

The moves of the reporter's match were relayed to the brain via a signal switch. In reply the brain blotted up with darkness several blue points on its screen.

Many match games were played but the brain, with devilish scientific cunning, won every time.

Then Mr. Hill showed how to beat the brain. He threw a switch and a second TV screen lit up. This screen showed, in pinpricks of light, the advance moves CSIRAC was planning.

By peeping, unfairly, into the brain's brain, the reporter won every game.

Despite its songs and games, CSIRAC has been taught to reject silly trivialities. The brain refuses, too, to be bothered with piffling tax problems.

Asked to calculate 5 per cent of £1,578, it replied STORAGE CAPACITY EXCEEDED — although there were no other problems going through at the time. Mr. Hill explained: "The brain isn't human enough to make excuses.

"But it simply can't distinguish between an utterly trivial question (which it regards as zero) and infinite overload.

Originally designed and constructed as an experimental computer in the Division of Radiophysics, Sydney, CSIRAC was used continuously there for C.S.I.R.O. and other research organizations from 1952 to 1955, when it was transferred to the University of Melbourne.

C.S.I.R.O., which has invested a considerable sum on CSIRAC, maintains staff at the CSIRAC laboratory to assist C.S.I.R.O. users.

In 1959 the use of CSIRAC was greatly increased and this was due principally to the assistance given by officers of the Division of Mathematical Statistics stationed at the laboratory and to the absence of charges for C.S.I.R.O. computation on CSIRAC.

Courtesy "The Age"

Clunies Ross Street

Future visitors to Canberra will have occasion to remember the name of our late Chairman, Sir Ian Clunies Ross.

Following a suggestion from Dr. O. H. Frankel, Chief of the Division of Plant Industry, the Department of the Interior agreed to name a new road "Clunies Ross Street".

Clunies Ross Street, a continuation of Froggatt Street, runs straight past the front door of the main C.S.I.R.O. buildings on the Black Mountain site.

Fulbright Fellows at Canberra

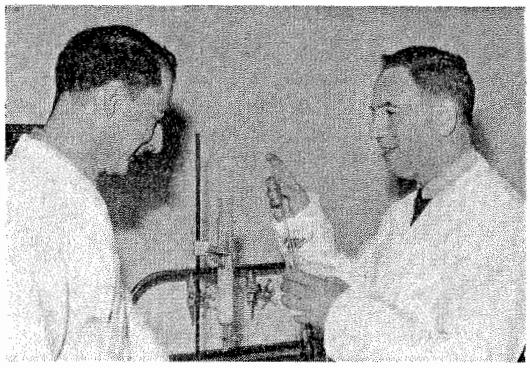
Two distinguished American plant scientists have arrived in Australia to spend terms with the Division of Plant Industry. Both are holders of Fulbright Fellowships.

Dr. Arthur W. Galston is spending approximately nine months in Canberra. He is on Sabbatical leave from Yale University, where he is Professor of Plant Physiology and Chairman of the Department of Botany.

On his way to Australia Dr. Galston visited laboratories in Hawaii and Japan, and on his return journey he intends to have a brief spell in Israel, and also attend the International Biochemical Congress in Moscow next year.

Dr. Galston is well known in Australia both for his work as a plant physiologist and as the co-author, with James Bonner, of the text "Principles of Plant Physiology" which is widely used in this country.

While in Canberra he will work on some aspects of the chemical regulation of plant growth by hormones. In the course of this work he will collaborate with members of the Plant Physiology and Biochemistry Sections of the Division of Plant Industry.



Dr. Arthur W. Galston (right) with Dr. D. Spencer of the Plant Nutrition Section, Division of Plant Industry.

The invitation for him to come to Australia stemmed initially from his former colleague and good friend, the late Dr. Peter Goldacre.

Dr. Lawrence Bogorad (left) with Dr. J. N. Falk, Leader of the Plant Biochemistry and Biophysics Section.

Dr. Galston will present a paper to the Third Australasian Conference on Radiology in Sydney this month.

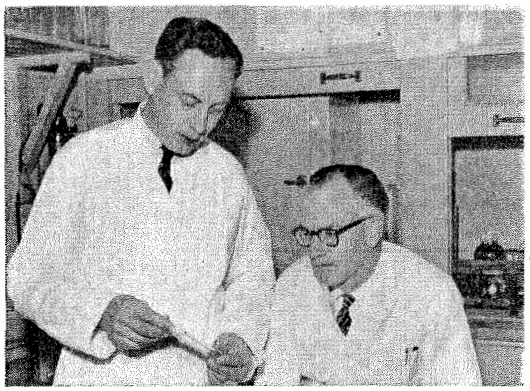
Dr. Galston is accompanied by his wife, who is a Directress of a Nursery School in New Haven, Connecticut, and their children, William aged 14 and Beth who is 12.

The Galston family are keen campers and they hope to see as much as possible of Australia during their stay.

Dr. L. Bogorad, Professor of Botany at the University of Chicago, is spending six months with the Division of Plant Industry.

After leaving Australia he will spend some time in India and Stockholm before returning to the United States.

Professor Bogorad has contributed to the field of chlorophyll biosynthesis and his experience with plant pigments, linked with Dr. J. E. Falk's knowledge of haems and porphyrins will be of inestimable value to the Biochemistry Section's programme on the synthesis and functional state of chlorophyll in the plastids of higher plants.



Lausanne Fair

The largest, most enlightening and comprehensive Australian exhibition ever sent overseas has been arranged by the Department of Trade for the guest nation pavilion at the World Fair in Lausanne, Switzerland, from September 10th to 25th.

It will emphasize the rapid development of the past 20 years, illustrate all aspects of Australian life and achievement and note the nation's tremendous potential in the South-East Asian sphere.

The setting for the exhibition is a glass, garden-flanked pavilion in Lausanne's Palais de Beaulieu — the "Pavillon d'Honneur". The pavilion, standing at the head of an ornamental pool surrounded by sculptures and fountains, is one of Europe's finest sites for graphic display.

The exhibits in the Pavilion of Honour illustrate a cross-section of Australian industry, commerce, agriculture, science, society, and culture.

Among a group of Australian made scientific instruments being shown are some originating from C.S.I.R.O. laboratories. Two from the Division of Chemical Physics, are the SI-RO-FLEX ultramicrotome, and the STACPAC stabilized power source.

The ultramicrotome cuts sections of materials down to half a millionth of an inch in thickness for examination under the electron microscope. A hypodermic needle sharpener, and the SI-RO-KEEN microtome knife sharpener, both developed at the Division of Metrology, are also being shown.

C.S.I.R.O. processes designed to improve the performance of pure wool fabrics are included in a display featuring the Australian sheep and wool industry. There is an exhibit showing the resistance of SI-RO-MOTH'D materials to attack by clothes moths.

Woollen blankets shrink-proofed by the G8 process are being shown, together with garments with SI-RO-SET permanent creases and pleats, and SIRONIZED washable non-iron garments.

An exhibit of special interest is a scale model of Australia's new giant radio telescope, now under construction. The model was built in Germany by M.A.N., the principal firm of contractors.

NEW APPOINTEES

Mr. L. Gruner, Polish born and a naturalized Australian, has joined the Division of Radiophysics to undertake the design and development of specialized microwave receivers and other equipment. An honours graduate in electrical engineering from the University of New Zealand, he was previously on the staff of Standard Telephones and Cables Ltd.

Mr. R. J. Jones will arrive in Australia this week to take up a position with the Division of Tropical Pastures in Brisbane. He is an honours graduate of the University of Wales and holds diplomas in tropical agriculture from Cambridge and Trinidad. Since 1956 he has been working as an Agricultural Officer in Kenya.

Mr. M. B. Mackey has been appointed to the Staff of the Division of Radiophysics. He is a graduate of the University of Sydney, both in science and electrical engineering. Since 1958 he has been on the staff of the Aeronautical Research Laboratories of the Department of Supply at Fishermen's Bend, Victoria.

Dr. J. A. Wunderlich has been appointed to the staff of the Organic Chemistry Section, but will not arrive in Australia until October. A Sydney graduate, he has been overseas since 1953. He received a doctorate from the University of Paris in 1958, and since then has held post-doctoral fellowships at the University of Minnesota and at Harvard.

What's That?

In the I.U.P.A.C. Handbook for visitors to the Symposium on the Chemistry of Natural Products is found the following statement —

"The lyrebird is a famous dancer and mimic, and can be seen quite easily in Sherbrooke forest, less than an hour's drive from Melbourne, where the population has become unusually tame and almost exhibitionist!"

OVERSEAS VISITS

Mr. K. Adams, of the Division of Animal Genetics, has accepted an invitation from Professor Van Wochtendonk to work for a year in the Biochemistry Department, Veterans' Administration Hospital, Miami, Florida. He will be studying biochemical and enzymological changes taking place in cells undergoing tissue culture.

Mr. R. Brewer, of the Division of Soils, has received a grant from the American Soil Science Society to enable him to participate in the VIIth International Soils Congress at Madison, Wisconsin.

He will visit a number of other soils laboratories in the United States before returning home this month.

Dr. J. M. Cowley, of the Division of Chemical Physics, left last month for the United Kingdom, where he has been invited to lecture at the Summer School on Crystallography at Manchester. Before returning to Australia later this month he will attend other scientific meetings in Glasgow, Cambridge, and Delft.

Dr. B. Dawson, of the Division of Chemical Physics, left last month for Cambridge, where he delivered a paper to the Fifth International Congress of the International Union of Crystallography.

From Cambridge he went to Glasgow to attend a conference on X-ray Crystal Analysis, and to Manchester to attend a Summer School in X-ray Crystallography.

He will leave Europe shortly for America, and will arrive home towards the end of the month.

Dr. A. B. Edwards, Officer in Charge of Mineragraphic Investigations, left last week for Europe. He will visit mines and centres of mineragraphic research in Greece, Italy, Germany, Belgium, and the United Kingdom.

Mr. N. A. Esserman, Director of the National Standards Laboratory, leaves this month on a ten weeks' visit to Europe and North America. He will attend meetings of the International Bureau of Weights and Measures and the International Committee of Legal Metrology. He will also attend engineering conferences in England and Germany.

Mr. W. W. Mansfield, of the Division of Physical Chemistry, is at present visiting the United Kingdom at the invitation of Prices (Bromborough) Ltd., manufacturers of cetyl alcohol.

He will leave the U.K. to come home this month, but will stop over in New York to attend an American Chemical Society Symposium on evaporation control.

Dr. C. G. Stephens, Head of the Soil Survey and Pedology Section of the Division of Soils, left last month on a visit to America, U.K., Russia, and India. In America he will attend the VIIth Congress of the International Society of Soil Science. In Russia he will visit soil research laboratories in Moscow, Leningrad, Kiev, Baku, and Georgia.

Dr. J. R. YATES

Dr. J. R. Yates, a graduate of the Universities of Cambridge and Melbourne, has been appointed to the Staff of the Division of Protein Chemistry. He will carry out biochemical engineering investigation into the development of new industrial processes in carbonizing and fellmongering based on wool protein research.

Thirty-Two Years' Service

Mr. E. H. Kipps retires from the Organization this month after thirty-two years' service.

Shortly after taking his degree in Birmingham in 1926 he came to Australia and soon afterwards secured a position as laboratory assistant to Dr. B. T. Dickson, Chief of the Division of Economic Botany, which later became the Division of Plant Industry.

The Division at that time had just been formed and Mr. Kipps was one of the first three appointees. He has been with the Division ever since, stationed in Canberra or Brisbane.

An analyst, he has participated in many research programmes, and has worked in close association with many of the Division's officers. He made particularly important contributions to the study of manganese excess in red soils.

In his retirement Mr. Kipps intends to take up poultry farming on the outskirts of Brisbane.

Shark Barriers

The South African Council for Scientific Research has embarked upon a programme of research on shark barriers, according to its most recent annual report. The progress of this research should be of particular interest to Australians.

The work started about two years ago. Electrical repulsion methods have been concentrated upon, and studies have been made of the field distribution between electrodes in fresh water and in salt water, as well as of the power requirements of different electrode types and pulse waveforms.

The reactions to electrical stimuli of a few species of fresh water fish have been determined and apparatus has been built to generate a wide variety of pulses.

The peak output of the instruments varied from 1 kilowatt to 1000 kilowatts. The latter is at present being used on the Natal coast where tests are being performed on live sharks.

The effect of electrical stimuli on humans is also being investigated.

Printed by C.S.I.R.O., Melbourne

CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 19, MELBOURNE, OCTOBER 1960

Governor and Premier Visit Tobacco Research Institute

The Tobacco Research Institute at Mareeba, Queensland, entertained two distinguished visitors last month. On Sunday, 11th September, the Institute received a visit from The Right Honourable G. F. R. Nicklin, Premier of Queensland. On the following day, the Governor of Queensland, Sir Henry Abel Smith, called in.

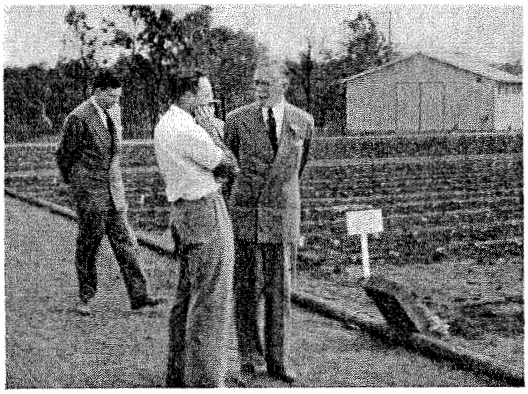
Mr. Nicklin had on the previous day performed the ceremony of handing over Koombooloomba Dam on the Tully River to the Cairns Regional Electricity Board.

Mr. Nicklin was accompanied by the Irrigation Commissioner and the Project Engineer of the Irrigation and Water Supply Commission for the district, the Director of Tropical Agriculture and two other officers of the Department of Agriculture and Stock, by his secretary, and a representative of the Brisbane "Courier-Mail".

The party was met at the Institute by Mr. T. V. Gilmore, M.L.A., for the Tablelands Division.

The Director of the Institute, Dr. D. W. Goodall, greeted the Premier and escorted him and the party around the laboratories, glasshouse, seed-beds, and farm buildings. During the visit, the Premier met Dr. N. Matheson and Mr. W. J. Lovett, Research Officers on the Institute staff, and Mr. J. J. M. Peppelenbosch, the Institute's Farm Manager.

The Premier discussed details of the research programme with the officers concerned and was impressed with the facilities available.



Sir Henry Abel Smith, who was accompanied by Lady May Abel Smith, was on a tour of the northern part of the State which would take him as far north as Cooktown and as far west as Cloncurry.

The vice-regal party was escorted by Councillor C. L. Davies (Chairman of the Mareeba Shire Council) and Mrs. Davies. Before visiting the Institute, the party had travelled to Dimbulah, where they visited two tobacco farms as well as the Tobacco Experiment Station of the Queensland Department of Agriculture and Stock at Parada.

The Director of the Institute, Dr. D. W. Goodall (centre) talking to Sir Henry Abel Smith.

At the Institute, Dr. Goodall showed them work in the paddocks where transplanting was in progress, and then took them to the seed-bed area, after which they were shown the curing facilities available.

After this the party inspected the laboratories and were introduced to members of the staff.

Sir Henry, who has tobacco interests in Rhodesia, showed great interest in the work in progress in the paddocks, and was particularly keen to discuss questions of irrigation, rotation, and soil treatment with the staff.

Like the Premier he expressed great satisfaction with his visit, and some surprise at the quality of the work in progress in this rather remote district.

Mr. W. J. Lovett (second from right) with the Premier and his party in the greenhouse.

Compliments from U.S.S.R.

Two compliments to members of C.S.I.R.O. staff are implied in a recent request received from the noted British publishing house, Pergamon Press Ltd.

The firm has written to Mr. J. A. Spink, of the Division of Tribophysics and Dr. E. Feigl, of the Translation Section, asking them to undertake the translation into English of a Russian text-book entitled "Structure Analysis by Electron Diffraction".

The choice of translators was made by the Russian author, B. K. Vainshtein, who had evidently been impressed with the excellence of Mr. Spink's and Dr. Feigl's translation in 1953 of another Russian textbook, "Electron Diffraction" by Professor Z. K. Pinsker.

The author, in his foreword to the English edition, refers to the development of structure analysis by electron diffraction in the Soviet Union. He then lists Australia first among other countries where the subject is being developed, thereby paying a nice compliment to the work of Dr. A. L. G. Rees, Dr. J. M. Cowley, and their colleagues in the Division of Chemical Physics.

Canadian Visitor

Dr. John T. Slykhuis, a distinguished Canadian agricultural scientist, arrived in Australia last month.

His special field of interest is in the diseases of grasses and cereals, and he is now Head of the Plant Diseases Section in the Research Branch of the Canadian Department of Agriculture.

Dr. Slykhuis' visit to Australia has been financed by the Commonwealth Bank, through its Rural Credits Development fund.

His two months here are being spent in making a survey of virus diseases in Australian grasses and cereals at the suggestion of the Divisions of Plant Industry and Entomology.

Dr. Slykhuis will travel extensively in Queensland, New South Wales, Victoria and South Australia.

He has already visited the Cunningham Laboratory and will shortly arrive in Canberra to spend a few days at Black Mountain.

NEW CHIEF FOR LAND RESEARCH

Mr. G. Alan Stewart has been appointed Chief of the Division of Land Research and Regional Survey. He succeeds Mr. C. S. Christian who resigned last December to become a member of the Executive.

Mr. Stewart, who is aged 38, graduated in agricultural science from the University of Melbourne in 1943.

His first job was as a soil surveyor with the Division of Soils, taking part in surveys in Western Australia, South Australia, Victoria, and Tasmania.

In 1946 he was seconded to the Division of Plant Industry as a soil scientist in the original Northern Australian Regional Survey under Mr. Christian.

Mr. Stewart became an original member of the Land Research and Regional Survey Section when it was formed shortly afterwards.

In 1953 he took a team of scientists to New Guinea, and initiated our survey work there.

Mr. Stewart, who was awarded the M.Agr.Sc. degree in 1954, has been Mr. Christian's senior colleague in the Division, and, as such, has been Acting Chief since Mr. Christian's appointment to the Executive.

Mr. G. A. STEWART
Courtesy "The Age"

To Advise on Beef Research

The appointment of Mr. A. J. Vasey as technical adviser to the newly-formed Cattle and Beef Research Committee has been announced.

This committee has the responsibility of planning expenditure of research funds collected under the beef cattle slaughter levy, together with matching funds to be provided by the Commonwealth Government.

Mr. Vasey is divisional secretary of the Division of Animal Health and secretary of the Animal Production Committee.

He has had extensive experience in assessing the value of research projects in the livestock industries and in co-ordinating the operation and results of research.

The committee felt that the help of such a man was needed, particularly in the early stages of its work of integrating current and proposed research programmes with the problems of the beef industry.

It requested the services of Mr. Vasey and C.S.I.R.O. will make him available on a part-time basis for this work.

Welcoming the announcement, the Victorian Director of Agriculture (Mr. P. Ryan) said that it was an excellent appointment.

Mr. A. J. VASEY

"Mr. Vasey's qualifications and experience make him admirably suited for the position of technical adviser to the committee," said Mr. Ryan.

"His advice will be of inestimable value to it in the selection of research projects on which the funds will be spent."

Expressing pleasure at the appointment, the retiring president of the Graziers' Association of Victoria (Mr. W. J. R. Wilson) said that Mr. Vasey was among the ablest research planners and administrators in the Commonwealth.

"As a liaison officer between the division and the industry he has for some time been in touch with members of the association who have all come to know him well," Mr. Wilson said.

HONOURS

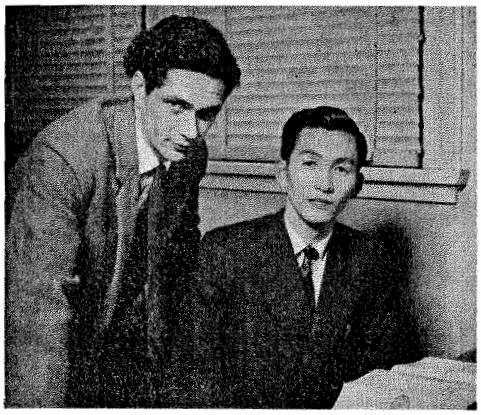
Dr. G. F. Humphrey, Chief of the Division of Fisheries and Oceanography, has been elected president of SCOR.

SCOR, the Special Committee on Oceanic Research, is a committee of the International Council of Scientific Unions.

It is charged with furthering the co-ordination of scientific activity in all branches of oceanic research, with a view to framing a scientific programme of world-wide scope and significance.

Dr. A. McL. Mathieson, of the Division of Chemical Physics, has been elected a member of the Commission of Crystallographic Apparatus of the International Union of Crystallography.

The following officers of the Organization have been elected to **Fellowships of the Royal Australian Chemical Institute:** Mr. M. V. Tracey (Wheat Research Unit), Dr. W. F. Forbes (Protein Chemistry), Dr. R. J. Meakins (Electrotechnology), Dr. M. P. Hegarty (Tropical Pastures), Dr. J. N. Phillips (Plant Industry), Dr. J. H. Bradbury (Textile Industry), Mr. G. B. Gresford (Head Office), Dr. C. S. Barnes (Organic Chemistry).



Dr. H. Hashimoto, a lecturer in the Department of Physics, University of Kyoto, spent two weeks in Australia recently. He was on his way home after spending a year in England at Cambridge. Dr. Hashimoto, who is interested in the study of metal and crystal structure by electron microscopy, spent his time in Australia at the Division of Tribophysics with Dr. J. V. Sanders (above) and at the Division of Chemical Physics with Dr. J. M. Cowley's group.

Animal Society President

Mr. H. J. Lee, of the Division of Biochemistry and General Nutrition, has been elected President of the Australian Society of Animal Production.

Mr. Lee began his carrer with C.S.I.R.O. in 1928, when he started work as a laboratory boy at 25/- per week.

In 1932, after taking his degree he became assistant to Sir Charles Martin, Chief of the Division of Animal Nutrition.

Mr. Lee has in recent years been in charge of the Division's field station experiments.

He was a leading member of the team which developed the cobalt bullet, now in world-wide use.

Last year, Mr. Lee went to South America for a period of two months, on an F.A.O. assignment. He undertook a field survey of the factors which might be responsible for a disease of grazing cattle occurring in specific areas of Brazil and Argentina.

Mr. H. J. LEE

TECHNICAL ASSOCIATION NEWS

Members of the Technical Association will be interested in the results of two elections which have recently been held.

Firstly, there was an election for Group 2 representatives on the Committee of Enquiry.

The Committee of Enquiry is a tribunal set up by the Executive to consider appeals from any officers (employed under Section 21 of the Act) who feel they have been wrongfully dismissed for committing offences or breach of terms and conditions of employment.

It consists of an independent chairman appointed by the Executive, a chief or officer in charge (other than one to whom the officer concerned is attached), and an elected representative in the appropriate group. There are two groups.

Group 1 comprises research officers, experimental officers, adminstrative officers and clerks.

All other staff, including members of the Technical Association, come under Group 2.

The elected Group 2 representatives from the different States were as follows—

Victoria: Mr. Robin Watson (Forest Products).

N.S.W. & A.C.T.: Mr. Eric Murray (Coal Research)

S.A. & N.T.: Mr. Murray Hughes (Soils)

Tasmania: Mr. C. J. Smith (Tasmanian Regional Laboratory)

W.A.: Mr. M. V. Jansz (Plant Industry)

As we go to press the result of the Queensland election is not known.

Messrs. Watson, Murray and Hughes are active members of the Technical Association.

The nation-wide election of the contributors representative on the Superannuation Board resulted in the re-election of Mr. Charles Arnold, who is well-known in Association circles for his wide experience in superannuation matters.

For a number of years he has held the position of Secretary of the High Council of Public Service Associations, with which our Association is affiliated.

A disturbing feature of this election was the fact that although the number of ballot papers sent out to eligible voters exceeded 100,000, only one contributor in three exercised his right to elect such a very important representative of our interests.

THIRTY YEARS OF TOBACCO RESEARCH

Every year we are smoking more cigarettes, Mr. A. V. Hill, of the Division of Plant Industry, told a radio audience last month. In 1958-59 we smoked 53 million pounds weight of tobacco, but only 12 million pounds weight was grown in Australia.

This is encouraging to Australian tobacco growers provided, of course, they can grow what the smoker wants. What is the real position on production and smoking quality?

"Firstly," said Mr. Hill, "more tobacco is being grown but the proportion of Australian leaf used has only slightly increased over the last 25 years.

"The increased production has been absorbed by the increases in population, and number of smokers, so that the individual smoker is not getting much more of it.

"But Australian grown leaf suitable for use in cigarettes has increased from 6 per cent of the crop to 76 per cent, an achievement of great significance in view of the trend to cigarettes in place of pipes."

How has this come about and what has been the contribution of science?

Mr. Hill said that in order to deal with this question we must be able to appreciate the position as it was 30 years ago when blue mould disease caused heavy losses year after year, and much of the crop that remained to be harvested was of poor quality.

The major break through came in 1935 when C.S.I.R.O. scientist, Dr. H. R. Angell came to the rescue with benzol for the prevention of blue mould disease in seedbeds.

Dr. Angell is still on the job. He has convincing evidence that prevention of blue mould in the seedbeds can be the basis for control in the field.

The complete elimination of the disease from the country may be impossible, but there is much we can do to prevent it spreading from place to place.

Countless mould spores or seeds, too small for the eye to see, are carried in the air for many miles.

If these spores fall on to a tobacco plant under the right conditions, as happened in thousands of acres of tobacco last season, the disease becomes established, bringing with it the risk of total loss of the crop.

Obviously it is impossible to confine the disease to a particular field.

But let us suppose, said Mr. Hill, that the spores of the disease came to rest on a new kind of tobacco, one that was resistant to mould, then the plants would not become infected or, if they did, the infection would not become serious.

A resistant tobacco has been the objective of scientists both here and in the U.S.A. for at least 30 years. In 1953 an appeal was broadcast for seeds of wild tobaccos found growing anywhere in Australia to be sent to the C.S.I.R.O. in Canberra.

There was a wonderful response and the seeds came in from all over Australia — from North Queensland down to Victoria, from Sydney westwards through Central Australia right to the west coast.

Eventually we were able to list about 20 different kinds of wild tobacco, almost all of them resistant to blue mould disease. A great deal of testing and breeding for resistance has gone on in several places in Australia since that time.

Considerable progress has been made towards producing a disease resistant tobacco plant of good quality.

Smoking Quality

Thirty years ago we wanted to find out where good quality tobacco leaf could be grown, said Mr. Hill. A representative range of cured leaf samples was obtained from each district, made into cigarettes, and smoked.

You had to be tough to survive some of those cigarettes. There was always a car ready for the casual visitor who dropped in to test a few cigarettes and had to be taken home afterwards.

After several years' work we were able to say, quite definitely, what district and what parts of districts were growing good or bad tobacco and then the States Departments of Agriculture, our partners in this work, were able to advise growers to use the better areas, to use new varieties and new methods of production.

The consequent improvement in quality has been quite dramatic.

Few of today's smokers would be satisfied with the cigarettes of 30 years ago.

OVERSEAS VISITS

Mr. N. J. Barrow, of the Division of Animal Physiology, Armidale, left last month for the United Kingdom. He is taking up a C.S.I.R.O. Overseas Studentship, and will work at the Rothamsted Experiment Station on the role of sulphur in soils.

Mr. D. G. Beckmann, of the Division of Soils, left Australia last month to take up a two-year research fellowship at the University of Hawaii. He will make a study of buried soils and palaeoclimology under Professor G. D. Shermann.

Dr. S. M. Bromfield, of the Division of Plant Industry, arrived in the U.K. last week to spend a year at the Macauley Institute for Soil Research in Aberdeen, Scotland. He has been awarded a Royal Society and Nuffield Foundation Commonwealth Bursary.

Dr. R. Carrick, of the Wildlife Survey Section, returned this week from a short visit to the United Kingdom, where he attended a meeting of the Scientific Committee on Antarctic Research in Cambridge. He also spent a little time at the Universities of Aberdeen and Oxford, and returned via the U.S.A.

Mr. A. J. Gaskin, Officer-in-Charge of the Cement and Refractories Section, left last week on a short visit to America. He will attend the Fourth International Symposium on the Chemistry of Cement in Washington, D.C.

Mr. J. Goldman, of the Dairy Research Section, left last month to attend the Second International Conference on Lyophilization at Lyons, France. Before returning home he will visit dairy research laboratories in France, Switzerland, Holland, U.K., U.S.A., and New Zealand.

Dr. G. F. Walker, of the Cement and Refractories Section, left last week for the United States. He will present a paper to a Clay Conference at Lafayette, Indiana, and will visit various research institutions before returning to Australia in four weeks time.

Dr. N. A. Walker, of the Division of Plant Industry left recently for the United Kingdom, where he will take up a C.S.I.R.O. Overseas Studentship. He will work with Professor A. L. Hodgkin in the Physiology Laboratory, University of Cambridge.

Dr. T. H. Ellison (right), of the University of Manchester, visited the Divisions of Radiophysics and Meteorological Physics whilst in Australia last month. He is a well-known authority on atmospheric turbulence. The photograph shows him discussing the wind structure of sea breezes with Dr. C. H. B. Priestley, Chief of the Division of Meteorological Physics.

New Horizons for Falkland Islanders

The remote Falkland Islands, set in the South Atlantic Ocean, east of Cape Horn, may have reason to be thankful for the work of C.S.I.R.O.

In 1914 Von Spee's fleet was defeated there, but nothing much of importance happened from then until last year when C.S.I.R.O. set in motion forces that promise to revolutionize life for the islanders.

The economy of the Falkland Islands relies for a full 100 per cent on sheep, mostly Corriedales.

On an area of 4,618 square miles are carried about 700,000 sheep, or one sheep to every four or five acres.

This incredibly poor ratio, which can only be compared with the semi-desert areas of Western Australia, was not due to the absence of pasture which, visually at least, is comparatively abundant.

Nor is the climate responsible, though the kindest way to describe it is to say that it is cool and invigorating.

The 28 inch rainfall is the proper requirement for the moorland grass, called white grass, which covers the two main islands, and the more nutritious tussock grasses which are found only on the smaller islands.

Adapted from an article in "The Australian Financial Review" by W. R. Lyster.

The trouble about sheep raising on the Falklands is a kind of starvation which every year kills off at least 14 per cent of the flocks, adversely affects the fleeces of the survivors and makes a fat lamb a rarity.

All the classical symptoms of cobalt deficiency were in fact present, though this was only to be guessed at, as no soil analysis could be undertaken.

The Administration employs but one agricultural officer, when the real need is for a whole team of scientists.

However, working on a hit or miss basis, the manager of a sheep station at Fox Bay, in West Falkland, decided to test the result of using the C.S.I.R.O.'s cobalt bullet, the details of which were released in September, 1958.

The experiment began in April, 1959, when cold weather and snow storms had already arrived.

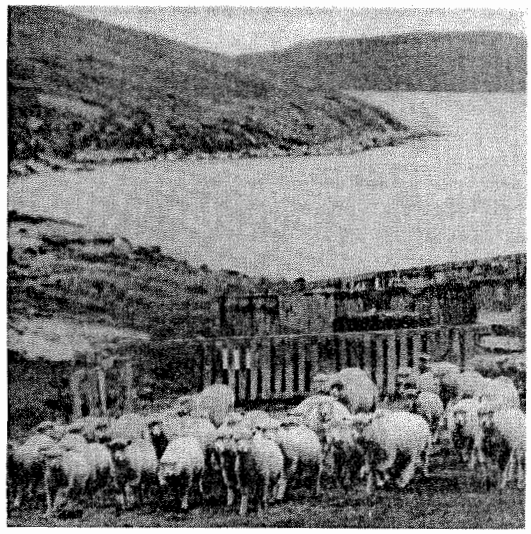
Eight hundred sheep of varying ages were selected, and the report on them describes them as walking skeletons, in many cases hardly able to stand.

Four hundred were dosed with the cobalt bullet and four hundred were left undosed, to act as controls.

They were then appropriately branded and turned out into open country.

Falkland sheep are never hand-fed, and winter pasture is not over-nutritious.

Except among the six-month weaners the loss was almost nil in the dosed sheep, while 300 of the controls perished.



Among the weaners, 18 per cent of dosed sheep perished, and 27 per cent of the controls.

This is an interesting confirmation of the Australian tests, which showed that the stomachs of immature sheep secrete a deposit of calcium phosphate around the cobalt bullets, thereby completely masking them.

The Falkland Islands sheepmasters will learn with interest of C.S.I.R.O.'s effective use of a small steel screw as an abrasive fellow-lodger in the lambs' stomachs.

A flock of sheep on the windswept pastures of the Falklands.

Young sheep have the greatest need of cobalt.

The average loss for breeding ewes is 13 per cent, but among old wethers it is only four per cent.

The average lambing rate on the Fox Bay property over the last 15 years has been 59 per cent.

The stock returns for the whole of the Falkland Islands strongly suggest that cobalt deficiency is general everywhere.

The Fox Bay property, which normally carries 30,000 sheep, could perhaps carry twice as many when the cobalt bullets are used in all its flocks.

This Australian gift to the struggling group of islands will enable the short-lived abattoir and freezing works at Port Stanley to be re-opened.

The Colonial Development Corporation tried to establish one about 10 years ago, but there were not enough fat lambs available to keep it operating.

Although Corriedales predominate, there are two other main breeds used in the Falklands, Polwarths which are raised on the best ground, and Romney Marsh on the very poorest.

Fat lambs of quality and size acceptable to the London market should therefore be freely available.

But it is the Falkland wool which will benefit most from the Australian cobalt bullet.

The average price for the 1958-59 clip was 49d. stg., but the best wool realized 80½d. stg.

The Fox Bay average fleece is 8 lb., but healthy sheep clip 10-11 lb.

Most of the wool is, in any case, hunger fine, but this can be compared with the report on the 800 sheep dosed with cobalt bullets.

"All these sheep were in good order and fat (in December, 1959). What was especially noticeable was the bloom on the wool. No matter how small the sheep, he was sound and fat, with the bloom of a stud sheep, no broken fleeces or shedded bits. The controls that survived were like scrags."

Looked at whichever way you like, this piece of altruism is not going to be beyond our means to bear.

We may have added, at the most, one million high-grade sheep to the world's numbers.

Girl of Many Parts

Miss Jane Gabriel, a member of the staff of the Division of Metrology, is making a name for herself in the Sydney theatrical world.

She is a Foundation Member of the Sydney Theatre Club, which recently acquired its own theatre in the inner suburb of Enmore.

The theatre has been redecorated by members of the group, largely under Miss Gabriel's direction.

The Club is using the open stage technique in its productions. The stage projects outwards into the audience, which sits on three sides of it. This necessitates a more exacting style of acting, but provides a more intimate atmosphere, as the audience is much closer to the stage.

Miss JANE GABRIEL

The Sydney Theatre Club is concentrating on producing unusual plays or plays which have been popular overseas but have not been produced in Australia.

Last month they produced Strindberg's "The Father" and Eugene O'Neill's "Desire under the Elms" alternately on Friday, Saturday, and Sunday nights.

Miss Gabriel took the part of Laura, the venomous-tongued wife who drives her husband insane, in "The Father". She also designed all the costumes for both plays, made many of them, and supervised the sets.

The Club's production of "Desire Under the Elms" has reached the finals of the Arts Council Drama Festival, which will be held this month.

Miss Gabriel began her theatrical career at the age of four, when she had her first stage part as the tail end of a mule in a Noah's Ark pageant.

Since then, she has taken a great interest in all aspects of theatre work, including acting, stage design, costume design, and choreography.

POST-SYMPOSIUM VISITORS

Three of the delegates to the recent I.U.P.A.C. Symposium on the Chemistry of Natural Products have stayed in Australia to spend some time with the Organic Chemistry Section, Chemical Research Laboratories.

Professor N. A. Sorensen and his wife are spending approximately eight months here.

Professor Sorensen is Professor of Organic Chemistry at the Norwegian Institute of Technology, Trondheim, where, during the past fifteen years, he and his wife have devoted most of their time to the study of polyacetylenic compounds occurring in the plant family of the Compositeae (daisies).

This work, which has been sponsored by the Norwegian Council of Science and Humanities, has led to the discovery of some thirty new compounds, and has indicated certain relationships between the occurrence of some types of acetylenic compounds and the taxonomy of this plant family.

Whilst in Melbourne, Professor and Mrs. Sorensen will work with Dr. P. C. Wailes, who, with Dr. H. H. Hatt (formerly Officer-in-Charge of the Organic Chemistry Section), has been working on somewhat related problems, namely the fatty acids in the Santalaceae and Olacaceae families.

The Compositeae family, of which there are about 850 endemic species in Australia, is divided into thirteen tribes, three of which are well represented in Australia, and the Norwegian visitors will concentrate on these three tribes, with the object of relating their botanical classification to their ability to produce acetylenes.

En route to Melbourne, Professor Sorensen and his wife visited some of the Northern Territory field stations of the Division of Land Research and Regional Survey, looking at the Compositeae of the areas.

Dr. Regina Schoental has obtained leave from the Medical Research Council of Great Britain, where she is a member of the Toxicology Research Unit, to spend about four months in Australia.

Dr. Schoental gained a Ph.D. at the University of Cracow, and in 1938 left Poland for Great Britain, where she worked in the Dunn School of Pathology at Oxford until 1946.

From Oxford she transferred to the Chemistry Department of the University of Glasgow, where she was awarded the degree of Doctor of Science for her work on carcinogenic hydrocarbons. After a year's study in America, Dr. Schoental returned to England in 1954 to join the Medical Research Council.

Whilst at Glasgow, Dr. Schoental developed an interest in the pyrrolizidine alkaloids and their possible relation to cancer and liver diseases in humans. Such diseases are particularly prevalent in parts of Africa and Asia where plants containing pyrrolizidines are commonly used for medicinal purposes.

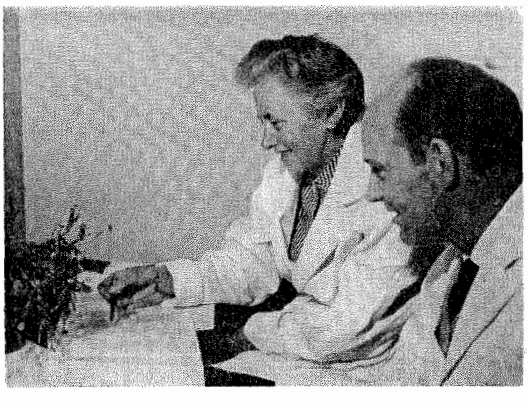
Dr. Schoental spent 14 days in Rhodesia on her way to Australia.

"I was privileged to talk to a witch doctor in Salisbury and was able to show him which plants to avoid," she said. "He recognized both species I showed him, one of which contained hepato-toxic alkaloids — toxic to the liver."

A considerable amount of work on these alkaloids has been done by a small group in the Organic Chemistry Section led by Dr. C. C. J. Culvenor, and during her stay in Australia Dr. Schoental will be working with Dr. Culvenor on the chemistry of the pyrrolizidines.

Dr. Regina Schoental

Professor and Mrs. Sorensen



Science in the Living Room

"Australian television's most popular man of science" is how the magazine "Woman's Day" described Dr. Alex Fraser in a full-page article last month. Dr. Fraser, a senior officer of the Division of Animal Genetics, is an enthusiastic part-time television producer, movie film maker, and "go-karter".

Television viewers in every state became acquainted with him through his "Science in Close-up" series on the A.B.C. channels.

Lately, his television work has been concentrated on two Sydney programmes — "Doorway to Knowledge", a sixty minute session on TCN-9 and "Junior Science", a quarter-hour session on ATN-7.

Dr. Fraser maintains a voluminous output of first-rate scientific work, as well as fitting in time for all his other activities.

He manages largely through the constant help of his wife, Anne, whom he met when she was secretary to his genetics professor at Edinburgh University.

"I don't know how I would be able to keep up with Alex if I hadn't been trained in a medical secretarial job," says Mrs. Fraser.

"I type all the scripts for his television programmes. He does them in such a rush it would be impossible to expect anyone else to read them.

"In producing TV programmes there isn't only the subject matter and the script to think of," Dr. Fraser told "Woman's Day". "Visuals, music and sound effects used properly can enormously increase the effect on the viewer.

"Most of the illustrations I use on TV I draw myself. I used 48 in 60 minutes on one session.

"I am convinced that television can be the most powerful medium of education ever invented. But to get the best possible results, you must put in the necessary effort.

"My big ambition is to take on a Western at a peak time and beat it for popularity.

"It will take a big budget, plenty of imagination and more experience, but I'm sure it can de done."

Dr. Fraser's interest in television started soon after TV first was introduced to Australia—largely due to his hobby of taking movie films.

He often uses short films of his own to illustrate points in his TV programmes and now, after years of taking silent movies, he is planning to do sound films.

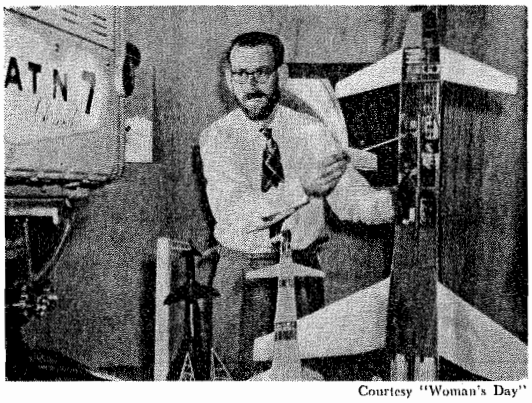
"Sound filming is much more involved and we are forming a group of enthusiasts to share the work and the expense," he told "Woman's Day".

Dr. Fraser and his family (he has six children) have another great interest of the moment — go-karting. Fascinated by his first look at the sport a few months ago, he could not rest until he had a go-kart of his own.

"We all had a wonderful time at first," said Mrs. Fraser. "Driving a go-kart is an exhilarating experience — you are so close to the ground that even at a fairly low speed you feel as though you are flying.

"But in the past couple of months the go-kart has been developing one trouble after another and at the moment it seems more bother and expense than it's worth."

Dr. Fraser with a model space ship and rockets which he used in one of his popular science programmes.



Courtesy "Woman's Day"

At the Division of Entomology, softball is the principal lunch-time recreation. Every lunch-time during the winter months a battle between the sexes takes place on the lawns at Black Mountain.

The male team, styled the "Old Buffers", consists largely of the Division's research officers. The female team, known simply as the "Girls", comprises anyone who fits that description.

The scene portrayed in our photograph, however, is not to be seen every day. The photo was taken at a special "dress-up" match which was held recently.

The "Girls" won on this occasion, beating the "Old Buffers" 23-17. They modestly declined to name any stars, claiming that they owed success to their good all-round strength.

The players include Dr. A. R. Gilby (catcher), Mr. T. "One-Eye" Martin (umpire), Miss Helen Anderson (facing camera), and Mr. J. Dowse (batting).

INSECT COLLECTION

A well-known authority on Australian bees, Mr. Tarlton Rayment, F.R.Z.S., last week handed over his valuable collection of Australian bees, wasps, thrips, and mites to C.S.I.R.O.

The insects and other minute animals will be added to the comprehensive collection of the Organization's Division of Entomology and will become part of the national insect collection.

Tarlton Rayment has studied bees for many years, and has described a large number of new species.

He has earned world-wide recognition as an authority in this group of insects, both for his work in classifying the Australian species and for his interesting studies on their biology.

His comprehensive monograph "A Cluster of Bees", which contains 750 pages and over 100 illustrations, is the standard work on Australian bees.

The original drawings are preserved in the Library of Cornell University, U.S.A. Mr. Rayment was awarded the Australian Natural History Medallion in 1952.

The Curator of the insect collection in the Division of Entomology, Dr. K. H. L. Key, said that Mr. Rayment's collection was a very important addition to the national collection.

It contains many type specimens which are of vital importance as the ultimate reference point when the identity of a specimen is in doubt.

The Division of Entomology has the responsibility of carrying out an increasing amount of work on insect systematics, for Australian entomolgy is seriously hampered by lack of means for recognizing many native insects.

Lacrosse Family

Expertness at the game of lacrosse seems to run in the family of Dean Daniel, Senior Clerk in the Division of Soils.

This year Dean was a member of the victorious South Australian lacrosse team which beat Victoria 15-10 in the annual match for the Symonds Cup.

In regular competition, he is Captain of the Brighton Club in the "A" grade competition.

Dean's father also played "A" grade lacrosse and represented South Australia in interstate matches on three occasions.

The family tradition is being carried on by young John Daniel, who has started his career with the Brighton "F" grade (under 12 years) team.

But John is departing from the tradition in one respect. He shows signs of becoming a prolific goal scorer, whereas his father and grandfather were back men.

Dean Daniel with two Stars of the future.

NEW APPOINTEES

Dr. P. J. Claringbold has joined the staff of the Division of Animal Genetics. He was previously senior lecturer in veterinary physiology in the University of Sydney. Dr. Claringbold is a member of the Society for Endocrinology and a Fellow of the Royal Statistical Society.

Mr. R. Cohen, a graduate in agricultural science from the University of Western Australia, has been appointed to the staff of the Division of Plant Industry. He will take part in a research programme concerned with biochemical aspects of the developing wheat grain.

Dr. D. D. Davies arrives in Sydney this week to take up the position of joint leader of the Division of Food Preservation's Plant Physiology Unit in the Department of Botany, University of Sydney.

In this position he succeeds Dr. R. N. Robertson, who vacated it to join the Executive. Dr. Davies, who before his appointment was a Reader in Botany at King's College, London, has previously worked at the Universities of Hull, Sheffield, Oxford, Wisconsin, and California.

Dr. D. E. Elrick has been appointed to a Research Fellowship in the Division of Plant Industry. A graduate of the Universities of Toronto and Wisconsin, he has lately been Assistant Professor in Soils Physics at the Ontario Agricultural College, Guelph, Canada.

Mr. K. A. Handrek has been appointed to the staff of the Division of Plant Industry, and will work with Dr. L. H. P. Jones at the School of Agriculture, University of Melbourne. Since graduating from Melbourne in 1958 he has been at the Research Laboratory of Associated Pulp and Paper Mills Ltd. at Burnie, Tasmania.

Mr. H. C. Haskew has joined the staff of the Irrigation Research Station at Merbein, but will not come to Australia for twelve months. A graduate of the Universities of Sydney and Wisconsin, he is undertaking a year's training in hydrology with the U.S. Bureau of Reclamation, Denver.

Mr. C. D. Kimpton has been appointed to a vacancy in the Secretariat at Head Office. Previously an officer of the Information Branch of the Victorian Department of Agriculture, he will assist Mr. P. F. Butler with administrative work related to the agricultural and biological sciences.

Mr. H. N. S. Schafer, who has joined the Division of Coal Research, was previously on the Organization's staff from 1951 until 1958. During the past two years he has been on the staff of the D.S.I.R. Chemical Services Division in Stevenage, England.

Dr. R. B. Symington arrives this week from the United Kingdom to join the staff of the Division of Animal Physiology at Prospect. He is a graduate of Cambridge, London, and the Imperial College of Tropical Agriculture. Since 1948 he has been working in Northern Rhodesia.

Changes of Name

Two names of long standing and familiarity have been changed by recent decisions of the Executive.

The Division of Food Preservation and Transport will be more simply known in future as the Division of Food Preservation.

The Regional Pastoral Laboratory at Armidale, N.S.W., will in future be called the Pastoral Research Laboratory, Armidale.

The change of name recognizes that the Laboratory's work will be of a national rather than regional character.

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CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 20, MELBOURNE, NOVEMBER 1960

FIELD DAY IN WESTERN AUSTRALIA

The "Glen Lossie" field station of the Division of Plant Industry, at Kojonup on the edge of the Western Australian sheep-wheat belt, stages a Visitors' Day every second year. Their latest was held in glorious spring weather on 20th September.

The high regard in which C.S.I.R.O. is held by the Western Australian farmer was shown by the roll-up of nearly one thousand people.

Dr. R. N. Robertson, in welcoming the visitors on behalf of C.S.I.R.O., said that the Organization was working not only to increase yields of wool and meat, but also to reduce farmers' costs of production and to stimulate a demand for wool through improvements in wool technology.

Dr. R. C. Rossiter, Officer in Charge of the Western Australian Regional Laboratory, set the pattern for the high standard of the addresses in both the opening and closing items for the day.

These pointed to the value of a grass new to the Westralian farmer — soft brome — and to the first evidence that varietal differences in subterranean clover may influence the growth of sheep grazed on them.

American strains of soft brome grass which have been popular for years in California could go a long way towards filling the need for a good annual grass in parts of Western Australia.

This was the impression gained on inspection of one experiment at the Field Day.

The trial aims to discover whether any of a number of American varieties is better adapted to Kojonup conditions than the rather late maturing local variety, and whether they can compete with ripgut brome (or spear grass) and keep it in check.

Mr. P. G. Ozanne told the visitors that it may pay to apply nitrogen to some old pastures which have been heavily top dressed with superphosphate over the years.

In the pastures he had examined, adding further super gave only small increases in growth, with the best responses from clover plots. But adding nitrogen fertilizer gave large increases in yield, Mr. Ozanne added.

Work at the field station is mainly concerned with pastures and their response under grazing by sheep, but in the last two or three years trials on rate of stocking and time of lambing have been added to the programme.

These trials are under the care of Mr. H. Lloyd Davies, who transferred from Canberra early last year. Wood yields per acre have been at least doubled by using five sheep per acre compared with a district average of less than two per acre.

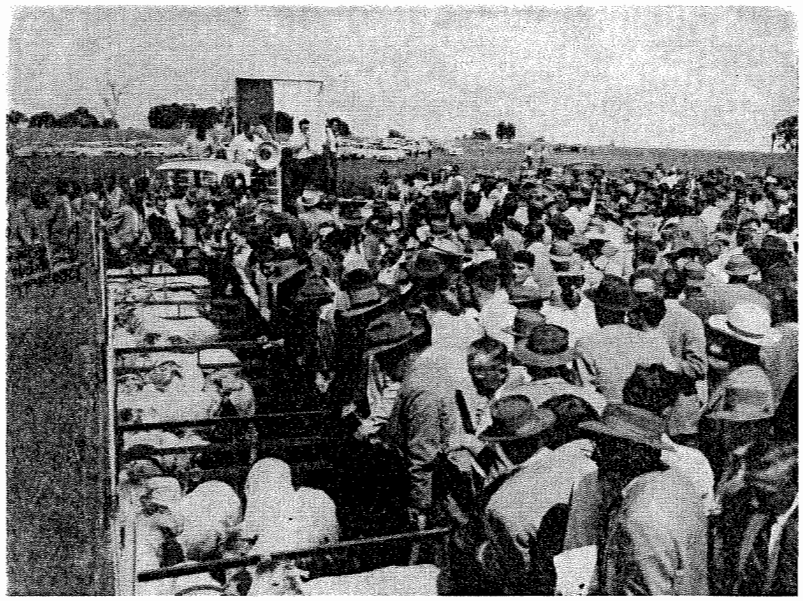
The trial combining rate of stocking and time of lambing has not been going long enough to give conclusive results, but results to date emphasize the need for careful management.

From the interest shown by the visitors in this type of investigation it is obvious that the Glen Lossie programme is fulfilling a pressing need.

Other subjects presented to the visitors included the effect of soil depth on growth of a perennial grass (Mr. A. W. Humphries) and the comparative effect of the return of organic matter to the soil either directly or through the grazing animal (Mr. E. R. Watson).

The Agricultural Research Liaison Section assisted in defining the programme for the day and provided a printed brochure summarizing the talks given. Of the thirty-one experiments in progress at Glen Lossie only seven were described during the day.

Several successful "field nights" followed the field day, the official occasion being the entertainment of C.S.I.R.O. visitors, including Dr. Robertson and Mr. Christian, by the Kojonup Road Board (the equivalent of an eastern state's Shire Council).



Courtesy W.A. Newspapers.

Visitors to Glen Lossie Field Day listening to a talk by Mr. E. R. Watson.

HONOURS

The Chairman, Dr. F. W. G. White, has been appointed a member of the Council of the Australian National University.

Dr. R. D. B. Fraser, of the Division of Protein Chemistry, has been awarded the D.Sc. degree of the University of London in recognition of his contributions to biophysics.

Dr. H. E. Dadswell, of the Division of Forest Products, has been appointed a member of the Forest Biology Committee of TAPPI, the Technical Association of the Pulp and Paper Industry of the U.S.A.

Library Distinction

Twenty-five year old Pat Cronshaw, of the Head Office Library staff, has been elected a Fellow of the Librarians' Association.

This is a high distinction in the library world, being shared by only about fifteen other people in Australia.

Mrs. J. CRONSHAW

Mrs. Cronshaw is the wife of Dr. J. Cronshaw, a Research Officer in the Division of Forest Products.

Before coming to Australia with her husband in 1957, she was on the staff of the Brotherton Library at the University of Leeds.

Director of Ceylon Institute Visits Us

Dr. A. Sundralingam, Director of the Ceylon Institute of Scientific and Industrial Research, is at present spending three weeks in Australia.

His visit was suggested by Lord Casey, who met him in Colombo last year. Lord Casey was at that time Minister in Charge of C.S.I.R.O., and Dr. Sundralingam had recently been appointed Director of the Ceylon Institute.

The Institute was founded in 1955 by an Act of Parliament, as one of two special institutions recommended by the World Bank to assist industrial growth — in this case by providing practical technology and know-how (the other being the Developmental Finance Corporation, to provide capital).

To get the C.I.S.I.R. started the Ceylon Government contributed an original £A500,000, while the World Bank and United Nations furnished organizational help and experienced direction for the first five years; equipment, overseas training and further technical assistance valued at several millions have been contributed by the U.K., Canada, U.S.A., and the Asia Foundation.

Courtesy "The Age"

Dr. A. SUNDRALINGAM

Dr. Sundralingam has already visited the Chemical Research Laboratories and the Divisions of Building Research and Forest Products.

This week he is visiting the National Standards Laboratory and the Division of Food Preservation.

Death of Dr. A. B. Edwards

Dr. Austin B. Edwards, Officer-in-Charge of the Mineragraphic Section, died suddenly in Rome. He was on a visit to Europe inspecting mines and centres of mineragraphic research.

Dr. Edwards joined C.S.I.R. in 1935 and became Officer-in-Charge of the Mineragraphic Section in 1953.

He was the recipient of many scientific honours and awards, including the David Syme Prize of the University of Melbourne (1937), and the Clarke Medal of the Royal Society of New South Wales (1960).

Dr. A. B. EDWARDS

He held the D.Sc. degree from the University of Melbourne.

Since 1955 he had been geological adviser to the State Electricity Commission of Victoria.

Dr. Edwards made many contributions to geological literature. His book entitled "Textures of Ore Minerals and their Significance" was widely known as an authoritative text.

He was a leading figure in the Australasian Institute of Mining and Metallurgy, having been a member of the council and the Institute's editor since 1953.

He was a member of the council of Caulfield Grammar School.

Dr. Edwards, who was aged 51, is survived by his wife, three daughters and a son.

r Glen Lossie S(com)

The Estimates, the Budget and the Debate

C.S.I.R.O. will have a total of £11,356,000 to spend this year for both capital and non-capital items. A total of £8,900,000 will come direct from the Treasury, of which £7,570,000 is for non-capital expenditure.

"In its Budget for this year", said the Federal Treasurer in August, "the Government aims to achieve a surplus of total receipts over total expenditures. To make this possible it is keeping expenditure commitments to a minimum . . ."

Treasury Funds

Within this policy framework, C.S.I.R.O. was given an increase of £798,000 (11.8% more than 1959/60) for non-capital items.

Total Departmental expenditure, excluding the Defence Services and business undertakings such as the Postmaster-General's Department, is estimated at £79,305,000, an increase of £6,623,000 (9.1%) on 1959/60 estimates.

Unavoidable salaries increases—principally increments and the additional cost of the 1959 margins adjustment—absorb £500,000 leaving £298,000 (4.4%) for expansion.

This sum has to cover increased running costs and other unavoidable commitments, with the result that virtually no Treasury funds are available for new projects. However, small extensions in existing projects have been possible in some instances.

Other Funds

Money from wool funds and other contributions has increased, and has permitted expansion in some fields.

The Executive sought and obtained from the Wool Research Committee an additional allocation of £227,000 for non-capital items. Inescapable salaries increases total £104,000, leaving £123,000 (an increase of 10%) for development of the wool research programme.

Non-capital funds contributed from other sources have increased by £95,000. Most of the increase is being provided by existing contributors to cover increased salaries and other running costs, and in some cases extensions, of current projects.

Capital Vote

A fairly substantial increase—£323,000, or 32%—occurred in the Treasury funds available for capital works.

Of the total Treasury sum available, £946,000 has been provided for buildings, an increase of nearly 42% on the amount provided for this purpose in 1959/60.

More than £800,000 of this money will be needed for works already under construction, including such major works as the Division of Food Preservation's laboratories at Ryde, the biochemistry and genetics laboratories for Plant Industry, Canberra, the Division of Soils laboratory at Adelaide, and extensions to the Griffith Research Station.

In view of the commitments on these projects no other really large building projects can be commenced during 1960/61.

Considerable expenditure will be incurred during 1960/61 on the radio telescope and the phytotron.

A total of £300,000 has been provided from Treasury funds for these purposes and in addition a further £138,000 will be spent on the telescope from the Radio Astronomy Trust, which comprises donations from the Carnegie Corporation and the Rockefeller Foundation, U.S.A., and from private donors in Australia.

Money from Wool funds for capital expenditure (£340,000 compared with £355,000 for 1959/60) will be spent on building, £225,000, and plant and developmental expenditure, £115,000.

The major building items are the laboratories at Parkville and Geelong for wool textile research.

The Debate

On Thursday, 6th October, the C.S.I.R.O. Estimates came before the House of Representatives. Members from both sides of the House discussed the Organization's agricultural research programme, but made little reference to industrial research.

There was little criticism of C.S.I.R.O., and the debate was uncontroversial, except that various Opposition members challenged Mr. Malcolm Fraser's comment that C.S.I.R.O. should not be spending the majority of the increased money available on the problems of the north.

On more than one occasion the debate was interrupted when the number of members in the House failed to make up the quorum.

Excerpts from Speeches

Mr. KING (Wimmera) — Research is one of the important matters which are affecting the wool industry's future. There have been many achievements on the commercial side, including the perfecting of the Si-ro-set, moth-proofing and shrink-proofing processes, chemical scouring, wool dyeing and the production of drip-dry shirts.

The overcoming of problems on the production side has not been quite so easy. I remind honorable members of the soil fertility tests that have been carried out from time to time and which have resulted in raising the carrying capacity of the land. Reference could also be made to weed control and the activities that have been undertaken in the field of animal health.

Fertility trials conducted by the C.S.I.R.O. have been of value to the sheep industry. One aspect of these trials is related to the effect of pastures on fertility. In a recent test conducted by the organization something like 19 per cent. of the ewes tested failed to lamb, and the cause of this failure was traced to certain clovers on which the sheep were grazing.

I have no doubt that if it were not for the experiments carried out by the C.S.I.R.O. graziers would suffer greater losses and, generally speaking, the graziers are very satisfied with the progress that the C.S.I.R.O. is making with its experiments.

Mr. R. S. KING

It has conducted tests to combat internal parasites commonly known as worms. Experiments have been conducted also in the control of fluke. There have been tests in the use of cobalt pellets and various trace elements. All these experiments have been beneficial to the sheep industry.

Mr. DAVIES (Braddon) — Mr. Chairman, in speaking on the estimates for the Commonwealth Scientific and Industrial Research Organization I desire, first, to compliment the organization on the great work that it is doing in many directions in this country.

Only last evening, honorable members were privileged to see a film screened in another part of the building which showed the work being done in preventing evaporation from dams and reservoirs by the use of cetyl alcohol. The success of this experiment could lead to conservation of millions of gallons of water that is urgently required in the drier parts of Australia.

I applaud the work that has been done in finding suitable trace elements to correct various soil deficiencies. As far as Tasmania is concerned, I am particularly pleased with the work that is being done to correct cobalt deficiences in soil. A deficiency of cobalt in the soil causes wasting disease in cattle and sheep, and efforts to correct the deficiency in the soil by sheep-farmers on King Island have led to tremendous benefits.

Steps are also being taken to correct boron deficiency in soil which causes a "breakdown" in apples and swede turnips.

I remind the Minister that I referred to his predecessor the problem of the control of pith rush—a matter which concerns many primary producers in marginal areas in Tasmania, and especially on King Island.

Mr. MALCOLM FRASER (Wannon) — I should like to see more funds available to the C.S.I.R.O. I believe that a modest annual increase in the funds made available to the C.S.I.R.O. would bring untold benefit to our primary industries.

Mr. J. M. FRASER

The results of the extra work that the additional funds would make possible would enable those industries to reduce their costs and so be able to compete more actively in the world markets. That is most important at the present time, when our primary industries are facing difficulty in the export markets.

I think it is true to say that most of the additional money which has been made available to the organization has been spent on tackling research into the problems of the north. I believe that that is wrong.

I do not regret the work that has been done in respect of the north, but I say that as the C.S.I.R.O. is covering a larger field the funds made available to it should be increased at a greater rate so that the volume of work being done on southern problems will not be reduced.

Mr. JEFF BATE (Macarthur) — The Government is already taking the fullest advantage of the efforts of the C.S.I.R.O. I think it can be claimed that more work has been done and more precise information obtained at the Kimberley Research Station in northern Australia than in any other part of Australia or any other country in the world. The information obtained there is being used speedily.

Only last night our national development committee listened for two hours to Mr. C. S. Christian, the late head of the Land Research Section of the C.S.I.R.O. and now a member of the Executive of that body. Mr. Christian told us that there is a tremendous amount of research to be undertaken.

He said that a man with a farm on the Katherine, with 300 acres of peanuts, 200 acres of improved pasture and 1,000 acres of rough pasture to carry the cattle through the wet season, could, provided that conditions were sound, hope to get a yield of £5,000, £6,000, or as much as £10,000 a year from something over £20,000 of capital.

Mr. LUCHETTI (Macquarie)— It is true that valuable work has been done. I should like to join with other members who have paid a tribute to the various organizations that have played their part. I have in mind, for instance, public spirited men associated with the Commonwealth Scientific and Industrial Research Organization, including the late Sir Ian Clunies Ross, and Mr. Christian, who, the honorable member for Macarthur (Mr. Jeff Bate) has told us, addressed a committee of members of the Government parties for about an hour.

Mr. Christian has rendered outstanding service in making soil surveys in the north of Australia. All the people who are deeply interested in these matters should be encouraged to keep on with the work.

Mr. MURRAY (Herbert) — One of the most important things that we need in northern Australia is more research by the Commonwealth Scientific and Industrial Research Organization.

Again, it is easy for some one in this place to say that we should do this and that, but I earnestly suggest to the Minister for Health (Dr. Donald Cameron), who is Minister in Charge of the Commonwealth Scientific and Industrial Research Organization, that we need much more research by the Organization on plants and animals.

I understand that the Organization will be taking on more than 100 new research workers in the near future and that nearly all of them will be engaged on projects in the southern parts of Australia.

We in northern Australia are starved for research and extension work. Many graziers and pastoralists are looking for guidance, but they cannot get it and cannot proceed with their plans.

The Cunningham Laboratory should be expanded so that field experiments may be undertaken in the wet tropics, the dry tropics and the hinterland behind.

Dr. DONALD CAMERON (Oxley)—As honorable gentlemen will know, the Commonwealth Scientific and Industrial Research Organization is conducting research on the Ord River, at Katherine, at Alice Springs—which I suppose is in the centre rather than in the north, but it comes within the general ambit of this debate—and in other places.

Mr. R. DAVIES

Last year, the expenditure of the C.S.I.R.O. was £9,500,000, which is not inconsiderable. Also, honorable gentlemen must not overlook the fact that in the north-west of Australia, under the Western Australia northern development grant the Commonwealth Government is finding £5,000,000 from 1st July, 1958, for development north of the twentieth parallel.

If it were not for this, the scheme of development which is now taking place on the Ord River would not be taking place at all. That is a development scheme of considerable magnitude, though it is only in its early stages.

Funds available to C.S.I.R.O. for 1960/61
(Budget figures)

	Non-capital £	Capital £	Total £
Treasury funds	7,570,000	1,330,000	8,900,000
Wool funds	1,445,000	340,000	1,785,000
Contributions	528,400	143,100	671,500
Total	£9,543,400	£1,813,100	£11,356,500

Funds available to C.S.I.R.O. for 1959/60

	Non-capital £	Capital £	Total £
Treasury funds	6,772,000	1,007,000	7,779,000
Wool funds	1,218,000	355,000	1,573,000
Contributions	432,500	65,000	497,500
Total	£8,422,500	£1,427,000	£9,849,500

Increased funds for 1960/61 compared with 1959/60

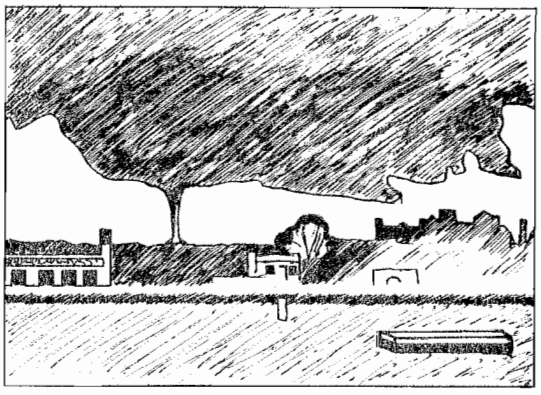
	Non-capital £	Capital £	Total £
Treasury funds	798,000	323,000	1,121,000
Wool funds	227,000	— 15,000	212,000
Contributions	95,900	78,100	174,000
Total	£1,120,900	£386,100	£1,507,000

STAFF NUMBERS
(Figures at 30th June, 1960)

Research	883
Experimental	504
Technical	1,247
Clerical	682
Workshop	402
Ancillary	494
Total	4,212

AMATEUR PHOTOGRAPHERS WANTED

The Division of Meteorological Physics at Aspendale, near Melbourne, is interested in obtaining during this summer photographs of thunderstorm cloud formations typical of situations in which tornadic windstorms occur.



The sketch shown is an example of such a formation, the most characteristic feature of which is the extreme darkness of the cloud and its squarish shape. It is not unusual for two such clouds to persist in close proximity.

In the sketch the pendant tornado cloud itself is just visible in the upper part of the "trunk" extending from cloud base to the ground, but the narrow funnel (a cylindric wall consisting of condensed water vapour) is obscured by dust and debris whirling around it, as is often the case.

The meteorologists at Aspendale are equally interested in photos of cloud systems resembling the tornado parent cloud formation.

One necessary condition, that the phenomenon spotted by an observer is of this type, is the occurrence of thunderstorms (frequently accompanied by hail), in the vicinity.

Readers are asked to send in relevant photos with information on location, date and time of occurrence; and on the local weather conditions at the time.

Good sketches might also prove useful. Photos of value to the research project may be purchased by the Division.

OVERSEAS VISITS

Mr. R. V. Dunkle, of the Engineering Section, leaves this month for America. He has been invited by the American Society of Mechanical Engineers to present a paper at a Heat Transfer Symposium in New York at the end of the month. He will visit research institutions in India and Israel on his way to America.

Dr. W. G. Murrell, of the Division of Food Preservation, left last month for America, where he will study at the Universities of Illinois and Wisconsin. He will also present a paper to a symposium organized by the Society of General Microbiology in London next April before returning home.

Mr. P. J. Sim, of the Division of Metrology, left last month for the United Kingdom where he will spend two months each at the National Physical Laboratory and the National Engineering Laboratory. Before returning home in April, he will visit the Institute for Research of Machine Tools and Metal Cutting at Prague, Czechoslovakia.

Dr. P. Squires, of the Division of Radiophysics, returned last month from a fortnight's visit to America. He had been invited by the University of Nevada for discussions concerning the establishment by the University of a Desert Research Institute.

Communications Increased a Thousandfold — and at Only a Fifth of the Cost

Placing in orbit of radio wave-reflectors could enable previously unused micro-waves to carry "a thousand times more international communications than the present submarine cables at about one-fifth the cost", Professor L. G. H. Huxley said last month.

Professor Huxley, now Vice-Chancellor of the Australian National University, recently resigned from the C.S.I.R.O. Executive.

He was referring to discussions at the recent London conference of the International Union of Radio Science, which elected him chairman of its Space Radio Research Committee.

This will involve Professor Huxley's arranging within about a year an international symposium to consider allocation of the new radio communications frequencies and other problems associated with the advances.

Professor Huxley said that space aids proposed included a U.S. project to release at about a 3,000 mile altitude about 1 m. needles, each a quarter of an inch long, to whirl around the earth indefinitely forming an "artificial ionosphere".

This would reflect back to earth, for international communications use, radio microwaves which otherwise would "shoot off uselessly into space".

Unlike the natural ionosphere — extending through altitudes from forty to some hundreds of miles above the earth — the radio-reflecting ability of the "artificial ionosphere" would be unaffected by the sun.

Building Research Meeting in Sydney

At the end of September a conference of representatives of all the Commonwealth organizations concerned with research on building was held at North Ryde, N.S.W.

These included the Commonwealth Experimental Building Station and the Building Research Liaison Service of the Department of Works, the Industrial Services Division of the Department of Labour and National Service, the Defence Standards Laboratories and the Division of Forest Products, Soil Mechanics Section, Chemical Research Laboratories and the Division of Building Research of C.S.I.R.O.

Discussions covered a wide range of topics in three broad groups — materials and construction, foundations and structures, and architectural physics.

The Conference proved valuable, not only for the interchange of ideas but also for the liaison it provided between the various laboratories. It is proposed that similar conferences should be held regularly at two-year intervals.

American Visitor

Dr. Marvin Carmack, a Fulbright Fellow working at the Chemical Research Laboratories, is on leave from the University of Indiana where he is Professor of Chemistry.

A Ph.D. graduate in organic chemistry from Michigan University, he did post-doctoral research at the University of Illinois.

In 1949 Professor Carmack was awarded a Guggenheim Foundation Fellowship to attend the International Congress of Pure and Applied Chemistry in Zurich.

While in Switzerland he spent nine months doing research on alkaloids at the Swiss Federal Institute of Technology.

While in Australia, Professor Carmack is working with Dr. J. R. Price in the Organic Chemistry Section, doing research on structure problems.

Dr. M. CARMACK

RHEOLOGICAL SOCIETY FORMED

The inaugural meeting of the Victorian Branch of the British Society of Rheology will be held on Wednesday, 30th November, at 6 p.m., at the Division of Forest Products.

The meeting will be addressed by Professor R. C. L. Bosworth, President of the New South Wales branch.

TECHNICAL ASSOCIATION NEWS

This month we publish the first of a series of articles about the careers of members of our Association. We have chosen for our first subject Mr. Fred Hamilton, who is a Senior Technical Officer Grade II in charge of the McMaster Annexe in the Division of Animal Health in Sydney.

In 1928 Mr. Hamilton started at the University of Sydney, working as a laboratory assistant to a group of scientists which included the late Sir Ian Clunies Ross, Dr. Kauzal and Mr. Norman Graham.

In March, 1931, he joined the staff of C.S.I.R., working with laboratory animals, including sheep. During the years 1931-46 the sheep population under his care rose from 70 to over 500.

In 1938 he gained a Diploma of Wool Classing at Sydney Technical College. He was directly concerned in the design and planning of the Annexe to the McMaster Laboratory, including the surgery, the sheep unit pens, and the parasite laboratories.

He was reclassified from Assistant Grade II to Technical Officer (Old) in 1945, when he took charge of the newly completed Annexe. His work was then divided between developing surgical techniques for use with sheep, and with internal and external parasites.

In 1955 his interests spread to the Division's property of 160 acres at Badgerys Creek, New South Wales, where worm free lambs are raised for further studies.

Mr. Hamilton was reclassified from Technical Officer to Senior Technical Officer in 1956, and to Senior Technical Officer Grade II in 1958, after the introduction of a reclassification scheme.

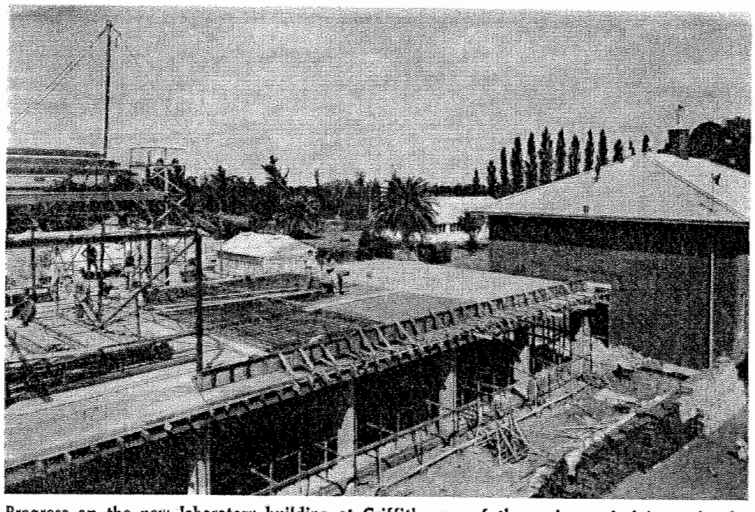
At the moment he is involved in redesigning the Annexe for further additions. He is the author of four papers on surgical techniques which have been published in the Australian Veterinary Journal and the Australian Journal of Agricultural Research. Another three papers are being prepared for publication.

He has rendered assistance to a number of medical men in their studies on heart surgery and the use of the heart-lung machine. Much of this assistance was carried out in the Annexe surgery.

In 1959 Mr. Hamilton was granted leave of absence to accompany and supervise the feeding and care of two shipments of sheep (51,000) to San Diego, U.S.A.

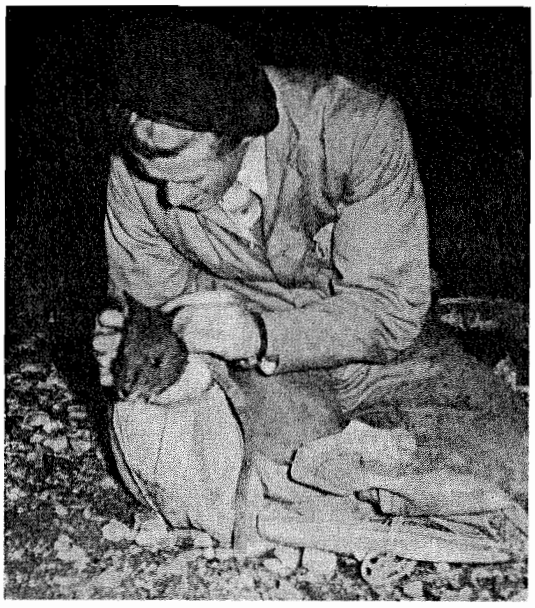
Data were collected on the behaviour of sheep on board ship, their food intake, body and environmental temperatures, and respiratory rates. A number of talks on this subject and the data obtained have been given to various veterinary and scientific groups.

Mr. Hamilton's career shows in a striking way how it is possible to rise from the lowest classification of assistant to the Senior Technical Officer range.



Progress on the new laboratory building at Griffith, one of the major capital items in the 1960-61 estimates.

Tie Me Kangaroo Down, Sport



In Tasmania, meanwhile, officers of the Wildlife Survey Section are, in fact, tying kangaroos down. Our photograph shows Mr. T. O. Wolfe fitting a collar to a Bennetts wallaby. The wallaby is constrained in a straight jacket while being fitted with his collar and reflective ear-tag, which allows him to be identified at night, after his release.

According to a recent "Financial Times" article, experiments have revealed that a rice paddy field "excited" by music produces from 22 to 58 per cent. more rice.

Dr. Punjabrao Deshmukh, India's Agriculture Minister, told a questioner in the Lower House that experiments in Pondicherry, South India, had shown that "musical excitation is effective in enhancing the percentage" of the rice yield.

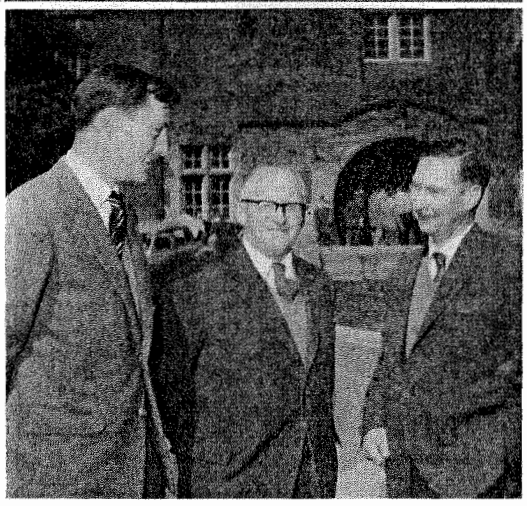
The technique involves broadcasting soft music to standing crops from strategically located loudspeakers.

The Coastal Plains Research Station were moved to express themselves in verse:

Dig me more of that Jazz, Rao,
Make me panicles* jive,
Cool is the sound of the paddies.
As we grow up to world record size.
All together now—
Tie me panicles down, sport,
Give me tillers** a boost,
Geese ain't such dangerous beasts, East,
We just sing 'em to sleep as they roost.

* Panicle — a branch bearing flowers.
** Tiller — a branch from the base of a stem.

SOIL MECHANICS CONFERENCE



Mr. A. A. B. Williams (left), Dr. L. F. Cooling, and Dr. G. D. Aitchison (right).

The Third Australia-New Zealand Conference on Soil Mechanics and Foundation Engineering was held in Sydney at the end of August.

The Conference, which was the first to be held since Australasia was accorded regional status in the International Society of Soil Mechanics and Foundation Engineering, was attended by approximately 160 delegates from all parts of Australia and New Zealand, as well as by a small number of overseas visitors.

A feature of this Conference, from the C.S.I.R.O. viewpoint, was the fact that it brought together for the first time the officers responsible for soil mechanics research — at C.S.I.R.O. level — four of the principal countries of the Commonwealth.

Dr. L. F. Cooling, who is in charge of the Physics, Chemistry and Soil Mechanics Divisions of the Building Research Station, D.S.I.R.O., England, came to attend the Conference and to visit research establishments throughout Australia and New Zealand.

Mr. A. A. B. Williams, who is in charge of the Soil Mechanics Section of the Road Research Laboratory, C.S.I.R., South Africa, visited Australia for a brief five weeks tour as the first stage of a round-the-world journey.

Mr. K. S. Birrell, who is in charge of the Soil Physics and Mechanics Section of the Soil Bureau, D.S.I.R., New Zealand, came to participate in the Conference and to become acquainted with some of the soil problems of this country.

Australia was represented by Dr. G. D. Aitchison who, as Vice-President of the International Society of Soil Mechanics and Foundation Engineering, was Chairman of the Conference.

After the Conference an extensive tour of Central Queensland was undertaken to provide an opportunity for a realistic appreciation of the comparative features of soils and soil environments affecting the engineering performances of structures — roads and buildings — in the various countries.

Dairy Scientist from New Zealand

Dr. F. H. McDowall, O.B.E., D.Sc., Chief Chemist of the Dairy Research Institute, New Zealand, visited the Dairy Research Section for several days during October.

The New Zealand Institute and the Dairy Research Section of C.S.I.R.O. are both engaged in research into the problems of dairy manufacturing.

In recent years, however, there have developed changes in the approach of the two groups to the task.

The Institute has acquired particular strength in the chemical engineering field and in some of the more applied aspects of research. In Australia recent emphasis has developed in flavour chemistry and the chemistry of milk proteins.

The prospects of increasing the liaison between the Institute and the Section, particularly to take mutual advantage of the specialized phases of the work, have been under consideration recently.

Dr. McDowall's visit was primarily concerned with the possibilities of liaison on a research project involving the flavour chemistry group of the Section and the Chemistry and Chemical Engineering Departments of the Institute.

Dr. McDowall and his co-workers had examined the theoretical and practical requirements of the steam distillation of cream under vacuum — a normal method of treatment for cream used in making butter.

It is hoped to extend this work through study of the actual tainting substances in the cream.

Dr. F. H. McDowall is very well known in the field of dairy science. He is the author of "The Buttermakers' Manual", a comprehensive 1600 page textbook in two volumes covering all phases of the butter industry.

Dr. McDowall (right) discussing the use of an infra-red recording spectrophotometer with Mr. D. A. Forss (left) and Mr. G. Loftus Hills, Officer-in-Charge of the Dairy Research Section.

Fulbright Travel Grants

The United States Educational Foundation announces that, under the provisions of the Fulbright Act, travel grants are available to Australian citizens to go to the United States for study, research or lecturing at American universities and other institutions of higher learning during 1961-62.

All travel grants cover the cost of direct travel between the candidate's home in Australia and the institution he wishes to attend in the United States.

Further information and application forms may be obtained from the United States Educational Foundations, Box 89, G.P.O., Canberra, A.C.T.

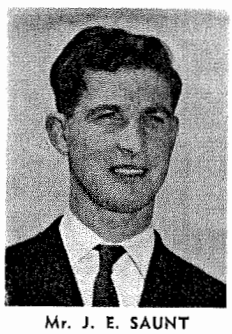
NEW APPOINTEES

Mr. D. J. Close, has joined the Engineering Section to work on the development of solar water heaters. Since graduating with honours in engineering from the University of Tasmania he has been working in that University for the degree of Master of Engineering Science.

Dr. K. O. Godwin has joined the staff of the Division of Biochemistry and General Nutrition. Since taking his Ph.D. at the London School of Hygiene and Tropical Medicine he has been with the Medical Research Council's Human Nutrition Research Unit. He spent a year in America under an Exchange Visitor Programme as an Assistant Professor in Anatomy at the College of Medicine, State University of New York.

Mr. T. J. Pless, a graduate in engineering from the Cracow Polytechnic, has joined the staff of the Division of Coal Research, where he will work on the microscopy of coals and cokes. Mr. Pless came out to Australia from Poland last year, and has been on the staff of the Bureau of Mineral Resources.

Mr. J. E. Saunt, a graduate of the Universities of Nottingham and Leeds has joined the staff of the Irrigation Research Station, Griffith. He will take part in the lay-out of crop experiments and studies of the propagation and production of fruit, vegetables, and pastures.



Mr. J. E. SAUNT

Wood Chemist from Japan

Dr. Masao Hasegawa, of the Government Forest Experiment Station, Tokyo, Japan, is spending nine months with the Division of Forest Products.

Dr. Hasegawa, who holds the degree of Doctor of Science of the Tokyo University, is well known for his studies on the wood extractives of Japanese trees, in particular those belonging to the Prunus species.

More recently he has investigated the biosynthesis of wood extractives and lignin using labelled compounds.

During his stay at the Division he will collaborate with Mr. W. E. Hillis in studies concerned with biochemical aspects of the sapwood-heartwood transformation and the origin of heartwood extractives.

Mr. M. HASEGAWA

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CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 21, MELBOURNE, DECEMBER 1960

U.S. AIR FORCE TESTED THEORY OF RAINMAKING

An Australian scientific theory on how rain is formed has gained strong support from scientific measurements made by the American U-2 flights during the last few weeks.

Rainmaking research has shown that clouds are likely to form rain when there are large numbers of tiny, solid particles in the atmosphere of the clouds. Each one of these particles becomes a nucleus for the formation of ice crystals which subsequently melt and become raindrops.

One unsolved mystery is the origin of the host of tiny particles which are found from time to time in the upper atmosphere. They may be dust particles thrown up from the ground.

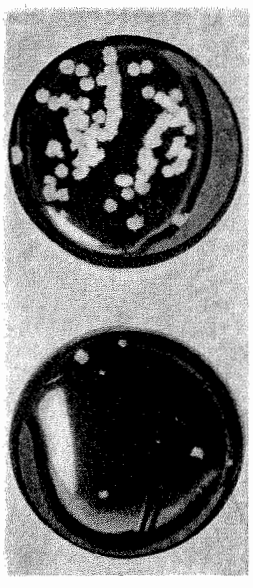
But Dr. E. G. Bowen, Chief of the Division of Radiophysics, believes that they may originate from meteor showers which fall into the earth's atmosphere from outer space.

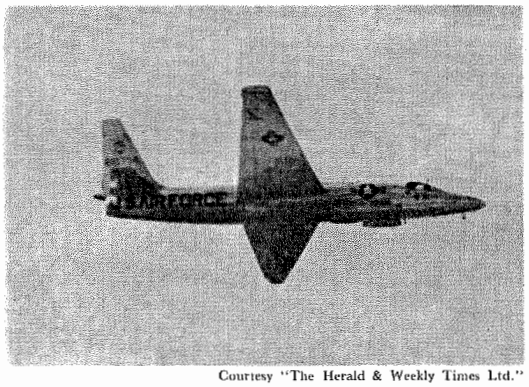
One test of their origin is to measure their number at greater and greater heights.

If they come from the ground they will decrease sharply in number as the height increases, and very few will be found at heights above thirty or thirty-five thousand feet.

If they are coming from outside the atmosphere, however, there should be just as many at great heights as low down.

Freezing nuclei detected at 60,000 feet during U-2 flights in Australia. A pair of filters was carried on each flight, one being exposed to the air stream, and the other not. At the end of each flight, the filters were "developed" at a temperature of —15°C. Ice crystals grew on the nuclei collected on the exposed filters (top) none or very few on the filters which had not been exposed (bottom).





Courtesy "The Herald & Weekly Times Ltd."

One of the high-flying U-2 aircraft which recently visited Australia.

The arrival of the high flying U-2 planes in Australia provided a unique opportunity to test the meteor theory.

Lieut-Colonel McCaslin and the U.S. Air Force were prepared to give C.S.I.R.O. the utmost help and co-operation.

They willingly allowed the planes to be fitted with special dust-collecting filters, designed by Dr. Keith Bigg of the Division of Radiophysics.

The Department of Air made all the necessary local arrangements for the flights and another Radiophysics officer, Mr. K. J. Heffernan, went down to Sale to take charge of the experiment.

The U-2 flights have shown that considerable numbers of these particles exist up to heights above sixty thousand feet. This lends a great deal of support to the suggestion that they are coming into the atmosphere from outer space.

To test the theory further, it is hoped to make measurements up to one hundred thousand feet, probably by means of balloons, and to try to obtain the chemical identification of the particles.

In this way their nature and origin are gradually being revealed.

When the story is complete, the information will be of vital importance in our understanding of the weather and in the forecasting of rain.

Royal Society Medal for Dr. J. L. Pawsey

Dr. J. L. Pawsey, Assistant Chief of the Division of Radiophysics, has won one of the world's premier scientific awards.

This is the Hughes Medal, awarded annually by the Royal Society of London for original discovery in the physical sciences.

Dr. Pawsey won the medal for his distinguished contributions to the science of radio astronomy.

Members of Dr. Pawsey's radio astronomy group have been eagerly sought by other laboratories in the U.S.A. and other countries, and former members of his team now occupy professorial positions at Stanford University (U.S.A.), the California Institute of Technology, and the University of Sydney.

Dr. Pawsey is the third eminent Australian scientist to have won this medal in the last twenty years.

Dr. J. L. PAWSEY

It was awarded to Sir Mark Oliphant in 1943, and to Sir Harrie Massey (now Quain Professor of Physics at the University of London) in 1955.

PERSONAL

Mr. K. G. Tiller, of the Division of Soils, has been elected to the honorary geological fraternity, Sigma Gamma Epsilon. He has been studying under a Rockefeller Award at Cornell University for the past two years, and will return to Australia next April.

Mr. R. F. Turnbull, of the Division of Forest Products, has been appointed Deputy Chairman of the Timber Industry Standards Committee.

Dr. H. E. Dadswell Appointed Chief, Forest Products

Dr. H. E. Dadswell has been appointed to the position of Chief of the Division of Forest Products. He succeeds Mr. S. A. Clarke who retired in August.

Dr. Dadswell, who has been with the Division since its inception, was previously Assistant Chief and Officer-in-Charge of the Wood and Fibre Structure Section.

Dr. Dadswell has had a long and distinguished career in the field of wood chemistry and wood structure.

In 1926 he was selected as one of the first C.S.I.R. Overseas Research Students, and spent just over two years at the U.S. Forest Products Laboratory at Madison, Wisconsin.

On return to Australia he commenced investigations into the chemistry of Australian timbers, and in 1931 was appointed Officer-in-Charge of wood structure investigations at the Division.

Dr. Dadswell, who obtained his B.Sc. degree in 1925 and M.Sc. in 1927 from the University of Sydney, was awarded the D.Sc. degree in 1941 by the University of Melbourne for a thesis and published work on "Structure, Identification and Properties of Australian Timbers". He has published over ninety papers on this subject.

In addition to spending a period of study in U.S.A. and Great Britain in 1935, Dr. Dadswell has been overseas on a number of other occasions.

In 1955 he was invited to be the Walker-Ames Professor of Forestry for the Winter Term at the University of Washington, Seattle, U.S.A., and, also by invitation, was a Guest Lecturer at the Special Field Institute in Forest Biology, North Carolina State College, Raleigh, N.C., U.S.A., in 1960.

He was an Australian delegate at the International Botanical Congress in Amsterdam in 1935 and again in Paris in 1954; at the Fifth British Empire Forestry Congress in London in 1947; the Seventh British Commonwealth Forestry Congress in Australia and New Zealand in 1957, and the Fifth World Forestry Congress at Seattle, U.S.A., in 1960.

Dr. H. E. DADSWELL

Dr. Dadswell has taken a prominent part in a number of learned and technical societies, and has served as an office-bearer in most of these.

He has been a member of the Council of the International Association of Wood Anatomists since 1935, a member of the Council of the Royal Australian Chemical Institute since 1943, and was a foundation member of the Australian Pulp and Paper Industry Technical Association.

He is also a member of the Council of the National Association of Testing Authorities and an honorary member of the International Society of Wood Collectors.

Although his main interests have always been in the field of fundamental research, Dr. Dadswell has also taken an active interest in the applied work of the Division, both in an administrative and advisory capacity, and is keenly aware of the needs of industry.

University Appointments

Three C.S.I.R.O. officers have recently resigned from the Organization to take up university appointments in Melbourne.

Mr. E. H. M. Ealey, of the Wildlife Survey Section has accepted an appointment as senior lecturer under Professor A. J. Marshall in the Department of Biology at Monash University. Mr. Ealey, who joined the Section in 1953, had been studying the biology and control of kangaroos and euros in Western Australia.

Dr. K. S. Rowan, who has been on the staff of the Division of Food Preservation since 1953, has resigned. As a member of the Division's plant physiology unit he has been stationed in the Botany Department of the University of Melbourne. On his resignation he will become a senior lecturer in that Department.

Dr. W. Strauss has joined the staff of the Chemical Engineering Department of the University of Melbourne, of which he is a graduate. After graduation he held a C.S.I.R.O. studentship and worked under the direction of Dr. S. D. Hamann, who was then Officer-in-Charge of the High Pressure Laboratory of the Division of Physical Chemistry.

Dr. Strauss was on the staff of the Ian Clunies Ross laboratory at Prospect during 1955-56, but resigned in order to take up a Fellowship at the University of Sheffield, where he worked for his Ph.D. degree. For the last two years he has been on the staff of the Chemical Engineering Section, Chemical Research Laboratories.

NEW HOME FOR PUBLISHING SECTION

The Publishing Section at Head Office has moved into spacious new quarters at Rokeby Street, Collingwood, within a mile of Head Office. Their new building is a three-storey brick structure which has been remodelled to provide all the necessary dark-room and publishing facilities.

The photograph shows some of the female drawing, collating and despatch staff in their new surroundings.

OVERSEAS VISITS

Dr. G. W. Grigg, of the Division of Animal Genetics, has left recently for America where he will spend six months at the University of Columbia, New York. He will then move on to the United Kingdom, where he will work at the Molecular Biology Laboratory at Cambridge. Dr. Grigg hopes to attend the Fifth International Congress of Biochemistry in Moscow next year.

Mr. I. C. McIlroy, of the Division of Meteorological Physics, left last month on a visit to Egypt, the United Kingdom, Holland, Israel, Pakistan, and India.

In Cairo he acted as Director of a Regional Training Course in Micro-climatology held under the auspices of UNESCO. In Israel, he has been invited to visit the Israel Atomic Energy Commission and the Department of Meteorology at the University of Jerusalem.

Mr. J. P. Robins, of the Division of Fisheries and Oceanography, left recently to take up a twelve months' Fellowship in Japan. He will study tuna fishing at the Nankai Regional Fisheries Research Laboratory.

"Oh, you're a scientist! I've always wanted to meet a genuine fathead."

With grateful acknowledgement to the "Saturday Evening Post"

Gold Medal For Dairy Research

Mr. J. Czulak, of the Dairy Research Section, has been awarded the 1960 Gold Medal of the Australian Society of Dairy Technology. This award is given annually to the person who the Society considers has given the most meritorious service to the Australian dairy industry during the preceding ten years.

Mr. Czulak came to Australia in 1951 to undertake research into bacteriological problems of cheese manufacture. At that time, the industry was suffering from failures in the bacterial "starters" used in the initial stages of cheesemaking.

Czulak confirmed that the trouble was due to bacteriophage organisms which attacked the souring bacteria.

He then worked out the bacteriophage relationships of the different strains of bacteria in use, and introduced a "rotation" system of using different bacterial cultures which largely overcame the problem.

He then organized the manufacture of freeze-dried bacterial cultures within the Dairy Research Section for distribution to the cheese industry.

At the present time about 10,000 ampoules of freeze-dried bacteria are distributed to the industry each year.

In more recent years Mr. Czulak has turned his attention to the mechanization of cheesemaking.

After analyzing the operations involved he designed two machines which, between them, carry out nearly all the many manual operations in cheesemaking.

One of these machines is already in commercial production, and the first of them is in use at the Kraft Cheese Factory at Allansford, Victoria.

This is the second time the Society has honoured Mr. Czulak. He was awarded its Silver Medal in 1955 for the best paper published in that year in the Australian Journal of Dairy Technology.

Mr. J. CZULAK

£15,000 Per Annum Grant for Coal Research

The State Electricity Commission of Victoria will contribute £15,000 per annum for three years to support research into brown coal by Division of Coal Research.

In recognition of the Division's work in this field already done, the Commission has donated £5,000 to the Division for the purchase of equipment.

There will be a review of progress after the three years have expired.

The Division will investigate some of the problems which are encountered in burning brown coal from the deposits at Morwell, Victoria.

In particular, a study will be made of the deposits which occur on heating surfaces and furnace walls when this brown coal is used in power stations. The Division hopes to find out why these deposits occur and how they can be prevented.

A second project is the study of the briquetting of this coal. Certain difficulties are encountered in making briquettes from the Morwell deposits, and the Division will investigate possible methods of pre-treating the coal prior to briquetting.

It is expected that appointments of extra scientific staff to undertake this work will be made in the near future.

TECHNICAL ASSOCIATION NEWS

During the past few weeks preliminary arrangements have been initiated for the Central Council of the Association to be transferred to Melbourne.

This will enable the present Council members to have a well-earned rest after their efforts of the last two years.

These efforts have resulted in the Association reaching the peak of its existence with State branches in New South Wales, Victoria, South Australia, and the Australian Capital Territory, and representatives in Western Australia, Queensland, Tasmania, and the Northern Territory.

Administration problems will probably always exist because of the remoteness of many of the localities in which our members are stationed.

The transfer has been made possible by the sterling work of the Committee and Members of the Victorian Branch, ably directed by John Little (Chairman), Harry Heath (Secretary), and Ean McArthur (Treasurer). The advice and support of past Council members is assured and we know that the New South Wales and Victorian Branches are prepared to assume major responsibilities.

The smaller Branches in South Australia and the Australian Capital Territory could, however, well afford to have much more support from eligible members. The Australian Capital Territory Branch could, if this support were forthcoming, be the location of Central Council when it next moves.

At the invitation of the Executive, Eric Murray (Federal President) and Bill Menzies (General Secretary), had a day-long conference with Mr. Gresford, Mr. Gillespie, and Mr. Peres at Head Office. John Little and Harry Heath were present as representatives of the Victorian Branch.

A wide variety of subjects was raised, and a full report of the discussion will be circulated to all Branches.

These meetings with the Secretariat have proved of great value to our Association, and many issues of a contentious nature have been settled in an amicable manner.

We extend to all our members and associates the Season's Greetings and look forward to an even greater success in the coming year in our endeavours for greater membership.

Film Society at Forest Products

The Forest Products Film Society, which is affiliated with the Federation of Victorian Film Societies, meets approximately once a month to screen films not normally or currently shown by commercial theatres. These include foreign films, documentaries, historical films, and past classics of the commercial screen.

Membership is open to all employees of C.S.I.R.O. and their immediate families. In addition, C.S.I.R.O. members may sponsor their friends as Associate Members (without voting rights).

Annual Membership fees are £1 per C.S.I.R.O. Member (plus 10/- for each Family Member) and £1 for each Associate Member. Membership acquired between now and April, 1961, is valid until the end of December, 1961.

Films are screened in the fully equipped lecture room at the Division of Forest Products, Yarra Bank Road, South Melbourne, usually on Tuesday, Wednesday or Thursday night and advance notice of screenings is sent to each C.S.I.R.O. member.

Films scheduled for screening shortly are:

December — "The Navigator" (Buster Keaton). Black and White. Silent. U.S.A.

January — "Peter the First" Part I. Black and White. Sound. U.S.S.R.

and in the succeeding months a selection from the following—

"The Fires were Started" (Britain)
"The True Glory" (U.S.A.—Britain)
"Time in the Sun" (Mexico)
"Louisiana Story" (U.S.A.)
"The Golden Twenties" (U.S.A.)
"The Thief of Bagdad" (U.S.A.)
"The Red Shoes" (Britain)
"Vampyr" (Germany)
"Waxworks" (Germany)
"The Cabinet of Dr. Caligari" (Germany)
"Rekava" (Ceylon)
"Don Quixote" (U.S.S.R.)
"Three in One" (Australia)
"Pastoral Symphony" (France).

Changes to this list may be made as new or special films become available.

Further information is available from the Honorary Secretary, Dr. G. N. Christensen, Division of Forest Products.

Courtesy "The Age"

Sir Macfarlane Burnet, who shared the 1960 Nobel Prize for Medicine with Professor P. B. Medawar, has been associated with C.S.I.R.O. for many years. He was a member of the Advisory Council from 1948-55, and is still a member of the Victorian State Committee. This year he was appointed Chairman of the Board of Standards of the Australian Journals of Scientific Research.

Credit Society's Successful Year

The Third Annual General Meeting of the C.S.I.R.O. Co-operative Credit Society Limited took place at Head Office on Tuesday, 8th November, 1960.

Mr. W. Ives, Chairman of the Board of Directors, in presenting the Third Annual Report to the meeting, said that the Executive have noted with very great interest the increased activity of the Society, and have expressed their appreciation of the excellent work that is being done.

Highlights from the report are as follows—

Membership of 365, an increase of 53 members over the previous year.

Capital growth of the Society to a total of £34,109 for both share capital and money on deposit. The decision by the Directors to increase the interest rate for moneys on deposit from 5 to 6 per cent. during the year was considered to be a major factor in the capital growth of the Society.

Loans to members: a total of £30,392 was lent to 146 members during the year. In all £61,889 has been lent to 341 members since the inception of the Society in 1957.

Reduction of a shilling in the pound on interest paid by borrowers during the year. This step was taken in view of the satisfactory financial position of the Society.

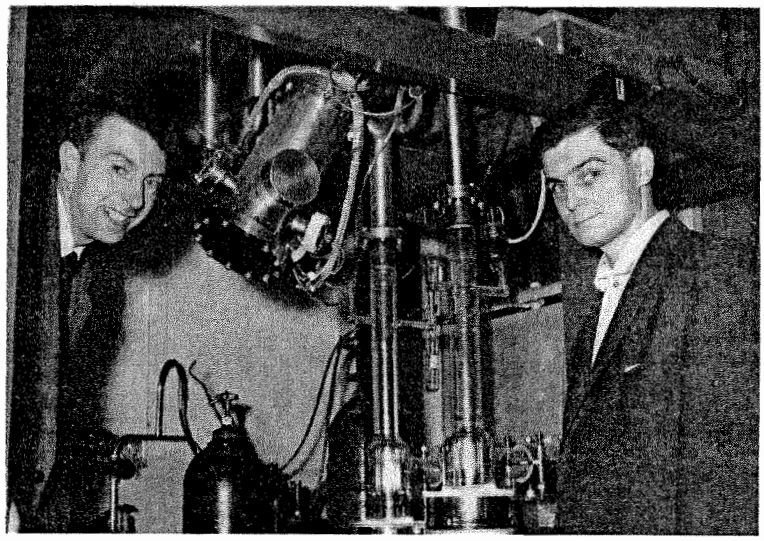
Mr. Ives also pointed out that the Directors are negotiating with insurance companies a "blanket" death indemnity over all loans.

They hope to be able to place before members in the very near future a proposal that will protect both the borrower and the Society in the event of the death of a borrower.

In such an eventuality, the outstanding balance of the loan is discharged.

Mr. Ives, Mr. M. F. Combe, and Mr. L. A. Bennett were re-elected as Directors of the Society for a further term. Other Directors of the Society are Mr. K. J. Fogarty and Mr. R. C. McVilly.

They hope that the Staff will continue to support the Society with further investments, so that the increasing demands for loans may be satisfied.



Dr. Paul Marmet, who recently arrived in Australia on a Post-doctoral Overseas Fellowship awarded by the Canadian National Research Council, is working with Dr. D. J. Morrison in the Division of Chemical Physics for a period of one year.

Dr. Marmet took his Ph.D. degree in physics at Laval University, Quebec, where he studied under Professor L. Kerwin.

His work has been concerned with the production of beams on monoenergetic electrons and their use in studies of ionization efficiency with a mass spectrometer. He will work in the same field while in Australia.

Dr. J. Morrison showing Dr. Marmet the mass spectrometer at the Division of Chemical Physics.

NOTED INDIAN SCIENTIST HERE

Professor P. C. Mahalanobis, F.R.S., a senior adviser to the Indian Government, addressed a meeting of the Melbourne Chiefs of Divisions at Head Office on 18th November.

He spoke of the problems underlying India's industrial development, and in particular the role of scientific research in this development.

He talked at some length about the training of Indian research scientists through the Colombo Plan and in other ways, and spoke of some of the difficulties which Indian science is encountering in its efforts to maintain close liaison with science in other countries.

He pointed out some of the ways in which Western countries could give more effective help to Indian scientists, and emphasized that India had something to offer to the west.

Professor Mahalanobis is in Australia at the invitation of Dr. Coombs, Governor of the Reserve Bank.

RESUSCITATION AT SEA

Earle Smith, purchasing clerk at the Division of Tropical Pastures, has invented an inflatable surf belt which is likely to become standard equipment on Australian beaches.

Its purpose is to permit the immediate application of mouth-to-nose resuscitation in surf rescues.

Off duty, Smith is surf superintendent at Point Danger, Queensland.

His invention follows the adoption of a "rescue breathing" method by the Surf Lifesaving Association of Australia.

This means using either mouth-to-mouth or mouth-to-nose measures and calls for immediate respiratory action.

The rescuing beltman is now instructed to apply the mouth-to-nose method as soon as he reaches the patient and continue during the haul-in process.

This would be impossible in the conventional belt because of the beltman's low position in the water during the haul-in and the fact that he is sometimes pulled under the water.

The inflatable belt keeps the rescuer and patient afloat and makes initial resuscitation measures possible.

Smith's inflation method is based on that of the wartime Mae West.

After eight months' research and trial and error experimenting, he has come up with a belt similar to the present canvas one but made of Japara silk and encasing in front a rubber bladder.

The bladder is inflated by gas from a capsule fitted into the front section of the belt. A release valve, not unlike a football teat, releases the gas for normal belt operations.

Smith's prototype cost about £30, but he estimates mass production would reduce this to about £5, the cost of the present style belt.

It weighs about eight ounces lighter, and, like today's model, is fitted with a release device for freeing the beltman if necessary.

The belt had passed all tests in Queensland, and at a Newcastle beach last month survived searching trials in big seas under the eyes of Surf Lifesaving Association officials.

Earle Smith inflates his new belt by pulling a cord which releases gas from a capsule into the rubber bladder.

Courtesy of "The Courier-Mail"

Grant for Pine Tree Research

A grant of £6,000 per annum for three years has been made to the Divisions of Soils for research on the growth of pine trees in lateritic soils.

The donors are A.P.M. Forests Pty. Ltd., a subsidiary of Australian Paper Manufacturers, the Western Australian Forestry Department, and the South Australian Woods and Forest Department.

Photographic Distinctions

Two members of the C.S.I.R.O. staff have had high distinctions conferred on them by the International Federation of Photographic Art.

They are Mr. Allen Gray, of Head Office records staff, and Mr. C. S. Christian, a member of the Executive.

Allen Gray is the first Australian to receive the Federation's highest award (Hon. E.F.A.I.P.). This award is reserved for a few photographers throughout the world who have shown photographic work of the highest order combined with service to national and international photographic organizations.

Allen has for the last twelve years been a leading exhibitor at the world's principal international exhibitions.

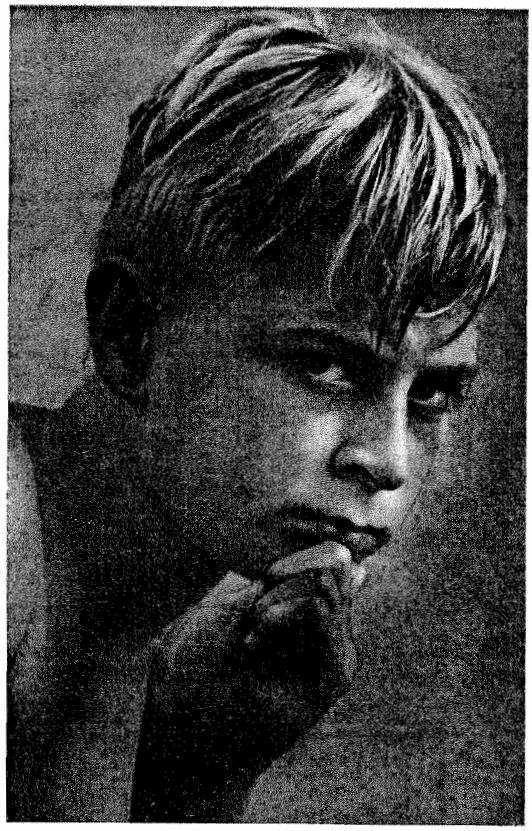
He is a past president of the Melbourne Camera Club, Australian representative of the Photographic Society of America, and Secretary of the Australian Photographic Federation.

Mr. Christian has been awarded the E.F.A.I.P. distinction, which is given to photographers who have shown outstanding ability, leadership and originality.

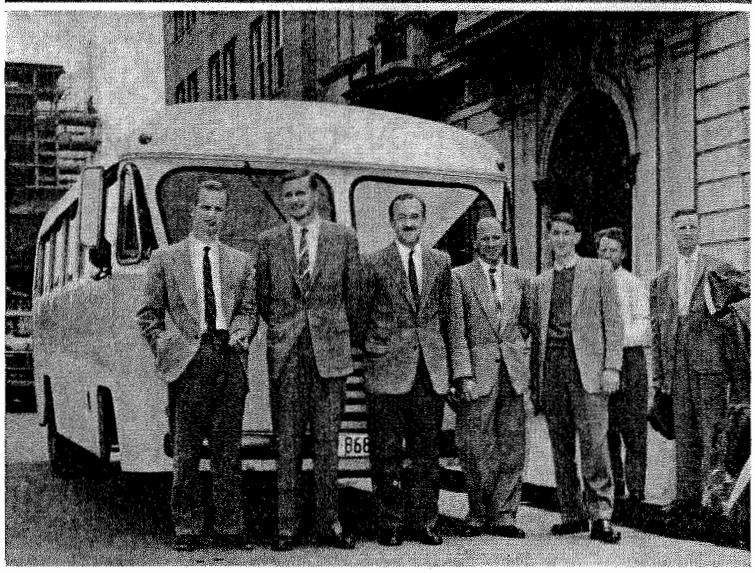
He is well known for his exhibition photography in both monochrome and colour, and has contributed largely to Australian photographic administration as president of the Australian Photographic Federation.

Mr. Christian is now president of the Canberra Photographic Society.

"Joe", a photograph by Allen Gray which has been exhibited internationally.



SKELETON WEED STUDY TOUR



Victorian primary producers are suffering from infestation of a weed called skeleton weed, which is difficult to eliminate. As a pre-requisite to any research being undertaken, the Australian Agricultural Research Council recommended that agricultural scientists with a knowledge of the weed should meet to discuss the problem. The scientists, representing C.S.I.R.O. and various State Departments, made a tour of the weed-infested areas, and our picture shows them setting off from Head Office in a bus. On the left is Mr. C. D. Kimpton (Head Office) and third from the left is Mr. R. Milton Moore, Assistant Chief of the Division of Plant Industry.

SCIENCE AT THE WICKET

Why do cricket pitches wear, lose their grass, and eventually crumble? According to J. R. Harris and R. D. Bond, of the Division of Soils, these commonplace troubles are usually due to accumulation of salt in the turf.

Last summer they surveyed twenty-three turf wickets in the Adelaide metropolitan area, and found that in twenty-one of them the salt content had risen to an undesirably high level.

The source of the salt is the water supply. Adelaide tap water, and the tap water of some other cities, is somewhat salty.

Normal watering in Adelaide adds at least ten pounds of salt each week to a pitch. Much of this salt is retained in the heavy black clays of which wickets are made.

Harris and Bond have published a report which tells groundsmen how to diagnose the presence of too much salt and how to remedy the trouble.

One of their recommendations is that bare patches of soil on the wicket should be covered with plastic sheeting to keep them moist and to encourage the growth of grass.

They also suggest an improved method of laying new wickets suitable for Australian conditions.

The troubles found in the Adelaide wickets are encountered all over the world, and copies of the report have been sought by overseas bodies, including the South African Cricket Association.

For the scientists the project has been a labour of love. Jack Harris, a well known cricket administrator, is Secretary of the Cricket Union of South Australia.

He and Roy Bond play for the Waite Research Institute Cricket Club, and share the record for its highest partnership for any wicket of 248 runs.

Mr. F. N. Ratcliffe Transfers to Division of Entomology

On January 1st, 1961, Mr. F. N. Ratcliffe will relinquish his position as Officer-in-Charge of the Wildlife Survey Section to become Assistant Chief of the Division of Entomology in Canberra.

Mr. Ratcliffe was a member of the Division of Entomology during 1937-49, working first on termites and later on stored wheat pests.

Mr. F. N. RATCLIFFE

He will be mainly concerned with the ecological and biological control investigations that comprise a substantial part of the Division's activities.

Between 1941 and 1946 he served with the Australian Army Medical Corps, and was actively associated with the work of the Malaria Control Units in northern Australia and New Guinea, and with investigations on mosquito control techniques.

On returning to the Division after the war, until the establishment of the Wildlife Survey Section, of which he was the first Officer-in-Charge, Mr. Ratcliffe acted as assistant to the chief, Dr. A. J. Nicholson, who was succeeded on his retirement this year by Dr. D. F. Waterhouse.

Printed by C.S.I.R.O., Melbourne

New Appointees

Mr. N. C. Grave has been appointed to the staff of the Chemical Engineering Section at Fishermen's Bend. Since 1950 he has been at Maribyrnong, Victoria, initially at the Defence Standards Laboratory, and more recently at the Explosives Factory, where he was Chemist-in-Charge of the Acid and Explosives Section.

Dr. P. M. T. Hansen, who has been appointed to the Dairy Research Section, is a Dane. After graduating from the Royal Veterinary and Agricultural College in Copenhagen he moved to the University of Illinois, U.S.A., where he worked for the M.Sc. and Ph.D. degrees. He and his English wife came to Australia via Europe, and arrived two weeks ago.

Mr. F. S. Niezgodka has joined the Division of Textile Industry. He came out to Australia from Poland in 1949, and won a scholarship to the Gordon Institute of Technology, Geelong, where he gained an engineering diploma. Since taking his diploma, he has worked with the International Harvester Company and Dunlop Rubber.

Mr. K. W. Loach, a New Zealander, has joined the Division of Plant Industry. An M.Sc. graduate of the University of Auckland, he has been working for the past two years at the Ruakura Animal Research Station at Hamilton, New Zealand. Mr. Loach recently visited Australia to attend the I.U.P.A.C. symposium on the chemistry of natural products.

Mr. W. A. Muirhead, a Sydney graduate in agricultural science, has been appointed to the staff of the Irrigation Research Station, Griffith. For the past five years he has been on the staff of the New South Wales Soil Conservation Service, undertaking investigation work in the Hay district.

Dr. D. LAFEBER

Dr. D. Lafeber has been appointed to the Staff of the Soil Mechanics Section. A D.Sc. graduate of Amsterdam, he was Officer-in-Charge of the Military Geology Unit of the Royal Netherlands Army before coming to Australia in 1953. Since coming to Australia he has been Officer-in-Charge of the Geological Laboratory, Engineering Geology Branch, of the Snowy Mountains Authority.

Mrs. R. Siudak, a graduate in chemical engineering from the Swiss Federal Institute of Technology in Zurich, has joined the staff of the Division of Physical Chemistry. Since arriving in Australia in 1950, she has worked with the Nobel Division of ICIANZ, and with the Kiwi Polish Company.

Mr. I. K. Spence, who has joined the staff of the Division of Metrology, is an engineering graduate of the University of New South Wales. For the past two years he has been a Teaching Fellow in that University, undertaking research on automotive control for the degree of Master of Engineering.

A Course in Rural Broadcasting

A group of Colombo Plan Fellows from Brunei, Ceylon, India, Thailand and the Philippines are at present in Australia undergoing a course of training in rural broadcasting.

As far as is known this course is the first international course in the subject ever arranged in any British Commonwealth country.

Its origin can be found in a British Commonwealth Broadcasting Conference held in New Delhi, India, in January of this year, and in a visit to Australia of Dr. B. R. Sen, Director-General of the Food and Agriculture Organization of the United Nations.

Each of these events can be considered an expression of the growing awareness throughout the world of the importance of rural broadcasting in rural development and the raising of the economic standards of all countries.

In October, the students in the course visited C.S.I.R.O.'s Head Office, where they discussed the Organization's rural research, and in particular the activities of the Agricultural Research Liaison Section and the Film Unit.

The picture shows some of the students listening to a talk by Dr. D. B. Williams, Officer-in-Charge of the Agricultural Research Liaison Section. In the background is Mr. John Lenaghan, an officer of the Section.