CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 34, MELBOURNE, JANUARY 1962

Meeting in Hong Kong

Representatives of twelve national research organizations from countries in the South-East Asian area met in Hong Kong from 28th November to 2nd December. C.S.I.R.O., as Australia's national research organization, was represented by the Secretary, Mr. G. B. Gresford.

The meeting, organized by the UNESCO South-East Asian Science Co-operative Office, was the second of its kind, the first having been held in Bandung two years ago.

The second meeting was attended by delegates from Australia, the Republic of China, Hong Kong, India, Indonesia, Japan, Korea, Malaya, New Zealand, Philippines, Singapore and Thailand.

Contacts

Over the last few years C.S.I.R.O. has been trying to strengthen its scientific contacts with South-East Asian countries.

We have had many Asian students for training, and C.S.I.R.O. officers have taken part in technical assistance missions.

We have established direct contacts with our opposite numbers by inviting the leaders of the national scientific organizations of India, Indonesia, the Philippines and other countries to visit Australia to see something of the development of science here.

It was clear at the Hong Kong meeting that these contacts have resulted in considerable understanding and goodwill.

It is also clear that Australia, because of her scientific development and her experience of scientific organization, is in an outstanding position to help Asian countries with some of their problems.

Of course, New Zealand, Japan and India are scientifically advanced, too.

Indian Progress

Since the war India has made enormous strides in developing its scientific effort, and has been greatly helped by the fact that Prime Minister Nehru, himself a Cambridge graduate in science, takes a keen personal interest in the C.S.I.R.O., and has direct ministerial responsibility for it.

During the current five-year plan the government is making available £140 million sterling for industrial and agricultural research, and the number of national laboratories is being increased from 19 to 31.

There is close co-operation between government research establishments and the universities, and the C.S.I.R. provides the universities with massive financial support, both for scholarships and for their research programmes.

New Organizations

A second group of countries at the meeting, including Indonesia and Thailand, are just starting to build up their national research organizations.

The Council for Sciences in Indonesia is just emerging from the planning stage and beginning to build its own laboratories — in the present eight-year plan provision has been made for research expenditure totalling 1.11% of the national budget.

In Thailand a comprehensive plan for national scientific development has been drawn up with the assistance of Mr. F. G. Nicholls of C.S.I.R.O., who spent last year in Thailand as a U.N. Technical Assistance Expert.

The Thais hope soon to implement some of the major recommendations of the Nicholls Report.

Another group of countries included those like Singapore and Hong Kong, where changing economic conditions in S.E. Asia and rising population pressures make accelerated industrialization essential. This, in turn, means adequate scientific services.

A final group of countries includes Korea, the Republic of China and the Philippines, where scientific development is not greatly advanced but where there is a growing realization of its need.

Agenda

Subjects discussed included the development of national scientific policies and the role of universities as research centres.

The problem of scientific manpower is a difficult one in Asian countries — there is not always a recognition of the need for the highest standards of research training and there is a real lack of research people. This is sometimes aggravated by national policies which discourage the recruitment of foreigners.

SKI CLUB TO BUILD

The C.S.I.R. Ski Club has acquired a site at Falls Creek (Victoria) and plans are well advanced for the construction of a modern all-electric ski lodge in time for the 1962 snow season.

It's a far cry from the days when keen C.S.I.R. skiers spent their annual leave in cattlemen's huts on the Bogong High Plains. Since then large slices of the High Plains have been taken over by the Electricity Commission as part of its Kiewa Hydro-Electric Scheme.

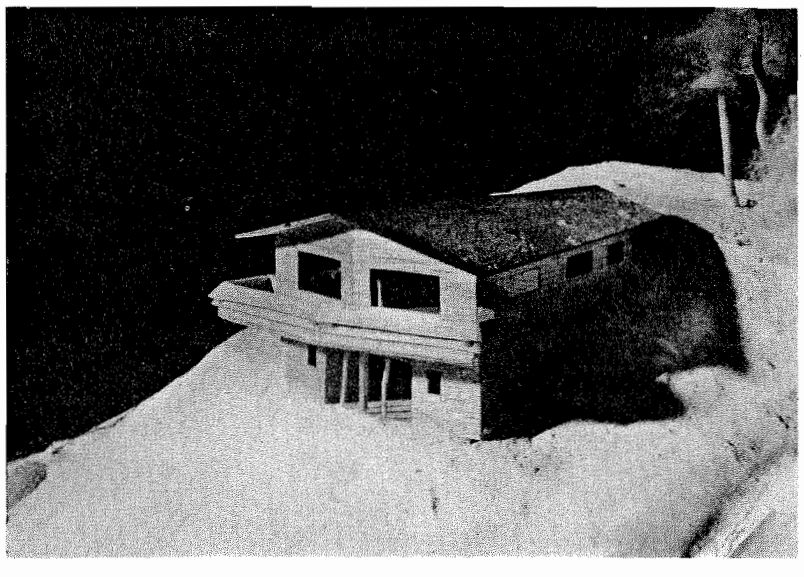
The Falls Creek Ski Village has been constructed at the end of an excellent all-weather road into the area.

The new lodge has been designed by Mr. Ray Bournon, of the Division of Forest Products. It will be constructed entirely of plywood, using modern gluing techniques.

Located within a mile of the new Rocky Valley storage lake and in the heart of some of Victoria's best Alpine country, the new lodge is expected to prove as popular with fishermen and walkers in summer as it will be with skiers in winter.

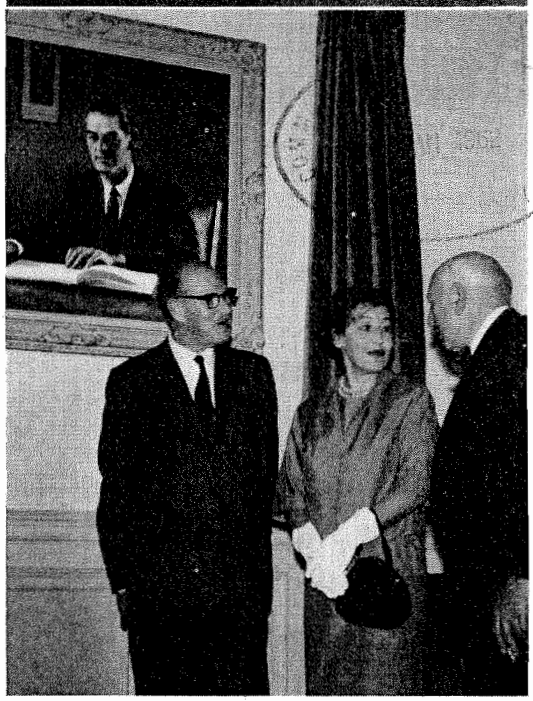
The C.S.I.R. Ski Club takes its name from the earlier title of the Organization and has for a number of years successfully operated a ski lodge at Mt. Buller, 160 miles from Melbourne.

With two lodges the club now expects to be able to increase its membership. Any members of the C.S.I.R.O. staff who feel they would like to take part in the new venture or would like to take up skiing, either at Buller or Falls Creek, should write to the Hon. Sec., C.S.I.R. Ski Club, Box 4331, Melbourne, without delay.



A model of the new C.S.I.R. Ski Club's lodge to be built at Falls Creek, Vic.

UNVEILING CEREMONY



On Tuesday, 12th December, a posthumous portrait of Sir Ian Clunies-Ross was unveiled in the Council Room at Head Office.

Among the sixty guests present were Lady Clunies-Ross and members of her family, members of the Executive and their wives, Sir Daryl and Lady Lindsay and the artist, Mr. Harley Griffiths and his wife.

Among the C.S.I.R.O. people present were a number of officers who had been closely associated with Sir Ian at Head Office, in Animal Health and in other divisions. Also present were Miss Gladys Munro, who was Sir Ian's secretary, and representatives of the C.S.I.R.O. Officers' Association.

Dr. F. W. G. White made a short speech before unveiling the portrait. He said that Sir Ian's friends and admirers were planning to have his portrait painted when Sir Ian was stricken with his first serious illness. His continued illness and subsequent death had made the project impossible.

Mr. Griffiths' task of painting a posthumous portrait from photographs must have been extraordinarily difficult, said the Chairman. In spite of the difficulties he felt that the portrait was a conspicuous success.

Mr. Harley Griffiths, Lady Clunies-Ross and Sir Daryl Lindsay at the unveiling of Mr. Griffiths' portrait of Sir Ian Clunies-Ross.

Fulbright Fellows

Two leading American scientists have been awarded Fulbright travel grants which will allow them to work in C.S.I.R.O. laboratories in 1962.

They are Professor Harry Beevers, of Purdue University, and Dr. James H. Turner, of the Beltsville Parasitological Laboratory, Maryland.

Professor Beevers, a naturalized American citizen, was born in England and graduated from Durham and Oxford. He is now Professor of Plant Physiology at Purdue.

His main centre of interest in Australia will be the Plant Physiology Unit of the Division of Food Preservation, but he will lecture and demonstrate to other research groups in Melbourne, Adelaide and Canberra.

Professor Beevers is scheduled to arrive in May, 1962.

Dr. Turner is an authority on certain internal parasites of sheep. He plans to spend ten months at the Division of Animal Health's McMaster Laboratory, studying helminthic diseases of sheep.

He is scheduled to arrive in Sydney in February.

Visors and Roof Racks Built out of Plywood

A new type of car roof rack developed in Melbourne is weather, dust and thief-proof and provides insulation from the sun.

It was designed and built by Mr. J. W. Gottstein, of the Division of Forest Products, in his spare time to solve his holiday camping problems.

Approximately 58 inches x 48 inches and 14 inches high, the 35 lb. rack, which cost only £8 in materials, is big enough to hold all family requirements in camping gear and clothing in its 17 cubic feet of space.

Aerodynamically designed, the rack is held three inches above the roof of a car by four aircraft lightweight turnbuckles, thus permitting a stream of cool air to pass over the hood and affording protection from the rays of the sun.

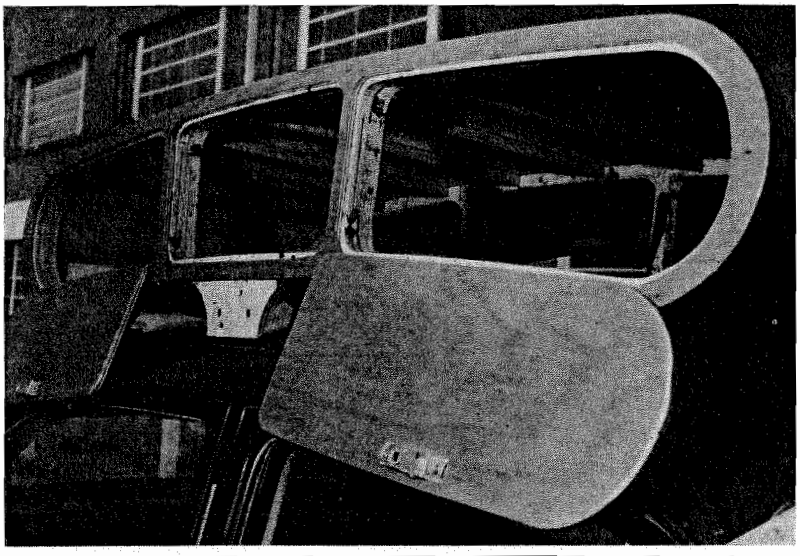
The rack is built of glued plywood, with multi-ply sides for strength, 5-ply doors and an eighth-inch 3-ply skin. It is finished in clear lacquer.

Mr. Gottstein plans to fit drawers in the rack to hold toilet articles and small items of clothing.

The rack is expected to stand up to years of use without deterioration. Test runs with the rack fitted to Mr. Gottstein's Wolseley car did not affect the vehicle's performance at 60 m.p.h.

Mr. Gottstein has also made and fitted a plywood sun visor to his car. This cost less than £1 to produce.

A close-up view of the plywood roof rack mounted on Mr. Gottstein's car.



SHEEP BREEDING IN U.S.S.R.

On 7th December Miss Helen Newton Turner, of the Division of Animal Genetics, gave A.B.C. listeners some of the impressions she gained of the Soviet sheep industry during her recent visit to U.S.S.R.

Genetics

Miss Turner said that genetics in the Soviet Union were based on different principles from our own, since many of the Soviet scientists believe that an animal's environment can influence its inheritance — in other words, if you feed a ram well, his progeny will have a higher productivity.

Outside the U.S.S.R., geneticists do not believe this. However, in spite of working on different principles the Russians have developed their breeds in much the same way as our stud-breeders developed many of our strains — by crossing with other sheep and selecting among the progeny.

There have been interesting crosses with wild sheep — the Russians believe that wild types can contribute vigour to domestic stock.

Artificial Insemination

In the U.S.S.R., A.I. had been used extensively for sheep, said Miss Turner.

The organization is well-developed and has made a large contribution to the problem of replacing the old sheep with the new.

A.I. will not play as big a part in raising wool production in Australia as it has in the U.S.S.R., but it may be useful in enabling a wider use of outstanding rams.

Fertility

The fertility of Soviet sheep is very high, Miss Turner said. The average number of lambs marked is about 100 per 100 ewes, which compares favourably with 60-70 lambs in Australia.

Two factors seem to be operating. Firstly, the ewes are continually shepherded during summer, fed in barns in winter, and lambed in barns under close supervision.

Secondly, twinning is selected **for,** not **against** as it often is here. In one experiment where we have been selecting for twins, we recorded a lamb drop of 147 percent this spring for 5, 6 and 7 year old ewes.

With care, our Merinos could have the same potential.

Astrakhan

Miss Turner said that pregnant mare's serum was used for stimulating twinning in Soviet sheep — not for Merinos, but for Karakuls.

This is the breed which produces astrakhan, and the pelts are taken from lambs when they are only two or three days old. The problem of rearing the lambs thus doesn't arise, and the more born the merrier!

A new highly-fertile Karakul breed is being developed, by crossing with a very fertile breed called the Romanov, from which a litter as high as 9 lambs has been recorded.

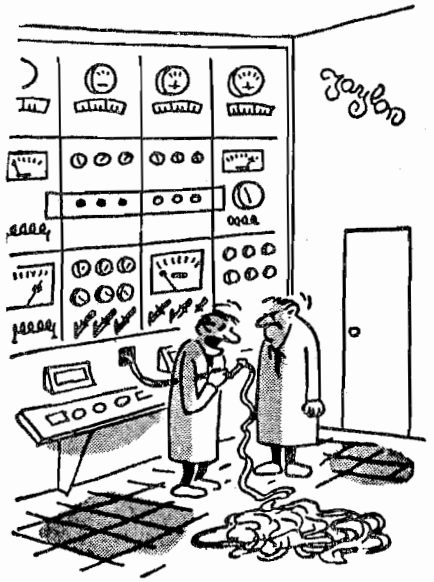
Are You Overworked and Underpaid?

Do you consider yourself overworked and underpaid? Do you want a thirty-hour week? Or another five hundred a year? You're not badly off, when you consider conditions a century ago. Just read the Rules for Clerical Staff published in "Dalgety's Review" for 1852.

- Godliness, Cleanliness and Punctuality are the necessities of a good business.
- On the recommendation of the Governor of this Colony, this firm has reduced the hours of work and the Clerical Staff will now only have to be present between the hours of 7 a.m. and 6 p.m. on weekdays. The Sabbath is for Worship, but should any Man-of-War or other vessel require victualling, the Clerical Staff will work on the Sabbath.
- Daily prayers will be held each morning in the Main Office. The Clerical Staff will be present.
- Clothing must be of a sober nature. The Clerical Staff will not disport themselves in raiment of bright colours nor will they wear hose unless in good repair.
- Over shoes and Top-Coats may not be worn in the Office, but neck scarves and headwear may be worn in inclement weather.
- A stove is provided for the benefit of the Clerical Staff. Coal and wood must be kept in the locker. It is recommended that each member of the Clerical Staff bring four pounds of coal each day during cold weather.
- No member of the Clerical Staff may leave the room without the permission of Mr. Ryder. The Clerical Staff may use the garden below the second gate. This area must be kept in good order.
- No talking is allowed during business hours.
- The craving for tobacco, wines and spirits is a human weakness and, as such, is forbidden to all members of the Clerical Staff.
- Now that the hours of business have been drastically reduced, the partaking of food is allowed between 11.30 a.m. and noon, but work will not, on any account, cease.
- Members of the Clerical Staff will provide their own pens. A new sharpener is available, on application to Mr. Ryder.
- Mr. Ryder will nominate a Senior Clerk to be responsible for the cleanliness of the main office and the private office and all boys and juniors will report to him 40 minutes before prayers, and will remain after closing hours for similar work. Brushes, brooms, scrubbers, and soap are provided by the Owners.
- The new increased Weekly Wages are as hereunder detailed:—

Junior Boys (to 11 years)	1/4
Boys (12 to 14 years ..	2/1
Juniors	4/8
Junior clerks	8/7
Clerks	10/6
Senior Clerks (after 15 years with the Owners)	21/1

The owners hereby recognize the generosity of the new labor but will expect a great rise in output of work to compensate for these near Utopian conditions.



". . . . two cups of tea at 1½d. a cup, three times a day for a five-day week = 3s. 9d. I told you I was right!"

Courtesy of the "Age".

APPOINTMENTS VACANT

For a trial period, we propose to publish each month a list of current vacancies for professional appointments in C.S.I.R.O. Each notice will include title, classification, division or section, reference number and closing date. Full particulars of each vacancy are circulated to all Divisions and Sections.

EXPERIMENTAL OFFICER (E.O.I/II)—Division of Textile Industry. 464/523 (January 15).

ANALYST (E.O.I/II)—Division of Plant Industry. 132/119 (January 15).

ENGINEER/PHYSICIST (E.O.II/III)—Division of Food Preservation. 300/309 (January 15).

PLANT BIOCHEMIST (R.O./S.R.O.)—Division of Plant Industry. 130/523 (January 15).

PHYSICIST/PHYSICAL CHEMIST (R.O./S.R.O.)—Division of Physical Chemistry. 586/11 (January 15).

EXPERIMENTAL OFFICER (E.O.I/II)—Division of Textile Physics. 465/161 (January 15).

EXPERIMENTAL OFFICER (E.O.I/II)—Division of Plant Industry. 154/45 (January 15).

CHEMIST (E.O.I/II)—Division of Food Preservation. 300/328 (January 15).

CHEMICAL ENGINEER (E.O.I/II)—Chemical Engineering Section. 608/23 (January 15).

STATISTICIAN (S.R.O./P.R.O.)—Division of Mathematical Statistics. 440/124 (January 15).

PLANT PHYSIOLOGIST (R.O.)—Division of Tropical Pastures. 850/157 (January 31).

PLANT PHYSIOLOGIST (R.O.)—Irrigation Research Station, Griffith. 500/136 (January 31).

EXPERIMENTAL OFFICER (E.O.I/II)—Irrigation Research Station, Griffith. 500/135 (January 31).

FUEL TECHNOLOGIST/CHEMIST (E.O.I/II/III)—Division of Coal Research. 480/393 (January 31).

HEAD, PLANT INTRODUCTION SECTION (P.R.O./S.P.R.O.)—Division of Plant Industry. 130/520 (January 31).

PHYSICIST/ENGINEER (R.O./S.R.O.)—Division of Applied Physics. 760/138 (January 31).

Christmas Parties

Right, top:
At Head Office party, sisters Kathleen and Bernadette Harvey seemed most interested in each other's presents.

Right, second down:
A.R.L.S. held a house-warming party at its new premises at 372 Albert Street. From left — Yvonne Bert (A.R.L.S.), Tom Hunter (Publishing), Noel Kelly (A.R.L.S.) and Bill Balding (Head Office).

Right, third down:
At the Building Research Barbecue, Mr. I. Langlands collecting his steak. Next to him are Mrs. Roger Morse and Mr. Morse.

Right, bottom:
High fashion woollen garments, modelled at the Division of Textile Physics revue.

Left, top:
At the Forest Products car rally. Control officer Peter Moglia checking watches against official time, with Jan Knight, Mick Lane, Susie Chong, Gary Hastie and Peter Lee looking on.

Left, centre:
They start them young at Fishermen's Bend. Alf Triffet with his daughter, Carolyn.

Left, bottom:
Father Christmas (Lennox) and assistant, Peter Human, handed out presents from a fire engine at Protein Chemistry. Other attractions included a trampoline.

December means Christmas, and Christmas (among other things) means parties. C.S.I.R.O., along with most other organizations, held parties—children's parties, dances, revues, barbecues, cocktail parties and lunch parties.

In Sydney, most Divisions held break-up parties on 22nd December. On 16th December the Division of Textile Physics held their third annual revue.

One enlightening sketch, presented by the office staff, dealt with the disasters which befell the land of Egypt during the absence of one Platt-en-Khamen, who had undertaken a slave-girl buying mission.

In Canberra, the Division of Plant Industry held its Christmas Party on 9th December at the Ginninderra Experiment Station. It was a family outing with the main emphasis on an enjoyable afternoon for the children.

The arrival of Father Christmas, weighed down with sweets and noisy whistles, a never-ending series of trips by a tractor train, a treasure hunt and an apple-on-the-string eating contest kept the children busy when they could be torn away from ice creams and cakes.

In Melbourne, some of the more notable events were the workshop barbecue at Building Research, children's parties at the Chemical Research Laboratories, Head Office, Meteorological Physics and Protein Chemistry, the Forest Products Car Rally, and the A.R.L.S. house-warming.

The barbecue organized by the workshop staff of the Division of Building Research was held in a bushland setting among floodlit trees in the grounds of the Division on Friday, 8th December.

Forest Products staff members, their wives and friends enthusiastically participated in a car trial with 28 cars competing.

Many got hopelessly lost and one entrant didn't even make the first control point (in a northern suburb). Several were left by the wayside due to mechanical and other breakdowns.

Everybody thoroughly enjoyed the "Car Thing", as it was called, which will probably turn into an annual event.

In Adelaide, the Division of Soils had three parties — a dance on 8th December, a children's party on 15th, and a third party on 16th in the ballroom at Urrbrae House.

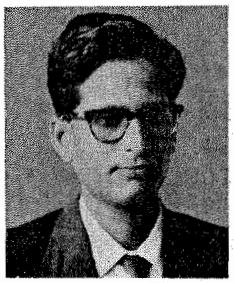
New Appointees

Dr. E. B. Armstrong, who has joined the staff of the Upper Atmosphere Section, is a graduate and former member of the staff of the Queen's University of Belfast. For the last two years he has been with the Weapons Research Establishment of the Department of Supply at Woomera, S.A.

Dr. R. W. Burley has joined the staff of the Division of Food Preservation, and will be stationed at the Biochemistry Department, University of Sydney. After graduation in South Africa he went to Leeds to work for his Ph.D. He has since worked with D.S.I.R. in South Africa, and has held a Canadian N.R.C. post-doctorate fellowship. He previously visited Australia in 1955 to participate in the 1st International Wool Conference.

Mr. R. L. Burt has joined the Division of Plant Industry and will be stationed at Deniliquin. An honours graduate of Reading, he has been for the past three years at the University of Nottingham, working for a Ph.D. in plant physiology.

Mr. C. D. Don, who recently graduated from the University of Melbourne, has joined the staff of the Mineragraphic Section. He will undertake experimental work on the physical properties of minerals both at the Cement and Refractories and the Minergraphic Sections.



Dr. R. N. KULKARNI

Dr. R. N. Kulkarni has been awarded a two-year fellowship in ozone research tenable at the Division of Meteorological Physics. He has, for the past ten years, been engaged on ozone research at the Indian C.S.I.R.'s Physical Research Laboratory at Ahmedabad.

Mr. B. C. Ellis arrived from England recently to take up an appointment with the Division of Textile Industry. He is an associate of the Manchester College of Science and Technology, and also of the Textile Institute. He has been for some years a senior technologist in the U.K. Retail Trading Standards Association.

Mr. A. S. Macpherson has been appointed to the staff of the Division of Physical Chemistry. A graduate of the University of Auckland, he has had varied industrial experience in New Zealand and Great Britain. He has lately been Chief Chemist of a cement manufacturing company in New Zealand.

Dr. D. OZETSKY

Dr. D. Ozetsky has joined the staff of the Division of Coal Research. He graduated Ph.D. from Budapest in 1936, and worked as a research chemist in Hungary for ten years. From 1946-49 he was in West Germany. Since his arrival in Australia twelve years ago he has been with Polymer Corporation in Sydney and B.A.L.M. Paints in Melbourne.

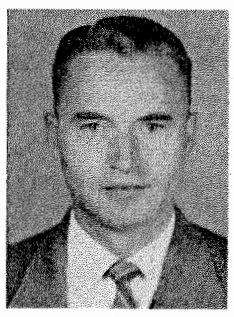
Dr. G. B. Sharman has been appointed to the post of senior mammalologist in the Wildlife Survey Section. An honours graduate from Tasmania, he has been for the past five years on the staff of the University of Adelaide. Earlier this year he was awarded the D.Sc. degree of the University of Western Australia for his published research, notably on reproduction in marsupials.

Mr. T. J. Stevens, a graduate in physics from the University of Melbourne, has joined the Division of Building Research. He will participate in the ceramics research programme, working chiefly on the development of physical apparatus.

Mr. J. C. Tothill, a New Zealander, has been appointed to a three-year research fellowship in the Division of Tropical Pastures. For the past three years he has been working for his Ph.D. at Davis, California, under a Fulbright grant. He will arrive in Australia towards the end of this month.

Mr. T. G. Hartley, a botanist, has joined the Division of Organic Chemistry, and will join the team engaged on a phytochemical survey of New Guinea, based at Lae. Mr. Hartley is a graduate of the University of Wisconsin, and has recently been working for a Ph.D. degree at the State University of Iowa.

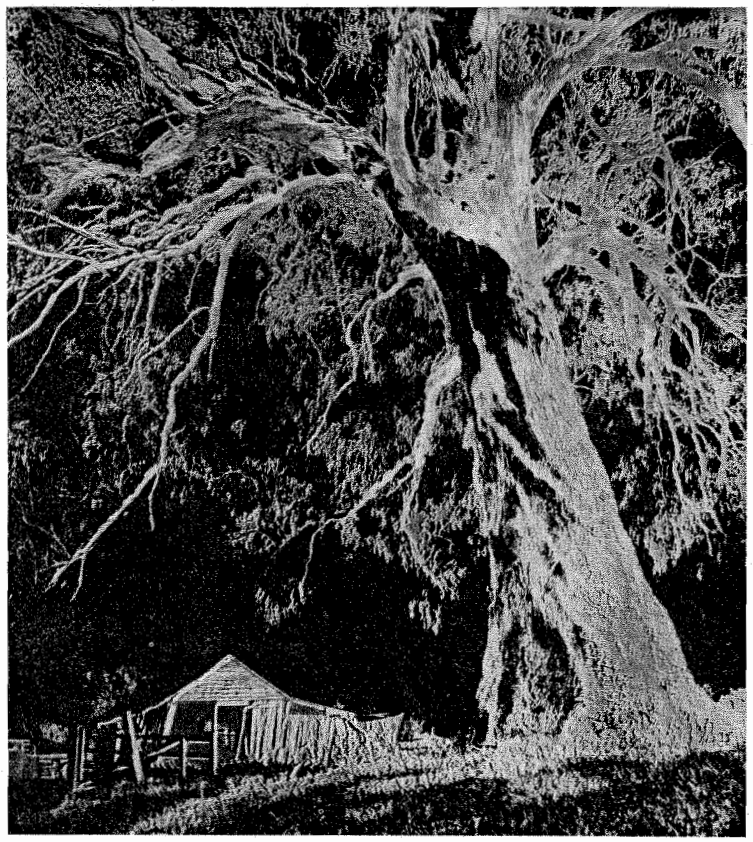
Dr. D. H. S. Horn has been appointed to the staff of the Division of Organic Chemistry. A graduate of the Universities of Natal and Cape Town, he has been on the staff of the South African C.S.I.R. since 1947. Dr. Horn's special field of interest has been the chemistry of wool wax.



Dr. G. W. STEVENSON

Dr. G. W. Stevenson, who has been appointed to the staff of the Division of Protein Chemistry, is a Canadian. After graduating from the University of British Columbia in 1952 he entered the paper industry, but returned to his University a couple of years later to work for an M.Sc. degree. More recently he has been at Stanford University, working for his Ph.D. under Professor J. Murray Luck.

"DIGNITY AND DERELICT"



This picture, "Dignity and Derelict", won first prize for C. L. W. Leslie, of the Division of Land Research and Regional Survey in the black and white section of a recent major photographic competition. The event was the annual interclub competition of the N.S.W. Federation of Camera Clubs in Sydney in October. A hundred and eighty-four black and white prints were submitted from twenty-five clubs. The "Sydney Morning Herald" described Leslie's winning print as outstanding — something well off the beaten track and showing first-class technical ability.

LUNCHTIME MUSIC

The staff of the Division of Building Research and the Fodder Conservation Section are being provided with uplifting entertainment each week when recorded music is played at lunchtime on Tuesdays.

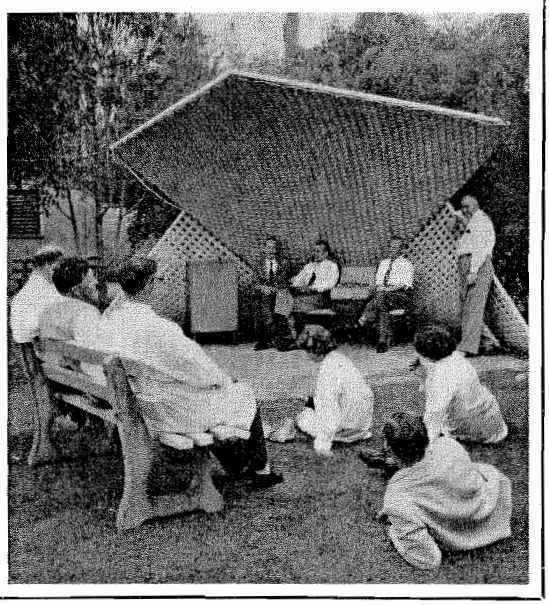
The concerts started about five months ago when a group of classical music enthusiasts gathered in the Building Research drawing office to hear recordings of some of their favourite music.

Interest in the music has increased steadily, and with a growing audience and the coming of fine weather the concerts are now being held in the Australian garden.

This garden with its lawns in a setting of native trees and shrubs, is itself a centre of interest at Highett and provides an ideal place for relaxing and enjoying the recordings.

The concerts cater for all tastes in classical music, ranging from opera, lieder, church music, concertos and symphonies to, appropriately at this time of the year, Christmas carols.

The driving force behind these concerts is the divisional draftsman, Mr. W. Maier, who arranges the programmes and records on tape the music from his own extensive collection of records and from those provided by other enthusiasts.



Overseas Visits

Mr. L. F. Evans, of the Division of Physical Chemistry, left last week on a visit to U.K., Europe and North America. Most of his time will be spent at Imperial College, London, studying ice nucleation in cloud droplets with Dr. B. J. Mason.

Mr. F. J. Gay, of the Division of Entomology, left last month on a trip to South Africa, Europe, and the United States. He will study recent developments in research on termites and wood-boring beetles.

Dr. R. C. Gifkins, of the Physical Metallurgy Section, leaves next month for fifteen months in London. He will work at the Royal School of Mines under a grant from the U.K. Atomic Energy Authority.

Mr. E. G. B. Langfield, of the Division of Land Research and Regional Survey, made a short visit to India last month. He attended a meeting of an International Rice Commission Working Party in New Delhi, and visited a number of Indian rice-growing centres.

Dr. A. Walsh, Assistant Chief of the Division of Chemical Physics will leave this month to spend six months in Europe and the United States. He will consult with firms licensed to operate his various patents in the fields of optics and spectroscopy. In addition, Dr. Walsh has been invited to speak at four international conferences on spectroscopy and analytical chemistry.

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FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 35, MELBOURNE, FEBRUARY 1962

RECORD NUMBER OF STUDENTSHIPS

The Organization has just awarded a record number of 103 Studentships for 1962. Announcing the awards, the Chairman of the Studentships Committee, Dr. Bastow, said that the Committee had been most impressed by the high standard of the 343 applications received and that it had been no easy task to choose between them.

This year, for the fifth year in succession, Adelaide University scooped the pool, taking 36% of the awards.

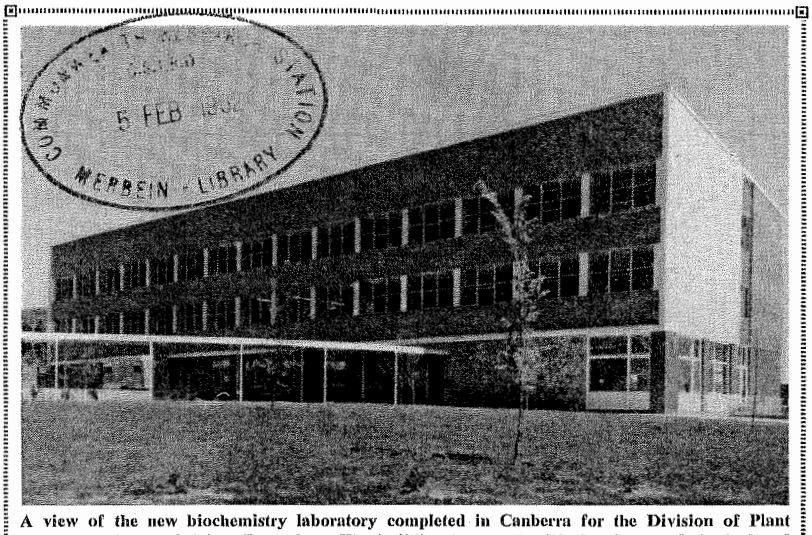
Although twelve overseas studentships were awarded, the number of applications from C.S.I.R.O. officers was considerably less than usual and only one officer, J. J. Monaghan of the Division of Physical Chemistry, was successful.

This was disappointing to the Executive but the Studentship Committee held very strongly to the view that overseas studentships should, except in very special circumstances, be post-doctoral.

The greater number of awards this year was made possible by the fact that a number of students did not accept their awards last year and because of an increase in the studentship vote in this year's estimates.

The awards are continually under review and while junior studentships have been slightly reduced, overseas awards, particularly to Great Britain, are the subject of discussion with the Executive as it is felt that there may be hardship in some cases.

The Studentship Committee was also asked to assist the Australian Dairy Produce Board, the Australian Cattle and Beef Research Committee, and the Wool Research Committee, in selecting candidates for their post-graduate studentships.



A view of the new biochemistry laboratory completed in Canberra for the Division of Plant Industry and occupied last December. The building houses the Biochemistry and Agricultural Physics Sections as well as several of the plant physiologists. It provides modern facilities for biochemical, chemical, physiochemical and biophysical research as well as accommodating the Division's Electronics Group. Special facilities include a pilot-scale laboratory with adjacent warm and cold rooms, a laboratory specially equipped for the synthesis of radio-active compounds, rooms for a mass-spectrometer, an analytical ultracentrifuge and chromatography.

C.B.E. FOR Dr. BOWEN

Dr. E. G. Bowen, Chief of the Division of Radiophysics, has been honoured in the New Year's Honours list.

Dr. Bowen was made a Commander of the Order of the British Empire in recognition of his outstanding contributions to the development of science in Australia since World War II.

He was awarded an O.B.E. in 1941 for the pioneering part he played in the development of radar in England and the Medal for Federation of the United States Government for his contribution to the initiation of microwave radar in the United States of America.

Dr. E. G. BOWEN

As Chief of the Division of Radiophysics since 1946, he played a major part in formulating the Division's peacetime programme and in the remarkable success it has achieved in the application of war-time radar techniques; first to aerial navigation, which resulted in Distance Measuring Equipment (D.M.E.), and then in the fields of cloud physics, rainmaking and radio astronomy.

He was the originator of the plan for a large steerable radio telescope for Australia and was instrumental in obtaining substantial financial support for this project from the U.S.A.

It was due to his leadership, energy and enthusiasm that the project was brought to a successful conclusion with the commissioning of the intrument and the establishment of the National Radio Astronomy Observatory at Parkes by His Excellency the Governor-General last October.

Floodlit Crossing

Existing street lighting methods usually do not make pedestrians on crossings sufficiently visible, especially on wet nights or when the pedestrians are near the kerb.

Dr. R. G. Giovanelli, of the Division of Physics, proposed that this problem should be overcome by floodlighting pedestrian crossings from the direction of the oncoming road traffic.

Mr. W. R. Blevin and Mr. K. A. Wright of the Division of Physics, with the co-operation of the N.S.W. Pedestrian Crossings Committee, tested the proposal at a crossing on the 60 ft. wide Pacific Highway at Wahroonga, a suburb of Sydney.

It was found that pedestrians on the crossing were lit adequately by two 500 watt floodlights, one being mounted over each stream of traffic, about 30 feet before the crossing and 25 feet above the road.

With this system approaching drivers see pedestrians on the crossing rather as a theatre audience sees actors on a stage.

As a pedestrian nears the centre of the road he enters the second beam and is then clearly visible to motorists approaching from the opposite direction.

Special care was taken to shield the light source and neither motorists nor pedestrians were troubled with glare. Rain had little effect on the visibility of pedestrians on the floodlit crossing.

Pedestrians can be seen easily by motorists when they are on the crossing illuminated by the system designed by the Division of Physics, but only with difficulty when it is lit by a conventional system.

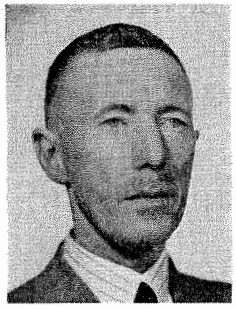
Tribute to Dr. Cameron

The Chairman recently paid tribute to Dr. Donald A. Cameron who was Minister-in-Charge of C.S.I.R.O. from February, 1960, until his defeat in last year's Federal elections.

Dr. White said that although Dr. Cameron had also been Minister for Health he had still found time to visit many of the Organization's laboratories and field stations, and had always made an effort to meet as many C.S.I.R.O. officers as possible.

As a result of his genuine interest in their work and his desire to keep himself informed of C.S.I.R.O.'s activities, he was able to display a rare and sympathetic understanding of the Organization's problems.

He had distinguished himself as an able and enthusiastic Minister and it would not be easy for the Government to appoint his successor.



Dr. D. A. CAMERON

UNIVERSITY CHAIR FOR Dr. DOWLING

Dr. D. F. Dowling of the Division of Animal Genetics has been appointed to the Chair of Animal Husbandry at the University of Queensland.

Professor Dowling received his Bachelor of Veterinary Science at the University of Sydney in 1940.

After a period of war service he took a Bachelor of Science degree with honours in physiology at the University of Sydney before proceeding to the University of Cambridge where he worked under Sir John Hammond and gained his Doctorate of Philosophy in 1949.

Professor Dowling's initial research interest was in physiology, particularly in the physiology of reproduction, but he has recently been concerned with the genetics of cattle, especially in relation to heat tolerance.

Professor Dowling has been with C.S.I.R.O. since 1950 and has worked on the genetics of cattle, problems of artificial insemination, and heat tolerance of cattle in tropical environments.

Announcing the appointment, the University Vice-Chancellor, Professor F. J. Schonell, said Professor Dowling had a wide knowledge of the animal industries of Australia, particularly of Queensland and his appointment would strengthen the Department of Animal Husbandry in the University of Queensland.

HONOUR

Miss B. Doubleday, Chief Librarian, has been elected as President of the Library Association of Australia for 1962. The only other woman to have held this position was former Chief Librarian, Miss E. Archer, who was President of the Association in 1948/49.

Miss Doubleday, who has been Chief Librarian since 1955, will succeed Professor W. G. K. Duncan of the University of Adelaide.

CAVE EXPLORATION IN THE NORTHERN TERRITORY

Down Under Up Top

Bob Wren of the Katherine Research Station believes in carrying out his "land research" below ground as well as on top.

Bob is Secretary of the Northern Territory Speliological Society which, in the last few years, has either discovered or rediscovered some sixteen cave systems in the Katherine area.

These have been explored laterally for two miles and a depth of 350 feet has been reached. At this depth an underground stream was found which in parts was four to ten feet deep; other sections are deeper but have not yet been measured.

Entrance to this stream is extremely hazardous, involving considerable rope work, and special equipment will be needed before further investigations can be carried out.

The most spectacular caves found so far, and the most important from the anthropological point of view, are the Kintores, which were named after the Earl of Kintore who visited them last century.

An early document in the archives of the Northern Territory Administration claims, "These caves are magnificent beyond description. The entrances are so large that one can drive a four-in-hand through them."

In spite of this, however, it took local cave hunters 14 months and 300 square miles of surface exploration to find them.

Entrance walls to the caves are adorned with aboriginal paintings and new chambers were found recently which led to another entrance containing a painting of the rainbow serpent.

Members of the Society are interested, not only in exploring caves, but also in finding out more about them. Samples of rock have been collected at various depths and levels and a number of fossils have been found, including a tusk thought to be that of a Giant Wombat.

Measurements have been made of the temperature and humidity of the air in the caves and several types of fungi have been collected.

Apart from fungi, however, the caves contain very little of botanical interest, but Banyan trees which are otherwise rare in the area are found growing at almost every cave entrance. Roots of this tree have been discovered at a depth of 100 feet.

Five species of bats have been recorded, including the great Vampire Bat, and work is to commence shortly on a bat-banding programme in conjunction with the Wildlife Survey Section.

Although snakes are seldom encountered, cavers must keep a sharp watch-out for them.

Cave exploration has its other hazards, too. On one occasion, high temperatures almost put a tragic end to one of the Society's expeditions.

Six members had arranged to go underground for four days. They intended going as far as possible in two days, allowing two days for the return trip.

At the last moment three of the members withdrew but the others decided to continue.

Despite the equipment that each man was required to carry, the party reached a point almost 3,000 yards from the entrance in 7 hours. At this point the relative humidity was 100% and the temperature, 98°F.

The party became exhausted and the air was lacking in oxygen. As is usual when cavers meet bad air, a certain amount of panic occurred.

Soaked with perspiration and with equipment wet and damaged, they retreated back to better air, but they were still exhausted and eventually cancelled the venture.

This expedition could have ended far more seriously had any member of the party lost consciousness. Removing a person through narrow tunnels deep under the ground is no easy matter, particularly when the other members of the party have been affected by heat and lack of oxygen.

In spite of the dangers faced, however, caves still continue to exert their attraction over an increasing number of devoted enthusiasts.

TECHNICAL ASSOCIATION NEWS

Meeting with Executive

One of the items discussed with the Executive last December was the legal position of drivers and passengers travelling in official vehicles.

The case of N.S.W. Branch Secretary, Noel Thorndyke, who was badly injured while travelling in an official vehicle, was a good test case.

Branch News

There may be some big obstacles to overcome in the formation of a Branch in Western Australia.

Our staff in W.A. is widely scattered but the examples of Queensland and the Northern Territory should indicate that the problem is not insurmountable.

The numbers are there; all that is needed to bring the Branch into being is the necessary will.

Megaton Thought

As mentioned in a previous issue, Geoff Richards, our President, was on the spot at the recording of the metagon blasts.

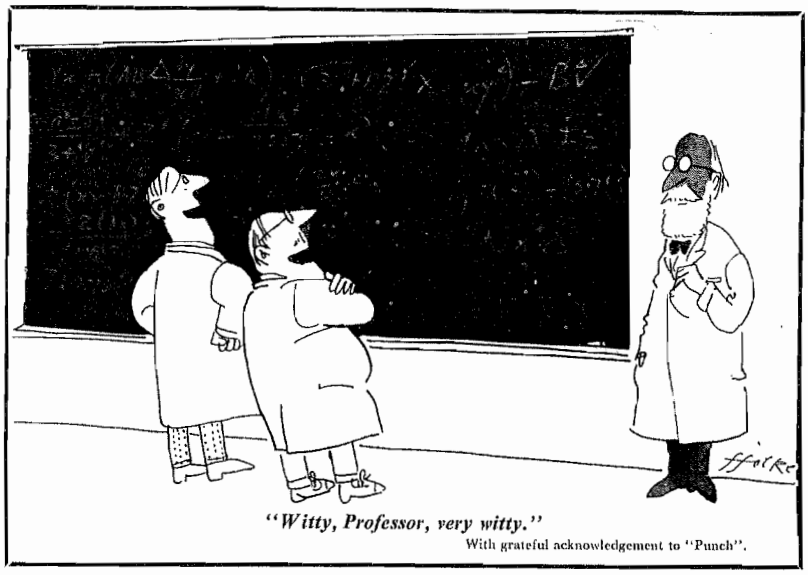
His reaction, as he watched the needle recording this immense power blast, was one of despair and a sense of futility, and probably echoed the sentiments of all clear thinking people.

Science and medical research spend enormous amounts of time, money and brain power in an effort to find ways and means to cure the sick, lengthen life and in general make a better world for us. Here was an example of how all that effort can be nullified by just pressing a little button.

Retraction

An error was made in the reading of the special exclusion clause for the Association of Architects, Engineers, Surveyors and Draftsmen of Australia.

The report published in the November issue of "Coresearch" should have referred only to Technical Assistants employed by C.S.I.R.O.



"Witty, Professor, very witty."

With grateful acknowledgement to "Punch".

U.S. Post for Radio Astronomer

Dr. J. L. Pawsey, Assistant Chief of the Division of Radio-Radio Astronomy Observatory physics, has been appointed Director of the U.S. National at Green Bank, West Virginia.

He will take up his new post on 1st October, 1962, initially for a period of three years.

The Chairman, Dr. White, said that the appointment was a tribute to Australia's high standing in radio astronomy and to Dr. Pawsey's own world reputation as a pioneer of this new and rapidly expanding science.

"We are very pleased with the appointment", he said. "It enables Australia to repay to America, in some measure, the extraordinary generosity of the two foundations of the country which contributed over $600,000 towards our new radio telescope at Parkes.

"The appointment will surely stimulate very close relations between our own radio astronomy group and similar groups in America.

"Dr. Pawsey's work with C.S.I.R.O. has been quite outstanding, and has won worldwide admiration and respect. Several members of his team have been appointed to senior professorial posts in Australia and abroad.

Dr. J. L. PAWSEY

"The excellence of Dr. Pawsey's own work was recognized last year by the award to him of the Hughes Medal of the Royal Society of London."

Late Christmas Pictures

Above: Mr. H. R. Brown, Chief of the Division of Coal Research, sampling the Christmas cake with Mrs. F. Phegan and Mrs. N. Hintre at the Division's Christmas party.

Below: Father Christmas was the centre of interest at the children's Christmas party held by the Wildlife Survey Section in the Gungahlin grounds.

APPOINTMENTS VACANT

Full particulars of each vacancy have been circulated to all Divisions and Sections.

AGRONOMIST (E.O.I/II)—Tobacco Research Institute. 815/38 (February 2).

EXPERIMENTAL OFFICER (E.O.I/II)—Division of Applied Physics. 750/239 (February 2).

ECOLOGIST (E.O.I/II)—Division of Plant Industry. 130/526 (February 12).

BOTANIST (R.O./S.R.O.)—Division of Forest Products. 290/594 (February 28).

EXPERIMENTAL OFFICER (E.O.II/III)—Division of Applied Physics. 750/244 (February 28).

PHYSICIST (R.O./S.R.O.)—Division of Physics. 770/207 (February 28).

BEATING THE BUSHFIRE

The horror and tragedy of the devastating fires in Victoria last month have shown that we are still a long way from being able to beat the bushfire menace.

Nevertheless, a good deal has been learnt in the last few years by bushfire research groups which have been set up by several organizations including C.S.I.R.O., the Commonwealth Forestry and Timber Bureau, the Forests Commission of Victoria, and A.P.M. Forests Pty. Ltd.

Much of the work of these groups has been directed towards finding out how fires start and how accurate predictions may be made of when and where and under what conditions fires are most likely to occur.

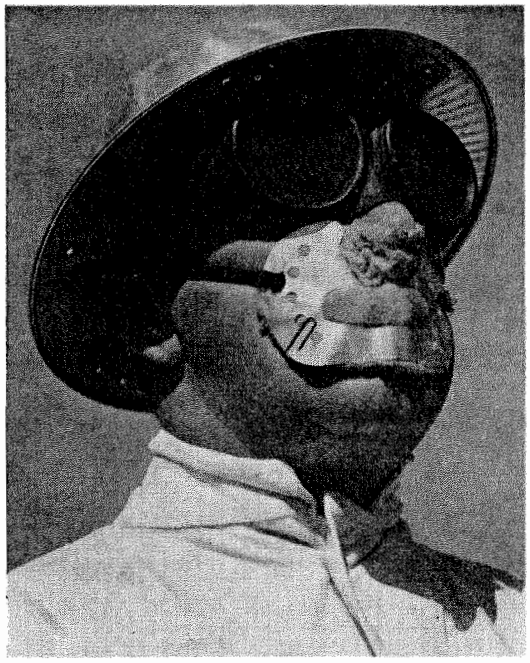
In addition, they have been interested in other basic questions such as the fire-proofing of natural fuels. They have also been concerned with devising aids for fire fighting and with promoting the comfort, efficiency, safety and protection of the men who fight fires.

Between them, these research workers, by drawing on their own findings, knowledge and the experience of practical fire control officers and their leaders in other departments, have been able to sift out the best and most essential advice so far available on survival and safety.

The following rules for survival in a bushfire are based on advice compiled by Dr. A. R. King of the C.S.I.R.O. Bushfire Research Section. Along with a knowledge of artificial respiration and treatment of snake bite, these rules should be committed to memory by everyone.

- Don't panic. It drains nervous and physical energy and clouds judgment.
- Run only when absolutely necessary.
- Seek every possible shield from radiated heat. Hide in dug-outs, running streams and ponds, but avoid water tanks above ground level except as a last resort.

  A person almost totally immersed in warm water — say 115 deg. F. — collapses after about three minutes.
- Limit breathing when smoke is dense. Wait for pockets of fresh air before filling lungs. The air nearest the ground is freshest and coolest.
- Don't hesitate in front of flames. If you have to go through them to escape, cover all exposed skin as best as possible, take some quick deep breaths and move briskly through on to the burn. Choose a clear path.
- But avoid entering flames more than about 5 ft. high extending for more than 30 feet back, or when the undergrowth is very dense.
- Light a back-burn, say, 20 ft. long, if trapped by a high wall of deep flames. Stay on the burned area.
- Lie flat on the ground as well covered as possible in extreme danger. Choose the barest piece of ground, in a rut, behind a log or rocks, in a culvert, or if possible, buried. You have a good chance if you don't panic.
- Resist the temptation to run from an encircling fire front unless your chances of escape are quite clearly good. If you flee, run downhill, since fire moves fastest uphill, and try to work your way to the edge and back of the fire front.



Helmet, goggles and simple cotton wool mask give this firefighter extra protection.

By adopting this posture and wearing full-length clothes, this firefighter is managing to shield himself effectively from radiated heat. His hands and wrists are protected by a reflective skin cream developed by the C.S.I.R.O.'s Bushfire Research Section.

FRESH FROM THE POD

Processed peas are a big industry in Australia — last year more than 37 million pounds of peas were either canned or deep frozen.

One of the problems faced by the industry in the past has been accurate prediction of the day of harvest. An error of only two days can mean a loss of 20% or more in the yield of first quality peas.

Mr. L. J. Lynch and Mr. R. S. Mitchell of the Division of Food Preservation have now solved this problem with an instrument they have developed known as a Maturometer.

This instrument measures the hardness of peas by recording the force required to pierce them with a small plunger. Provided a suitable sample is tested, the exact day of harvest can be predicted days in advance.

The Film Unit has collaborated with the Division in making a film entitled "Green Pea Harvest Prediction" which will be released shortly.

WOOL MAN FOR N.Z.

Mr. N. F. Roberts of the Division of Textile Physics has been appointed Director of the newly formed Wool Research Organization of New Zealand and will take up his appointment in June this year.

The Organization is an autonomous body financed jointly by the New Zealand Wool Board and the Government through the Department of Scientific and Industrial Research.

Its aims are to carry out research on the physical, chemical and biological properties of wool and on the handling, storage, transport and marketing of wool.

Mr. N. F. ROBERTS

Mr. Roberts, a graduate from the University of Sydney, was appointed to the Fleece Analysis Laboratory of the Division of Animal Health and Production in 1946 and later became Officer-in-Charge of the Laboratory.

In 1954 he transferred to the Division of Textile Physics where he has been responsible for research on the consequences of fleece characteristics in textile processing and has developed a tool for taking core samples in wool bales by manual pressure.

HYDRAULICS CONFERENCE

The Faculty of Engineering of the University of Western Australia is sponsoring a Conference on Hydraulics and Fluid Mechanics to be held in Perth this year from 6th December to 13th December following the Empire Games.

Contributions have been invited from the fields of Aeronautical, Civil and Mechanical Engineering, Applied Mathematics, Chemistry, Physics, Agriculture, Biology, Medicine, Zoology and other fields in which fluid flow presents problems of measurement, instrumentation, basic understanding, or analysis.

Further details may be obtained from the Conference convenor, Mr. R. Silvester, of the School of Engineering of the University of Western Australia.

North Ryde Blues

The Division of Food Preservation's move from Homebush to North Ryde inspired the following lyric which was sung at the Divisional Christmas party to the tune of "O What a Beautiful Morning".

The Division has now moved to North Ryde,
And we're sure most of us feel well sat'sfied.
Our labs look as fine as a flagon of wine,
And as different from Homebush as beer is from brine.
O what a beautiful building! O what a wonderful sight!
Surely now we are at North Ryde, everything's gonna be right!

Just one thing's wrong with our new location:
We're kept conscious of death and cremation;
The north side view's deadly, unless you can read'ly
Delight in the sight of fun'rals passing stead'ly.
O what a beautiful building! O what a wonderful sight!
Surely now we are at North Ryde, everything's gonna be right.

There are acres of green lawn around us,
And that is not all to astound us:
We've so many trees—it's frightening to think—
Forest Products may take over, quick as a wink.
O what a beautiful building! O what a wonderful sight!
Surely now we are at North Ryde, everything's gonna be right.

All the buildings are carefully laid out,
To make sure that the staff don't get too stout;
To go to the libree, it's obvious weeee
Have to walk twice as far as seems necessaree.
O what a beautiful building! O what a wonderful sight!
Surely now we are at North Ryde, everything's gonna be right.

We've paths from one block to another,
They're provided with adequate cover;
It's incredible yet, in the rain you'll get wet,
If there's something in the store that you have to get.
O what a beautiful building! O what a wonderful sight!
Surely now we are at North Ryde, everything's gonna be right.

If you find concentration is sagging,
Just start counting the stones in the flagging,
Then think hard of what you could get for the lot,
In exchange for necessities you haven't got.
O what a beautiful building! O what a wonderful sight!
Surely now we are at North Ryde, everything's gonna be right.
Yes, everything's gotta be right.

NEW APPOINTEES

Mrs. R. B. Ali has joined the Division of Forest Products where she will work on the chemistry of plant carbohydrates including components of the cambium, the cell wall and gum exudates. Mrs. Ali, an organic chemist, graduated M.Sc. from the University of Aligarh in India.

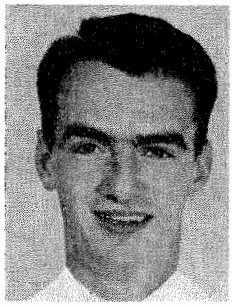
Mr. R. A. De Fossard, a science graduate from Edinburgh, has joined the staff of the Division of Food Preservation where he will take part in a programme of physiological and biochemical investigations aimed at achieving a better understanding of the ripening of fruit and its preservation in storage. For the past six years, he has been working on citrus problems in Jamaica and South Africa.

Mr. R. A. De FOSSARD

Mr. P. C. Heyligers has been appointed to the staff of the Division of Land Research and Regional Survey as a plant ecologist. He will work in Papua and New Guinea with the New Guinea Survey Team. A graduate from the State University, Utrecht, he submitted his thesis for his D.Sc. last year.

Mr. J. W. Sutherland, a recent science graduate from Melbourne University, has joined the Engineering Section where he will study moisture and heating in large grain storages and methods of controlling the temperature and moisture content of the grain.

Mr. K. H. Hickox, who graduated recently from the University of Melbourne, has been appointed to the staff of the Division of Meteorological Physics where he will assist in the design and conducting of



Mr. K. H. HICKOX

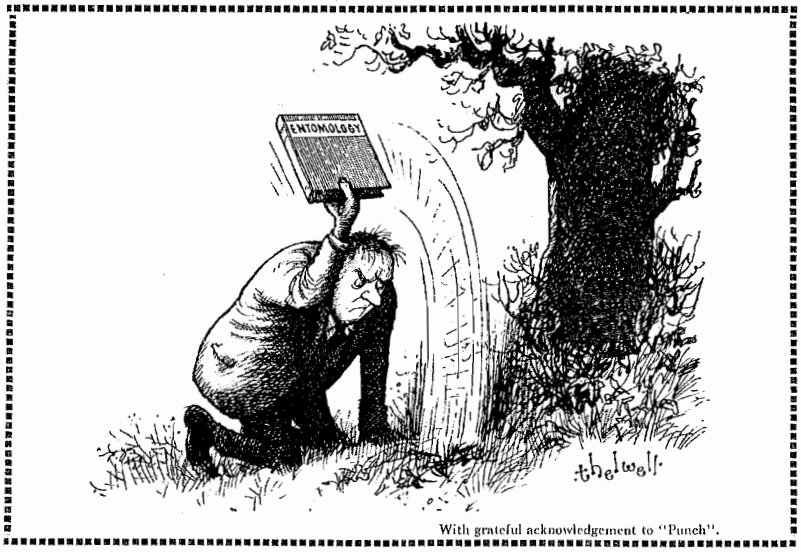
field experiments and in the analysis and interpretation of the results.

Dr. D. M. Langbridge has been appointed to a three year fellowship in chemistry with the Division of Plant Industry where he will work on a collaborative programme in development biophysical chemistry. Since graduating Ph.D. from the Sheffield University in 1954, he has worked on a number of problems connected with surface chemistry and the behaviour of insecticides.

Mr. L. C. Lloyd has been appointed to the staff of the Division of Animal Health. A graduate in Veterinary Science from the University of Sydney,

Mr. L. C. LLOYD

he will join the team working on contagious bovine pleuropneumonia. He has been working at the University of Sydney on an unusual cystic condition of the skin of a special strain of Merino sheep.



With grateful acknowledgement to "Punch".

OVERSEAS VISITS

Dr. H. L. Evans of the Division of Food Preservation attended a recent conference in London on International Developments in Heat Transfer. He also visited scientific institutes carrying out research in this particular field before leaving England.

Mr. L. Medina of the Division of Applied Physics is at present visiting Great Britain and Europe. While overseas he will conduct acceptance tests on a high voltage transformer on order for the Division. He will also study current research activities in the high voltage field.

Dr. G. J. Ogilvie of the Division of Tribophysics, is now with the Atomic Energy Establishment at Harwell where he will work for about 3 months. Following this he will spend two months visiting scientific institutions in Great Britain, Europe and North America.

Mr. H. G. Turner Officer-in-Charge of the Cattle Research Laboratory, Rockhampton, is at present visiting cattle breeding research centres in the U.S.A. and Canada. Before returning to Australia, Mr. Turner will visit similar establishments in Great Britain, Europe and South Africa.

Tribulations of a Tribophysicist

Travel, even in this modern age, is not without its drawbacks according to Dr. Alan Head of the Division of Tribophysics, at present Visiting Research Professor at Brown University, Providence, Rhode Island.

In a letter to his colleagues, Dr. Head gives the following graphic description of a trip from Providence to South Bend, Indiana.

"It is a terrible journey there from Providence. I went there by air via New York and Chicago but next time I think I will try walking.

"From Chicago to South Bend is about 70 miles but it took six hours.

"As we were taking off from Chicago, two engines quit so we went back to have a look at what was wrong.

"When things were fixed up we took off and arrived over South Bend but the airport was now shut with fog so back to Chicago.

"The airline gave up and hired a bus to take us by road.

"After driving around Chicago for a while the driver finally confessed that he didn't know how to get to South Bend.

"Some South Benders on board got him on to the turnpike and after about 10 miles, red lights flashed and examination showed that no one had filled the radiator.

"It was now about 1 a.m., in the middle of nowhere, on a limited access road which was deserted except for us and it was starting to snow.

"We limped along, stopping every couple of miles to allow things to cool off (including the inside of the bus) until we came to the next toll gate.

"Here the problem of filling an 8 gallon radiator with the only available container, a paper cup, seemed quite minor.

"And so to bed at 3.30 a.m."

HOSPITAL PATIENTS FLEECED

Specially prepared sheep skins are being tried out in four Melbourne hospitals in an attempt to prevent bed sores developing on chronically ill patients.

These investigations are being carried out by the Division of Protein Chemistry in conjunction with the Alfred Hospital at the request of Professor Maurice Ewing, Professor of Surgery at Melbourne University and head of the University's Department of Surgery at the Alfred Hospital.

Several types of skins were tried but Merino and Merino Cross skins were found to be the most suitable. The skins were selected for the softness and resiliency of their wool and the denseness of the fleece.

They were chrome-tanned in a special way so that they could be washed at the high temperatures needed for sterilization, using the recently developed detergent Gardinol B.W.

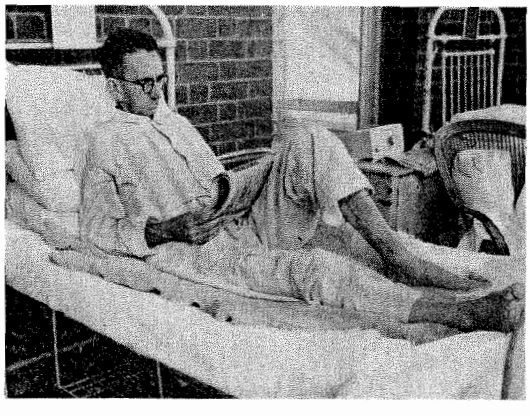
This work was done in collaboration with the Royal Melbourne Hospital Central Linen Service.

The skins have been found to absorb moisture from a patient's skin, an important factor in the prevention of skin breakdown of the patient.

Another important factor is that sheep skins do not ruck like sheeting. Rucking in bedclothes is the cause of rubbing of the patient's skin.

Although the tests have not yet been carried out on a sufficiently large number of patients to prove conclusively that sheep skins prevent bed sores, results are very encouraging.

Patients offer one obstacle, however. Once they have enjoyed the luxury of lying on a sheep skin they are reluctant to forego it.



High Award for Photographer

Leading Australian photographer, Allen Gray of Head Office Staff Section, has been awarded one of the top distinctions of the Photographic Society of America, an Associateship.

Only a handful of Australians hold this honour which is recognized throughout the world as a mark of distinction awarded, not only for an extremely high standard of photographic ability, but also requiring major contributions of service to the progress and development of photography.

Since 1948 his name has headed the list of Australian exhibitors in the world's foremost international exhibitions of monochrome prints.

Over this period he has built up the amazing total of 500 salon acceptances from 120 different prints, achieved the high distinction of 4 star rating in the Photographic Society of America and regularly found a place in the world's top forty exhibition photographers.

Allen is also an Associate of the Royal Photographic Society of Great Britain and holds the highest degree of Hon. EFIAP of the International Federation of Photographic Art, the only Australian to do so.

BAYSIDE FROLIC

All members of C.S.I.R.O. are invited to bring their families and friends to a picnic at Martin Hall, Aspendale, on Sunday, 18th February. The picnic has been arranged by the Meteorological Physics Social Club at Aspendale.

Attractions will include boat rides, table tennis tournaments, sand castle competitions, a treasure hunt, barbecues, and an evening dance, while those who prefer less organized entertainment will be able to romp in the surf and acquire a sun tan.

Programmes are available from each Division for only 10/- and will admit a family or couple.

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

CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 36, MELBOURNE, MARCH 1962

HAIL AND — FAREWELL

Dr. O. H. FRANKEL

Dr. R. N. ROBERTSON

The appointment of Dr. O. H. Frankel to the Executive of C.S.I.R.O. was announced last week by the Minister-in-Charge of C.S.I.R.O. (Senator Gorton).

Dr. Frankel fills the vacancy created by the resignation of Dr. R. N. Robertson, who has been appointed Professor of Botany in the University of Adelaide.

Before joining C.S.I.R.O. in 1951, Dr. Frankel had established himself as a brilliant geneticist and an experienced administrator.

He was born in Vienna and obtained a doctorate in agriculture in 1925 from the Institute of Genetics in Berlin.

After carrying out research in Czechoslovakia, Israel, and Great Britain, he went to New Zealand in 1929 to join the Wheat Research Institute of the Department of Scientific and Industrial Research.

During his 22 years in New Zealand, Dr. Frankel made outstanding contributions to science and to the welfare of the country's wheat industry. He was associated with the breeding of every variety of wheat now being grown in New Zealand.

In 1942 he became Director of the Wheat Research Institute, and in 1949, Director of D.S.I.R.'s Crop Research Division.

In 1951 Dr. Frankel came to Australia to lead C.S.I.R.O.'s largest research division, the Division of Plant Industry. Under his leadership, the Division has become one of the world's foremost centres for plant research.

He has attracted research workers of the highest calibre to his laboratory in Canberra, and built up strong teams of scientists working in all the important fields related to plant production.

Dr. Frankel has been instrumental in planning many new research ventures for the Division, including "CERES", a laboratory for plant research under controlled climate conditions, which will be completed this year.

Among Dr. Frankel's many scientific honours and distinctions are a doctorate of science from the University of New Zealand and a Fellowship of the Royal Society of New Zealand.

His outstanding contributions to the science of genetics were recognized by his election to a Fellowship of the Royal Society of London in 1953.

He is a Fellow and former Vice-President of the Australian Academy of Science and was a member of the council of the Australian National University.

Dr. Frankel has always been interested in the international aspects of plant science. He was an Australian delegate to the 1959 F.A.O. Conference, and he is a member of the research committee of the F.A.O. "Freedom from Hunger" campaign.

Dr. Frankel intends to maintain his special interest in Plant Industry by continuing to act as Chairman of the Division's research management committee. He also intends to continue active research in genetics.

Dr. R. N. Robertson, a member of the Executive for the past three years, will resign from C.S.I.R.O. next week to take up his appointment as Professor of Botany in the University of Adelaide.

One of his colleagues on the Executive has contributed the following:—

"Bob Robertson came to C.S.I.R. in 1946 from a Lectureship in the University of Sydney.

He was preceded by a letter from Professor (now Sir Eric) Ashby accusing Sir David Rivett of reversion to his Tasmanian Highwayman ancestry in robbing him of his most excellent colleague.

And now, ironically, Vice-Chancellor Bastin of the University of Adelaide has done the same to us.

True to his ancestry, Rutherford Ness Robertson, in accepting the position with C.S.I.R., stipulated that he would immediately need at least eighteen months to study abroad.

Head Office chiselled this down smartly to ten months. But next year Bob was again able to work for a while at his beloved Cambridge, where he had studied for his Ph.D. as an 1851 Scholar.

He returned to Sydney to lead the Fresh Fruit and Vegetable Investigations at the Division of Food Preservation, and to set up the joint Plant Physiology Unit at the Botany School of the University.

This still remains the perfect model of C.S.I.R.O./University co-operation.

His scientific reputation grew rapidly. He was elected a Fellow of the Australian Academy of Science in 1954 and of the Royal Society of London in 1961.

But personal success in no way affected his single minded devotion to C.S.I.R.O. Of all his achievements he is proudest of the contribution his group has made to the problems of the food industry.

It was an open secret that he gave up his experimental work to join the Executive in 1959 because he felt that this was his duty in the best interests of C.S.I.R.O.

The Executive has been immeasurably the gainer. His scientific advice and his clear and simple analysis of complex administrative and scientific problems have been a great joy to his colleagues.

It is always sad to lose the close help of a friend. But no-one will begrudge Professor Robertson the happy smile on his face as he dreams again of plant cells and white coats and as he initials his last few hundred Head Office files with carefree abandon."

Minister-in-Charge

The appointment of Senator J. G. Gorton as Minister-in-Charge of C.S.I.R.O. was announced by the Prime Minister last week.

Senator Gorton succeeds Dr. D. A. Cameron, who lost his seat at the last elections.

Senator John Grey Gorton, who is also Minister for the Navy, was born in Melbourne in 1911. He went to Geelong Grammar School and to Brasenose College, Oxford, where he took his degree.

He fought in the R.A.A.F. in the 1939-45 war as a fighter pilot. He subsequently became an orchardist at Mystic Park near Swan Hill on the Murray, and was elected as a Senator from Victoria in 1949. He became Minister for the Navy in 1958.

During the course of his active service in the R.A.A.F., he served in the United Kingdom, Singapore, Darwin and Milne Bay.

He was shot down and severely wounded in the Malayan Campaign. When partly recovered from his wounds, he was evacuated from Singapore in early 1942.

His ship was torpedoed by the Japanese and after a night and a day on an improvised raft, he was picked up by H.M.A.S. "Ballarat" and got back to Australia.

Prior to his entering Federal politics, he was a Councillor of the Kerang Shire from 1946 until 1952 and President of the Shire in 1948.

He is married with three children.

During the course of his pre-Ministerial career, Senator Gorton was an active member of the Parliamentary Joint Committee on Foreign Affairs of which he was Chairman from 1952 to 1955.

Senator J. G. GORTON

His interest in international affairs is reflected by his several recent visits to South East Asia on fact-finding missions. He has also visited Japan and Formosa and has acted as Minister for External Affairs during the Prime Minister's absence overseas. He has assisted the Prime Minister in the External Affairs portfolio for the last two years.

Senator Gorton was a member of the Council of the Australian National University in 1951 and 1952.

MERBEIN APPOINTMENT

The appointment of Dr. John V. Possingham as Officer-in-Charge of the Commonwealth Research Station at Merbein, Victoria, was announced by the Minister-in-Charge of C.S.I.R.O. (Senator Gorton) this week.

Dr. Possingham was born at Barmera, South Australia, in 1929. He completed his Bachelor of Agricultural Science degree at Adelaide in 1950, and in 1951 he undertook research on the nutrition of the tomato for his honours degree.

In 1952 Dr. Possingham joined the Division of Plant Industry as a Research Officer. He began research on the effects of molybdenum, iron and zinc deficiencies on the growth and development of tomato plants.

For this work he was awarded the M.Sc. degree of the University of Adelaide in 1954.

He continued his work on plant nutrition at Oxford University from 1955-57 under a famous plant physiologist, Dr. Robert Brown, F.R.S.

His work there on iron, manganese, and molybdenum deficiencies earned him the Oxford doctorate of philosophy.

Dr. Possingham's stay at Oxford was interrupted for six months when he was selected to work on the biological aspects of the Maralinga Atomic Trials in Australia.

He has since published scientific papers on the retention of atomic fall-out on plants.

Dr. J. V. POSSINGHAM

Chairman to South Africa

The Chairman, Dr. F. W. G. White, will leave Australia on 18th March for a three-weeks visit to South Africa.

He has been invited by the Chairman of the South African Wool Board, Dr. J. G. van der Wath. He will advise the South African Wool Textile Research Institute on the future development of the Institute's research programme.

Dr. White intends to visit a number of the research divisions of the South African C.S.I.R., including the National Institutes for Building Research, Mechanical Engineering Research, Water Research, Nutrition Research, Road Research, and Physical Research.

He will also visit the University of Pretoria and Dr. C. H. Wyndham's Applied Physiology Laboratory in Johannesburg.

Missing—For 72 Years

One of Australia's most remarkable birds, a species supposedly "lost for ever", has been rediscovered.

Naturalists in the south-west of Western Australia, where the bird solely belongs, are elated over the find, which one of them has described as "the most exciting news of the century in Australian ornithology".

I recently opened a letter from Dr. D. Serventy, of C.S.I.R.O.'s Wildlife Survey Section in Perth, and found it to begin, "Atrichornis clamosus exists!"

In everyday language, *Atrichornis clamosus* is the western scrub-bird, a creature of ancient lineage and high talents; and the elation over its existence arises from the fact that it has been "posted missing" for about 70 years.

About eight inches in length and quietly coloured (mottled brown and black with some white beneath), it is a ground frequenter with poor powers of flight but ability to run very swiftly over and under debris in thick vegetation.

Its calls, extremely strong, are a series of cheeps — these constitute the "signature-tune" — and a variety of expressions that may swell into rich melody.

The species was discovered in 1842, by John Gilbert, the naturalist-explorer, who later joined the first Leichhardt expedition and was killed (in 1845) by aborigines of northern Queensland.

He was much impressed by the bird's running speed and had pleasure in hearing it "singing sweetly with loud clear notes".

Because of the odd fact that the species lacked bristles round the gape, the English birdman John Gould named it *Atrichornis* ("bird without hair"); but, having done that, he found himself unable to classify it.

The same difficulty, arising from anatomical problems, has prevailed ever since; so that all that can be said is that Atrichornis may be a distant relative of the lyrebird, but has no other affinities anywhere in the world.

A drawing of the western scrub-bird.

Twenty-three years after Gilbert's discovery, a second species of scrub-bird was taken by a New South Wales naturalist, James Wilcox, near Lismore.

Adapted from a "Sydney Morning Herald" article by A. H. Chisholm.

Rather warmer in color, and a trifle smaller than its western relative, the new species was named by Dr. E. P. Ramsay of Sydney (in 1866) *Atrichornis rufescens*, the rufous scrub-bird.

So then, the striking fact was revealed that a member of this unique group existed on each side of Australia.

Obviously, there was once a chain of the birds right across the continent, but in the arid period following the Ice Age (perhaps 8,000 years ago) the intermediate links fell away, leaving only each end of the chain persisting in suitable areas.

In recent years, it has been found that the rufous scrub-bird occurs scantily, in appropriate country, from the ranges of south-eastern Queensland to the vicinity of Newcastle.

Its stronghold is the McPherson Range National Park. There it is often heard, though rarely seen, by tourists, who refer to it as the mystery-bird, mouse-bird, and mocking-bird, this last because of its exceptional powers as ventriloquist and mimic.

An English-born resident of Albany, William Webb, paid some attention to the species in the 1870's, and A. J. Campbell of Melbourne, working in 1889, heard several of the birds and managed to shoot one of them.

That was all. Only the four men were known to have seen the male bird during 47 years, and the female and nest remained undescribed.

Since 1890, many searches for the western scrub-bird have been conducted, but every one has failed.

Thus, most modern comments have labelled the species "extinct" or "lost forever".

And now the "extinct" bird has been found again, and found to be singing as heartily as its ancestors did, in John Gilbert's hearing, in 1842.

The discoverer, Mr. H. O. Webster, a naturalist who is headmaster of a primary school in Albany, heard the resounding voice and saw the bird in thick scrub near King George Sound at Christmas time.

A few days later, in company with Dr. Serventy, he recorded the calls, including some competent mimicry, on tape.

TECHNICAL ASSOCIATION NEWS

A Defence of Study Leave

In the December, 1961, issue of the C.S.I.R.O.O.A. Bulletin a correspondent has contributed a blistering attack on the Executive's policy of allowing study leave to technical assistants.

The granting of such leave, he claims, makes the planning and execution of research projects intolerably difficult, and in any case, technical assistants are being treated with ridiculous generosity.

It is rather extraordinary, in an age where progressive companies and organizations are doing all they can to improve the competency and skills of their staffs, to find such reactionary views expressed.

No one could say that the technical assistants are "getting it too easy". It is possible, just possible, for an assistant to complete his course in six years, by utilizing all his spare time. He can, of course, never fail a subject.

Presumably, if leave were not granted, the ambitious assistant might manage to qualify after ten years.

It is a relief to know that the Executive of C.S.I.R.O. does not share the views of the C.S.I.R.O.O.A. Bulletin correspondent.

From the earliest days of C.S.I.R., men like Sir David Rivett and Sir George Julius held the most liberal views on the responsibilities of the Council for the future of young men and women.

Sir George, in particular, abhorred the idea of "dead-end" jobs for members of the staff who were not professionally qualified.

C.S.I.R. took active steps to see that young men and women entering C.S.I.R. with limited educational background, but with a will to advance, were given every help and encouragement to further their education.

Fortunately, the present Executive adheres to these liberal principles.

If the correspondent had taken a wider view of the situation, instead of such a narrow-minded one, he must surely have realized that the present policy results in a gain to C.S.I.R.O. and to Australia which more than compensates for the minor inconveniences he suffers.

Retirement

Mr. E. J. Drake retired from C.S.I.R.O. last month after twenty-four years' service. A group of his colleagues from Melbourne Divisions and Sections farewelled him at a sherry party in the Committee Room at Head Office on 6th February.

Dr. I. W. Wark farewelled Mr. Drake on behalf of C.S.I.R.O. He spoke of Mr. Drake's work for C.S.I.R. as a member of the Information Section and of the Chemical Engineering Section at Fishermen's Bend.

During the war, said Dr. Wark, Mr. Drake fulfilled a position of key importance, as Controller of Industrial Chemicals in the Departments of Supply and Munitions.

Immediately after the war Mr. Drake visited Japan as a member of the Australian Scientific and Technical Mission.

Since 1952 Mr. Drake has represented C.S.I.R.O. abroad as Chief Scientific Liaison Officer in Washington (1952-1955) and London (1958-1961).

MERBEIN'S OPEN DAY

Two hundred vine growers flocked to the Commonwealth Research Station, Merbein, Victoria, for an Open Day on 10th January.

The visitors were divided into four groups, and were taken around the various trials which are being conducted at the station.

The growers were told that they were spending £250,000 a year on fertilizers but thirty years' experiment showed little difference between fertilized vines and unfertilized vines.

Intense interest was shown in the field-fertilizer trials on sultana vines where the various effects of nitrogen, phosphorus, potassium and green manure were demonstrated.

Long-term trials began in 1932 and 1938 and 11 short-term trials were illustrated in lectures by Messrs. D. Alexander, J. G. Baldwin and R. C. Woodham.

Results of the trials indicated that fertilizer application did not offset seasonal variations in yield.

Cultural practices and management had a much more important effect on yield than fertilizer, the lecturers said.

Fertilizer was beneficial when applied to young vines, particularly in the first three years.

Summing up the trials, Department of Agriculture orchard supervisor at Mildura (Mr. E. C. Biggs) said:

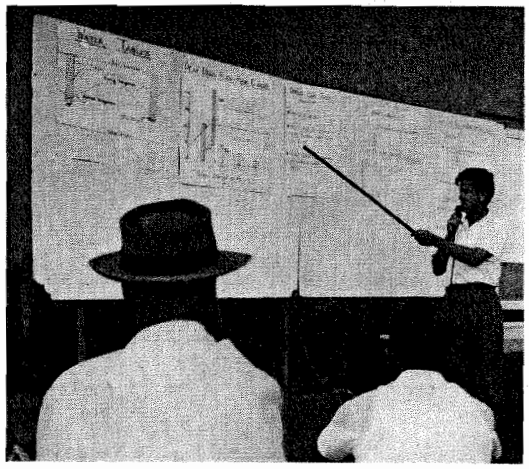
"The most valuable lesson from the fertilizer trials is that Sunraysia growers are spending £250,000 a year on fertilizers.

"Some areas of vines in these experiments have received 4 cwt. an acre per year of sulphate of ammonia for 30 years.

"Other areas have received no fertilizer at all but you will find it impossible to tell the difference between the areas."

Mr. Biggs said he would advise growers to leave fertilizer off the greater proportion of their blocks for a season and watch the effect for comparison.

Mr. S. F. Bridley talking on drainage problems at the Merbein field day.



Appointments Vacant

The following vacancies for professional appointments are current:—

ENGINEER or SOIL PHYSICIST (E.O.I/II)—Division of Soils. 270/238 (March 5).

EXPERIMENTAL OFFICER (E.O.I/II) — Division of Animal Physiology. 245/241 (March 5).

RESEARCH OFFICER (P.R.O./S.R.O.) — Division of Animal Physiology. 246/148. (March 14).

BIOLOGIST (R.O./S.R.O.)—Division of Fisheries and Oceanography. 320/225 (March 19).

RESEARCH GENETICIST (R.O./S.R.O.) — Division of Animal Genetics. 675/95 (March 26).

RESEARCH OFFICER (R.O./S.R.O.)—Division of Coal Research. 580/396 (April 2).

ORGANIC CHEMIST (E.O./I/II)—Division of Coal Research. 580/397 (April 16).

ORGANIC CHEMIST (E.O.II/III)—Division of Coal Research. 480/398 (April 16).

OVERSEAS VISITS

Mr. D. G. Cartwright, of the Upper Atmosphere Section, left last month on a visit to Washington, D.C. He is discussing with the U.S. National Aeronautics and Space Administration a joint C.S.I.R.O.-N.A.S.A. project concerned with very low frequency radio noise above the ionosphere.

Mr. D. J. David, of the Division of Plant Industry, left last month for an overseas tour of about 12 months' duration. He will study new developments in spectroscopy, mainly at the University of California, Berkeley, and at the Macauley Institute of Soil Research, Aberdeen.

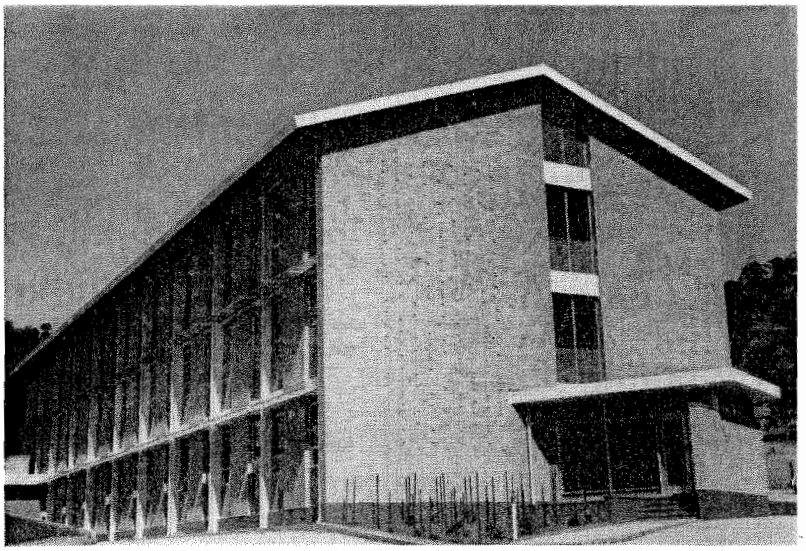
Dr. J. E. Falk, of the Division of Plant Industry, made a short visit to England last month. He went to discuss the results of his group's research on chemical and plant antifungal substances with the two European firms which are sponsoring the work.

Mr. A. V. Hill, of the Division of Plant Industry, left last month for Europe on a visit sponsored by two scientific organizations. He will advise the European tobacco industry on methods which can be used to reduce heavy crop losses caused by blue mould disease.

Dr. N. King, of the Dairy Research Section, left recently for the United States where he will spend six months in the Department of Food Technology, University of Illinois. He will return home via Europe, and will attend the meeting of the Sixteenth International Dairy Congress at Copenhagen in September.

Mr. K. Myers, of the Wildlife Survey Section, made a short trip to New Zealand last month. The purpose of his visit was to see something of an excellent ecological study of rabbits being made at Kourarau.

NEW SOILS LABORATORY



The front page of the first issue of "Coresearch" in April, 1959, carried a picture of the first of two new laboratories to house the Division of Soils in Adelaide.

Now the second laboratory has been completed and the staff has moved in.

The new laboratory, which is a three-storied cream brick structure, will house four sections of the Division and parts of two other sections.

It will also be a temporary home for two officers of the Division of Mathematical Statistics and three officers of the Soil Mechanics Section.

The Soil Survey and Pedology Section has been moved from its temporary quarters in Laboratory No. 1 to make room for the Library and a Conference Room.

The Physics and Microbiology Sections have been moved from the Waite Institute and the Mineralogy Group from the Mawson Laboratory at the University.

The Spectrographic Unit of the Chemistry Section and the nucleus of a future Micropedology Group complete the company in the building.

The new laboratory recently completed for the Division of Soils in Adelaide.

The total Soils staff housed in the laboratory will be forty-five.

The new building, which is fully air conditioned, contains a modern kitchen and tea room.

Special features are the internal colouring in pastel shades, which denote the limits of each unit area, and the flush fluorescent lighting.

With the completion of the second building, the whole of the Adelaide staff of the Division is now together on one campus for the first time since 1955.

The original land for the Division was made available on lease from the University of Adelaide three and a half years ago.

It is on a beautiful site in the Adelaide foothills close to the Waite Institute and the Wine Research Institute.

A long-term development plan for beautification of the area is well under way. Some attractive lawns, garden shrubs and flowers have already been planted.

Southern Pelagic Project

Dr. A. G. Nicholls, pioneer of research into Tasmania's trout fisheries, transferred last month to Melbourne.

From a new laboratory at Camberwell, Dr. Nicholls will direct the southern pelagic project — the study of tuna, barracouta, salmon and crayfish off the coasts of Victoria and Tasmania.

Dr. A. G. NICHOLLS

Dr. Nicholls, an officer of the Division of Fisheries and Oceanography, was appointed in 1947 to investigate freshwater fisheries in Australia.

In 1949, when it became apparent that the main work on trout would have to be centred in Tasmania, he moved to Hobart, where he established a headquarters for work in rivers and lakes.

It had been contended that for a number of years trout fishing in the State had been deteriorating steadily, both in regard to the quantity and quality of fish caught.

In recent years Dr. Nicholls has written a series of papers giving results of investigations and conclusions.

They have included "The Population of Trout Streams and the Survival of Released Fish", "Egg Yields from Brown and Rainbow Trout", "The Tasmanian Trout Fishery", in four parts, dealing with regional studies of rivers, and "Trout in Tasmania", a preview of investigations in lakes.

Conclusions reached by Dr. Nicholls about the lack of growth in mature large brown trout in Great Lake formed the basis for the decision by the Inland Fisheries Commission to make large-scale releases of these fish in lowland rivers.

"C.S.I.R.O. AND THE FOOD INDUSTRY", released in January, is the first of a series of booklets being produced by the Industrial Research Liaison Section, East Melbourne.

Each booklet will describe C.S.I.R.O. research work relating to one field of secondary industry.

Written in non-technical language and profusely illustrated, "C.S.I.R.O. and the Food Industry" summarizes briefly the results of research carried out at the Division of Food Preservation, the Dairy Research Section, the Bread Research Institute of Australia, and the Wheat Research Unit.

The booklet should be a useful source of information for non-technical readers in the food industry.

It will also enable others outside the industry to become acquainted with the nature and scope of C.S.I.R.O. work in this field.

HONOURS

Mr. F. J. Kerr, of the Division of Radiophysics, has qualified for the Degree of Doctor of Science in the University of Melbourne.

The title of his thesis was "Some Radio Astronomical Studies of the Solar System and the Structure of Galaxies".

Dr. R. O. Slatyer, of the Division of Land Research and Regional Survey, has been awarded the 1961 Edgeworth David Medal of the Royal Society of New South Wales. The award recognizes his distinguished contributions to the study of plant-soil-water relations and to climatology.

Superannuation—How to Supplement its Benefits

C.S.I.R.O. people who pay contributions to Superannuation can't afford to pay much for Life Assurance.

But there are various contingencies which occur in the average man's working lifetime which cannot be covered by Superannuation, unless it is supplemented by Life Assurance.

The fact that Life Assurance premiums can be deducted regularly from salary makes it easy to arrange to cover most, if not all these needs.

And Superannuation plus Life Assurance premiums up to a total amount of £400 p.a. can be claimed as a tax rebate.

Earlier Retirement

A contributor who plans to retire at 65 can "buy out" at 60 by paying a lump sum to the Fund, the cost per unit being £65 to £70, depending when units were taken up.

A policy maturing at age 60 is the ideal method of setting aside a fund to meet this contingency.

Whichever age a member decides to retire, the aim of a great number is to travel, so that a lump sum to meet the cost of this is provided for by a policy maturing at 60 or 65.

Probate

For those whose assets increase over the years, a problem of probate arises, even if they survive the retiring age.

A member can take out a "Whole of Life" policy, and at retirement can convert his policy to a paid-up assurance, free of any further premiums and participating in future bonuses.

Even if probate is not a problem, the last expenses when death occurs require a considerable sum.

Death Before Retirement

Depending on contributions, the widow of a man who dies before retirement is entitled to ½ or ⅝ of his pension.

This is not very much when compared with his income whilst he is alive and in receipt of full salary.

The sudden reduction of income could present a real problem where children have not completed their education, or a mortgage on the home still remains.

Policies are available which provide for a lump sum on death plus an annuity for a selected number of years, or the option of taking a lump sum in lieu of the annuity.

Impairment of Health

Another type of policy is somewhat similar to the special C.S.I.R.O. decreasing assurance plan, except that the decreasing units can only be taken in conjunction with a basic policy.

The advantage of this plan is that at any time prior to age 50, the decreasing units can be converted to basic assurance without any evidence of health.

This type of policy is popular with the man who has delayed taking sufficient basic assurance at a young age, who finds he can afford more at a later age, but whose health has deteriorated.

To all these types of policies accident, disability and waiver of premium benefits can be added at very low cost.

Education

The cost of meeting education expenses for children is a problem. Various forms of children's assurances are available.

For male children particularly, a deferred "Whole of Life" policy, with the option of converting to various forms of endowment assurance makes a most attractive proposition at a most moderate cost.

by G. F. Judd, A.M.P. Society

A weakness of the Commonwealth Superannuation Fund is the fact that, on the death of the widow of a member, the pension for the surviving children is quite inadequate to maintain them and see them through their education.

My company has introduced a policy which, in some measure, could help solve the problem where a member and his wife die as a result of one accident.

The policy provides for payment to the estate of £5,000 for the very small annual outlay of £2/12/6.

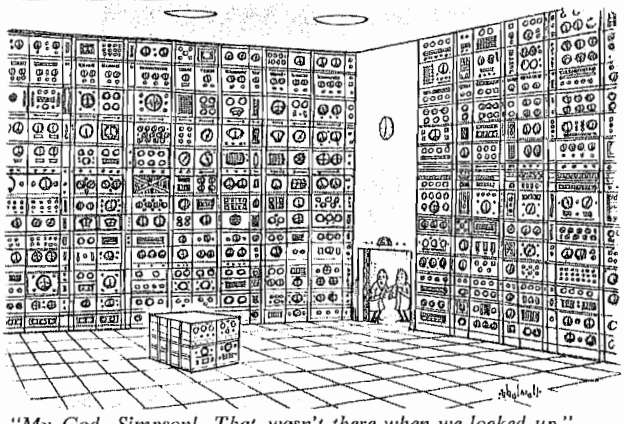
Decreasing Assurance

The C.S.I.R.O. Decreasing Assurance Plan, introduced three years ago, has grown rapidly.

The A.M.P. Society's figures show that there are 397 members holding 2,202 units for a total sum assured of £1,280,195. Annual premiums amount to £5,413.

Since inception of the plan, one death claim has occurred for a sum assured of £3,100.

Every five years the plan will be reviewed and the surplus will be paid to members in the form of a cash bonus.



"My God, Simpson! That wasn't there when we locked up."

With grateful acknowledgement to "Punch".

New Appointees

Mr. B. BERESFORD SMITH

Mr. B. Beresford Smith, a graduate in science and engineering from the University of Tasmania, has been appointed to the position of Assistant Secretary (Works and Buildings) at Head Office. In a varied engineering career he has worked with a construction firm, consulting firms, as assistant city engineer (Hobart and Launceston), as an engineer officer in the A.I.F. and as a senior officer of the Department of Works.

Mr. M. I. Bruce has been appointed to the staff of the Division of Plant Industry to work on growth regulators in plants. He recently completed a B.A.(Hons.) degree at the University of Oxford.

Mr. H. P. C. TRUMBLE

Mr. H. P. C. Trumble has been appointed to a position on the Secretariat at Head Office. A graduate in agricultural science from the University of Adelaide, he has been for the last ten years Scientific Liaison Officer in the South Australian Department of Agriculture. Mr. Trumble was formerly Honorary General Secretary of the Australian Institute of Agricultural Science.

Dr. S. BARKER

Dr. S. Barker, a graduate of the University of Western Australia, has joined the staff of the Wildlife Survey Section. He will study aspects of the physiology of kangaroos. Since graduating Ph.D. in 1960 he has been spending a post-doctoral year with Professor D. S. Farner at Washington State University.

Dr. E. A. Schwinghamer, an American, has been appointed to a Senior Research Fellowship in the Division of Plant Industry. He will undertake genetic studies of *Rhizobium* Dr. Schwinghamer, a Minnesota graduate, has been for the past six years at the Brookhaven National Laboratory, Upton, New York.

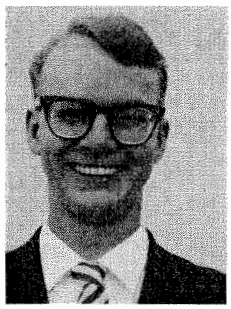
Miss D. CASTLEMAN

Miss Diane Castleman, a recent graduate in Mathematics from Sydney University, has been appointed to the staff of the Division of Radiophysics. She will process radioastronomical data, especially from the Parkes telescope.

Mr. M. F. Dubravcic has joined the staff of the Fodder Conservation Section. A graduate of the University of Zagreb, Yugoslavia, he came to Australia in 1954. He has since spent two years as Chief Chemist in a milk products factory and five years on the staff of the Central Research Laboratories, I.C.I.A.N.Z.

Dr. E. A. COOKSON

Dr. Elizabeth Cookson, a graduate of the Universities of Oxford and Manchester, has joined the Division of Textile Industry. She will carry out research on the development of new fabric finishes by chemical modification of wool fibres.



Mr. R. N. CROMER

Mr. R. N. Cromer, a forestry graduate, has been appointed to the staff of the Division of Plant Industry, and will join the Alpine Ecology Unit based at Jindabyne.

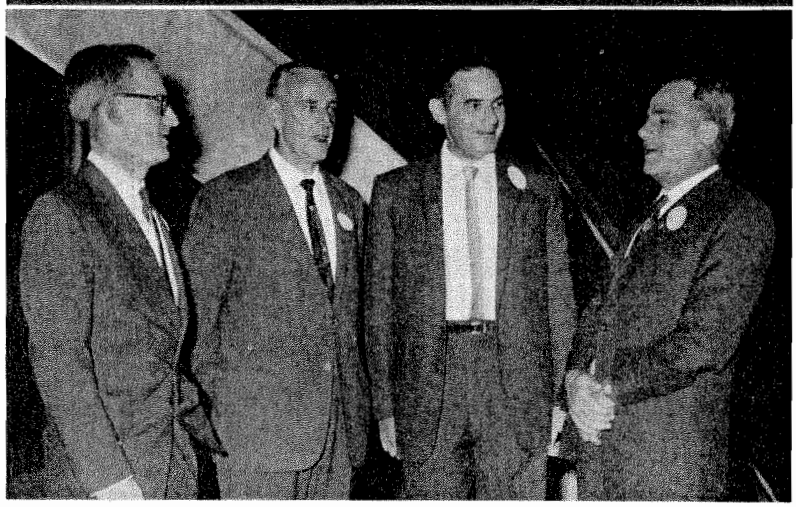
Mr. B. B. Hicks, a graduate of the University of Tasmania, has joined the staff of the Division of Meteorological Physics. He will take part in the final stages of development of the Evapotron and its early exploitation in the field.

Mr. J. J. Taylor has joined the staff of the Division of Animal Physiology. After graduating B.A. and B.Ag.Sc. from Trinity College, Dublin, he spent four years as a chemist in the food industry. Since 1960 he has been on the staff of the Department of Horticulture, Ontario Agricultural College, Canada.

Dr. M. FREER

Dr. M. Freer has joined the staff of the Division of Plant Industry. A graduate of the Universities of Reading and Melbourne, he has been working for the last two years at the National Institute for Research in Dairying under an Australian Dairy Produce Board Post-graduate Studentship.

SOIL SCIENTISTS IN CANBERRA



Four members of the organizing committee. From left: Prof. N. Collis-George (Sydney), Mr. R. G. Downes (Soil Conservation Authority, Victoria), Mr. B. E. Butler, and Mr. R. I. Herriot (S.A. Dept. of Agriculture).

Over two hundred scientists from every State in Australia, from America, New Zealand and New Guinea, met in Canberra from 15th-21st February. They were delegates to the third Australian Conference in Soil Science, held in the Australian Academy of Science Building.

Theme of the conference was "The Interpretation of Soil Characteristics in Relation to Soil Production".

The Conference was formally opened on the evening of 14th February by His Excellency, the Governor-General (Lord de L'Isle), in the presence of the Minister for Primary Industry (Mr. Adermann), the Chairman of C.S.I.R.O. (Dr. White) and the Conference Chairman (Professor Prescott).

Lord de L'Isle said that there was no other region in the world where the discipline of soil science had a greater opportunity of contributing both to human wealth and human welfare.

Soil scientists in Australia must, he said, aim at creating, as quickly as possible, the same sort of intensification of activity within the environment which has been achieved gradually and empirically in other parts of the world.

Mr. Adermann referred particularly to the soils of Northern Australia. He looked forward to the day, he said, when northern soils could be brought into successful development, as had been done so notably in the south.

"The agricultural and pastoral development of northern Australia," said Mr. Adermann, "is one of the greatest challenges we face."

Dr. White said that the Conference was meeting in a healthy atmosphere of questioning by soil scientists of the basic approach to their work.

It is at conferences like these, he added, that vague ideas in the minds of individuals come to maturity.

The stimulus of discussion was important in suggesting new approaches, both to individual problems and to the broad concepts of the science as a whole.

After the opening ceremony, the Governor-General met a number of the conference delegates over supper.

Business sessions of the conference began the following day, and finished on 21st February. One hundred and nine papers were presented and discussed during the four and a half days of conference.

During the week-end, delegates toured the Snowy Mountains and, after the conference, there was a tour of the Riverina.

Organization of the conference was in the hands of a committee of seven. Chairman of the Committee was Mr. B. E. Butler (Soils, Canberra) and the Secretary was Mr. H. S. Hawkins (A.R.L.S.).

Two members of the administrative staff at Canberra have qualified for the degree of Bachelor of Arts in the Australian National University. Both completed their courses by part-time study. Mr. K. Kaldma (left) is Personnel Officer in the Canberra Administrative Office. Mr. P. Magi (right) is Divisional Administrative Officer in the Wildlife Survey Section.

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CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 37, MELBOURNE, APRIL 1962

A National Science Centre

Australia is to have a new National Science Centre called "Clunies Ross House". It will house all the major scientific and technological societies of the Commonwealth.

In announcing the project on 9th March Sir Owen Dixon, Chief Justice of Australia, who is Chairman of the Board of Governors of the Ian Clunies Ross Memorial Foundation, said the National Science Centre was the first objective of the Foundation.

The Centre will be a multi-storey building which it is proposed to erect on a site in Royal Parade, Parkville, near the University of Melbourne.

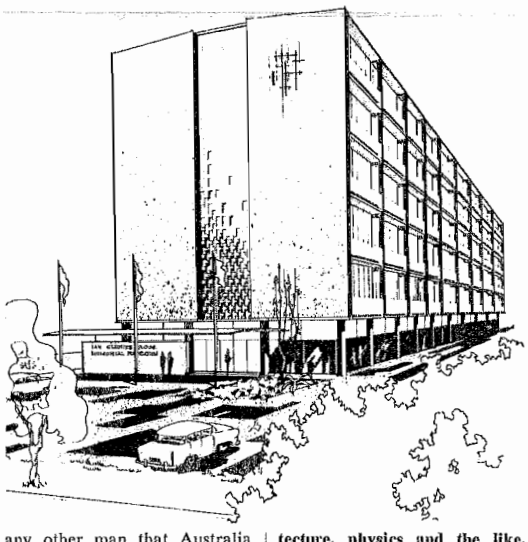
Other plans are for a commemorative medal to be awarded periodically for outstanding work in science or technology and a series of memorial lectures to be delivered by world authorities.

Sir Owen said that Ian Clunies Ross was in the line of the great Australians. At the time of his death it was to him more perhaps than to any other man that Australia looked for guidance and inspiration in the growth of our science and its application to the problems of primary and secondary industrial development.

His personal contribution to the wool industry alone had been of incalculable value to the nation.

Members of the Board of Governors of the Ian Clunies Ross Memorial Foundation are: Sir Owen Dixon (chairman), Mr. I. M. McLennan (vice-chairman), Sir Macfarlane Burnet, Professor H. R. Carne, Professor T. M. Cherry, Mr. M. A. Cuming, Sir William Gunn, Sir Lionel Hooke, Sir Cecil Hoskins, Professor L. G. H. Huxley, Mr. T. M. Scott, Mr. A. Thyne Reid, Dr. F. W. G. White, Mr. G. B. Gresford (secretary), Mr. J. E. Cummins (treasurer).

Artist's impression of Ian Clunies Ross House, to be built in Melbourne.



The Foundation was established in 1959, for the purpose of honouring the memory of Sir Ian Clunies Ross by generally encouraging the development and application of scientific research.

Sir Owen said the work of the various technical and scientific institutes and societies had become of great value to industry and to the whole community; it was therefore important to provide them with the conditions in which they could function best.

Clunies Ross House will supply modern accommodation for all these bodies under one roof.

It will be equipped with lecture theatres, conference rooms, film theatres and exhibition space — facilities which should make for a closer association and better integration of effort between many scientific and technical disciplines, and thus serve industry more effectively.

The Centre is expected to house more than twenty organizations associated with mining, metallurgy, chemistry, engineering, agriculture, architecture, physics and the like, together with bodies such as the Standards Association of Australia and the National Safety Council.

Sir Owen said the Governors hoped the National Science Centre would complement the work of the Academy of Science and become a progressive, co-ordinating influence for the advancement of science and technology in Australia.

A campaign to raise £500,000 would be conducted throughout the Commonwealth in June this year. A national campaign committee had been formed under the chairmanship of Sir Cecil Hoskins.

State chairmen are: Victoria, Mr. E. Angus Jones; New South Wales, Mr. W. W. Pettingell; Queensland, Mr. R. S. Colquhoun; South Australia, Sir Fred Drew; West Australia, Sir Alexander Reid; Tasmania, Mr. T. A. Frankcomb; A.C.T., Mr. Warren McDonald.

Several substantial donations have already been promised, including £20,000 from the Broken Hill Pty. Co. Ltd.

The project has received the wholehearted support of the Prime Minister (Mr. Menzies) and the Leader of the Opposition (Mr. Calwell).

Mr. Menzies said that Sir Ian's devotion, his enthusiasm, and his scholarship, which were brought to bear on C.S.I.R.O. during a decade in which it underwent a wide extension of its functions have left an imprint which will never be erased.

"The proposal to build a National Science Centre bearing his name," said Mr. Menzies, "is a most fitting one, to which I am happy to give my best wishes and my support."

Mr. Calwell said that it was necessary that the community as a whole should understand what the scientist is trying to do, and also that the scientist should understand the real needs and aspirations of the community.

"Because the Ian Clunies Ross Memorial Foundation will help in this task of mutual understanding between the scientific few and the non-scientific many," said Mr. Calwell, "I am very happy indeed to warmly commend the appeal to the people of Australia."

Prof. F. Hoyle to Visit Us

Professor Fred Hoyle, F.R.S., the well-known British astronomer and author, is to visit Australia later this year.

Professor Hoyle, who will be accompanied by his wife and daughter, will arrive on 1st September.

The visit has been organized under the Commonwealth University Interchange Scheme.

Professor Hoyle is Plumian Professor of Astronomy and Experimental Philosophy in the University of Cambridge.

He is well known to astronomers as one of the proponents of the "steady-state" theory of the universe. This theory, which postulates continuous creation of matter, has given rise to great controversy in the astronomical world.

Professor Hoyle is also well known to the scientific world as the author of popular books on astronomy. His "Frontiers of Astronomy", published in 1955, was a popular science classic.

His third claim to fame is as a novelist. Science fiction devotees know him as the author of "The Black Cloud" and "Ossian's Ride".

During September and October, Professor Hoyle will visit all the Australian Universities.

From mid-November he will spend several weeks with the Division of Radiophysics before returning to Britain.

MINISTER IN HOBART

A few hours after Senator Gorton was appointed Minister-in-Charge of C.S.I.R.O., he paid his first visit, as Minister, to one of our laboratories.

Our picture shows him with Mr. Falkinder, M.H.R., and Mr. K. R. Campbell, of the Wildlife Survey Section, at "Stowell", headquarters of the Tasmanian Regional Laboratory.

The Minister is looking at a study skin — a stuffed specimen of a bird used for comparative and record purposes.

ADVISORY COUNCIL

The Governor-General has approved the appointment of four new members to the Advisory Council of C.S.I.R.O.

The new members are Sir Lance Brisbane, Mr. F. C. Elsworth, Professor C. W. Emmens and Mr. W. M. Morgan.

Sir Lance Brisbane, Kt., M.B.E., F.R.S.A., is Chairman and Managing Director of H. L. Brisbane and Wunderlich Ltd. He is also Chairman of the Western Australian Industries Advisory Committee.

Mr. F. C. Elsworth, B.Sc., A.R.A.C.I., is Managing Director of the firm of Dewey and Almy Proprietary Limited, an affiliated company of W. R. Grace & Co. He has wide interests in the food and container industries.

Prof. C. W. Emmens, D.Sc., Ph.D., F.A.A., is Professor of Veterinary Physiology in the University of Sydney. From 1952-54 he was Officer-in-Charge of the Sheep Biology Laboratory at Prospect, N.S.W. (now the Ian Clunies Ross Laboratory).

Mr. W. M. Morgan, B.E., is Manager of Western Mining Corporation Ltd. He has wide interests in the Australian Mining and Minerals industry.

Dr. O. H. FRANKEL

In the March issue of "Coresearch", it was stated that Dr. Frankel would continue to act as Chairman of the Division of Plant Industry's Research Management Committee. This arrangement will, of course, cease when a new Chief is appointed to Plant Industry.

Amateur Film Making Award

The Film Unit, which has won an impressive list of prizes in film festivals, will have to watch out for Dr. George Bornemissza, of the Division of Entomology.

For Dr. Bornemissza, who makes films in his spare time as a hobby, has opened his prize winning account.

He recently made an 8 mm. film called "The Burning Bush". His film is a study of the effect which fire has on bushland, and, in particular, the effect on insect populations.

The film has just won a prize in the recent competition held in Perth by the Federation of Amateur Cine Societies.

Battle of the Baskets

Here's a battle that I wage
Each day, and never win:
To pile more papers in my "Out"
Than others pile in my "In".

The battle starts at nine a.m.
Amidst a frightful din
Of clacking keys and clicking heels
That strive to fill my "In".

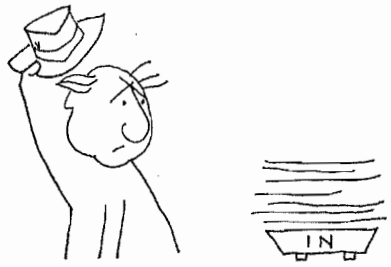
Till noon and past, with flitting eye,
Quick hand, and jutting chin,
I thread the ins and outs of "Out",
The outs and ins of "In".

By five p.m. I'm glassy-eyed,
My nerves are frayed and thin,
But everything is piled in "Out"
And, likewise, out of "In".

But victory is not yet mine:
I find, to my chagrin,
That as my "Out" is emptied out
A lot more "In" comes in.

"It is too late," I sadly sigh,
"Too late now to begin."
And so I put my hat on and
Once more go out — all in.

ANON.



A Memorial to Sir David Rivett

A number of friends, colleagues and admirers of the late Sir David Rivett are launching a private appeal for funds to set up a memorial to Sir David's life and work.

Sir David was Chief Executive Officer and later Chairman of the Council for Scientific and Industrial Research, predecessor of C.S.I.R.O.

He, more than any other man, was responsible for establishing the pattern of C.S.I.R.O. as we know it today.

Sir David saw clearly that the development of Australia must be based essentially upon new knowledge: he initiated the necessary research with rare discernment, and inspired its progress by close personal contact.

Consensus among those privileged to work with him in C.S.I.R. suggested that a fitting memorial should aim to preserve the vigorous stimulus of his leadership, and proposed that this might best be achieved by establishing a David Rivett Memorial Lecture Appeal.

This will provide means for ensuring that young Australian research workers will be afforded the opportunity of close personal contact with men of science who have reached the highest ranks of achievement.

The sum of £20,000 which will be sought would yield an annual income of about £1,000.

This would enable the Trustees, in consultation with the Appeal Committee, to invite men of outstanding scientific merit to travel to Australia to deliver the Memorial Lecture — a formal address which, at two-yearly intervals, would be made a grand occasion in one or other of the major cities of the Australian Commonwealth — and spend a period in the laboratories of C.S.I.R.O., the Universities and other Scientific Institutes to meet individuals actively engaged upon research and to talk informally with them.

Such visits would carry on, in essence, the driving force of David Rivett's achievements, and would keep alive his name among generations to come.

The Memorial Committee, under the Chairmanship of Dr. I. W. Wark, will shortly seek contributions from Sir David's former friends and colleagues, and, privately, from industrial and commercial interests.

ANIMAL PRODUCTION SOCIETY FELLOWSHIPS

Three C.S.I.R.O. scientists were honoured at the Adelaide meeting of the Australian Society of Animal Production in February.

Miss Helen Newton Turner, of the Division of Animal Genetics, was elected President of the Society. She is the first woman to hold this office.

Dr. H. R. Marston, Chief of the Division of Biochemistry and General Nutrition, and Dr. M. C. Franklin, of the Division of Animal Physiology, were elected Fellows of the Society.

In an address to the conference, Dr. Marston said that the pattern of animal industry in Australia must change profoundly within the next two or three decades.

In about 30 years human population would outgrow the world's food supplies.

"As we approach this grave disaster, basic food prices will inevitably increase to such an extent that the more favoured land in Australia, where at present the major part of the wool clip is produced, will be used for food crops simply because this latter industry will be much more remunerative," Dr. Marston said.

"The bogy of over-production will be relegated forever.

"Wool production will then recede to the more arid areas."

Even though there had been great technological advances in the production of artificial textile fibres, Dr. Marston said, there was little reason to believe that wool would be supplanted.

"Wool is likely to become a high-price luxury, however, in the period immediately ahead," he continued.

"This reasoning cannot be brushed aside with the gibe of neo-Malthusian pessimism.

"It is based on the inexorable upward sweep of the number of mouths to feed.

"In the field of animal production the great effort of research centred, in Australia, on the wool industry must give way to research concerned essentially with animal products other than wool."

FLOOR SLABS TESTED

On Friday, 16th February, the Division of Building Research invited a representative gathering of consulting and structural engineers to the Highett laboratories, to witness load tests on their experimental concrete flat plate structures.

The slabs of reinforced lightweight concrete were 3½ inches thick, and supported on slender columns at a height of seven feet above ground level.

The three demonstrations staged for the visitors were a load-deflection test, a vibration test, and a test of the ultimate failure point.

The first test produced a deflection of about one-hundredth of an inch under a wall load.

The second test showed the intensity and characteristics of vibrations produced by impulses of various frequencies.

The third test was a loading test to the failure point. The slab, which weighs about forty pounds per square foot, had a design load of an additional forty pounds per square foot.

Pressure was applied pneumatically to the whole surface, and failure eventually occurred at 300 pounds pressure, by shearing at the supporting columns.

The project represented a very gratifying example of co-operation from many parts of the building industry.

The slab structure was erected by Messrs. Hansen and Yuncken Pty. Ltd., using Rapid Metal Formwork.

The concrete was supplied by Ready Mixed Concrete Pty. Ltd. with expanded shale aggregate from Reid's Lightweight Aggregate Pty. Ltd. Reinforcement and bar chairs were supplied by the ARC Engineering Co. Pty. Ltd., and the Cyclone Co. of Aust. Ltd.

Other contributions were received from Humes Ltd. and the Victorian Housing Commission.

In the planning and instrumentation of the structure there was close co-operation with the Civil Engineering Department of the University of Melbourne and the Aeronautical Research Laboratories of the Department of Supply.

Watching for cracks. In the centre of the picture, with his hands on his knees, is Professor A. J. Francis of the University of Melbourne.

TECHNICAL ASSOCIATION NEWS

Queensland Branch

The Queensland branch has entered into the Technical Association's activities with gusto. We are pleased to announce the appointment of the following office-bearers:—

Chairman, P. G. Sheaffe.
Secretary, R. B. Waite.
Treasurer, J. Moore.

A very comprehensive record of the minutes of their branch meeting was submitted to Central Council and the clarity and fullness of the motions put was noted.

Federal President N. G. Richards will be in Queensland early in April and will take advantage of the opportunity to meet the branch members.

Noel Thorndyke Case

We are pleased to announce that a satisfactory conclusion has been effected over the unfortunate accident to N.S.W. Secretary Noel Thorndyke.

The co-operation by Head Office in this matter has been sincerely appreciated.

Salary Advice Notes

It was pointed out at the Executive - Central Council meeting that details from the returns of Salary Advice Notes could be made available to any officer or employee who wished to check his entitlements.

The information could be obtained from the appropriate administrative clerk.

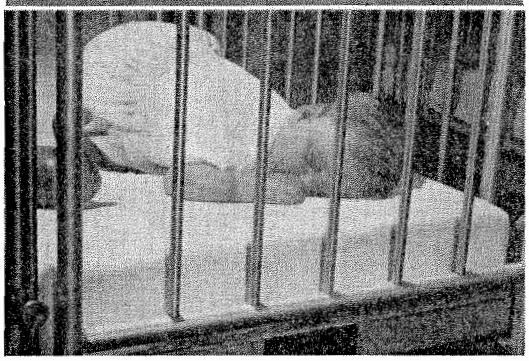
Payment of Junior Fees

The announcement that the Executive has agreed to pay Junior Technical Assistants' study fees has been received with much gratification.

A tertiary level education is a "must" in this day and age.

The incentive and assistance sponsored by this decision will go a long way toward ensuring the continued employment of the right type of people in C.S.I.R.O.

CHARITY FUND



The Division of Forest Products Staff Charity Fund has now been operating for nearly three years, and in that time payments to various charities have reached £700.

Of particular interest is the regular contribution of £50 per annum to the Foundling Home and Infants' Hospital at Berry Street, East Melbourne.

Last year's contribution was put towards one of the new cots with which the nursery is being equipped (see picture).

Another £50 per annum is paid to the Home for the Aged Blind at Brighton Beach, where rebuilding of the older wing is urgently needed.

During 1960 a television set was provided for one of the Kew Cottages, installation and erection of the antenna being carried out during a week-end by two members of the staff.

Other major contributions have been made to "Claremont" Home for the Aged in South Melbourne and to the Victorian Society for Crippled Children and Adults.

Smaller donations have been made to a variety of charities and appeals.

Diary of a Tasmanian Monster

June, 1960. A party of drovers discovered the carcase of a large fish or animal on a remote beach near Sandy Cape, Tasmania. They said the carcase was twenty feet long, eighteen feet wide, and four and a half feet deep.

March, 1962. Mr. G. C. Cramp, a trustee of the Tasmanian Museum, arranged an aerial search for the remains. Mr. B. C. Mollison, of C.S.I.R.O.'s Tasmanian Regional Laboratory, led a ground party to the site whilst on leave.

9th March. Mr. Mollison told the Hobart "Mercury" that the party had been unable to identify the remains. "One always tends to reject," he said, "the fact that an animal is unknown. One is always seeking some explanation, and you try to add up everything, but this one doesn't add up yet."

11th March. The Sydney "Sun-Herald" correspondent, who had viewed the carcase from the air, said that the creature "projects from its sandy tomb like a humped garden slater in an eerie setting reminiscent of 'The Lost World'. At close quarters," he said, "it resembles a prehistoric creature that could have emerged straight from the pages of a picture book".

12th March. An article, attributed to Mr. Mollison, appeared in several mainland papers. It described the find as "an outstanding scientific event". The carcase was described as "the Thing, a challenging anachronism framed in sand."

13th March. Mr. Mollison told the Launceston "Examiner" that he had not written the article which appeared under his name in the mainland newspapers.

14th March. Press interest reached its crescendo. The B.B.C. asked for a story. A telegram came from a Canadian University, urging C.S.I.R.O. to investigate.

C.S.I.R.O. decided to send a small party comprising Messrs. Calaby (Wildlife) and Olsen (Fisheries). Tasmanian scientific institutions were invited to send representatives with the party.

15th March. The public became interested. Correspondents to the press and to C.S.I.R.O. suggested that it was (a) a whale's tongue, (b) a mammoth from Antarctic, or (c) a hoax.

Humorous editorials in newspapers suggested (a) that it might be still alive and (b) that it should be promoted as a tourist attraction. Several cartoons about it appeared.

A shell museum proprietor asked for a piece of the monster to provide an attraction for his establishment.

16th March. The "Sydney Morning Herald" criticised scientists for not investigating it (a) two years ago and (b) when first reports of it appeared in the press.

17th March. Members of the scientific party returned from the beach. The press criticised the decision that they should remain silent until they returned to Hobart.

18th March. The Minister-in-Charge of C.S.I.R.O. released the scientific report. The "monster" had been excavated, and was found to be eight feet long, three feet wide, and ten inches deep. Decay and shrinkage, said the report, had no doubt reduced the size of the object.

"We do not believe that the material is anything new or remarkable," said the report. "It is not inconsistent with blubber."

Overseas Visits

Dr. J. G. Davies, Chief of the Division of Tropical Pastures, left last month for Taiwan (Formosa). He has been invited by the Chinese Government to advise and comment on pasture research in Taiwan. Dr. Davies will stop over in the Philippines on his way back to Australia this month.

Mr. L. A. Edye, of the Division of Tropical Pastures, left last month for Britain. He will make a number of short visits to research institutions, but his main objective will be the Grassland Research Institute at Hurley. He will spend about six months working in the Institute's Herbage Agronomy Department.

Mr. H. J. Frith, Officer-in-Charge of the Wildlife Survey Section, paid a short visit to Indonesia last month. He represented Australia at a UNESCO regional meeting on the conservation of nature and natural resources in tropical south-east Asia.

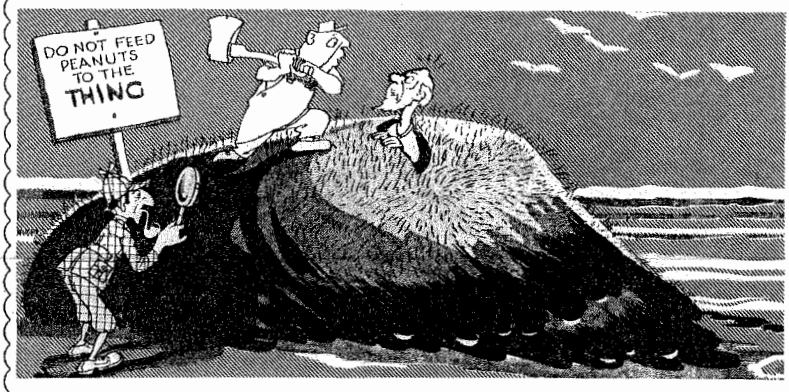
Mr. A. W. Humphries, a Plant Industry officer stationed in Perth, left last month on a trip of 9 months' duration. After spending two weeks in the Mediterranean Region, he will go to Nottingham to work with Professor Hallsworth for six months. He will go to America to see pasture research in Georgia and Florida before returning home.

Miss Helen Newton Turner, of the Division of Animal Genetics, spent last month in New Zealand. She was investigating New Zealand research in connection with sheep breeding for both meat and wool.

Dr. R. O. Slatyer, of the Division of Land Research and Regional Survey, left last week for France. He will present a series of papers to a symposium on eco-physiology measuring techniques at the University of Montpellier. In his capacity as Australian Arid Zone Research Liaison Officer he will spend two days with UNESCO in Paris. Dr. Slatyer will return this month via Britain and America.

Dr. J. M. Swan, of the Division of Organic Chemistry, left in February on an overseas trip of five months' duration. He will visit research institutions in Indonesia, Israel, Switzerland, Czechoslovakia, Britain, and U.S.A. During April, May, and June he will be working in the Chemistry Department, University of Durham.

Dr. A. D. Wadsley, of the Division of Mineral Chemistry, left last month for Washington, D.C. He has been invited to give a paper to the American Chemical Society's Symposium of Non-Stoichiometric Compounds. Before returning home in May, Dr. Wadsley will visit the laboratories of the U.S. Geological Survey, the Philips organization in Holland, and the University of Stockholm.



"Mr. Jonah, I presume."

With grateful acknowledgement to "Truth"

National Collection

By gazettal in the Commonwealth Gazette of 8th March, the extensive collection of insects in the possession of the Division of Entomology in Canberra will in future be known as the Australian National Collection.

This will establish an Australian equivalent of the Canadian and South African national insect collections.

The Australian National Insect Collection is the largest and most representative collection in existence of the insects of Australia and her dependent territories. It contains close on three-quarters of a million specimens.

It has been accumulated by numerous private donations and bequests such as those of Sir Edward Hallstrom, Dr. A. J. Turner and Mr. T. G. Sloane.

The new title will emphasize its status as a national heritage which it is the responsibility of the Commonwealth to preserve for future scientific study.

A large representative collection of insects is a basic requirement for entomological research.

Whether this is carried out with the purpose of leading to improved control of pests or for purely scientific reasons, properly used it permits the reliable identification of species.

Since most species differ from each other in many details of their life history and habits, correct identification is essential.

The collection will remain for the present in the custody of the Division of Entomology where it will play its part in the Division's research programme.

Co-operation with State and overseas museums in the loan and exchange of specimens and with other institutions in the provision of identification will continue as in the past and will in due course be extended.

Assistant Chief

Dr. J. E. Falk, Chief Research Officer in the Division of Plant Industry, has been appointed Assistant Chief of the Division. Until a new Chief is appointed to succeed Dr. O. H. Frankel, administration of the Division will be in the hands of Dr. Falk and Mr. R. M. Moore.

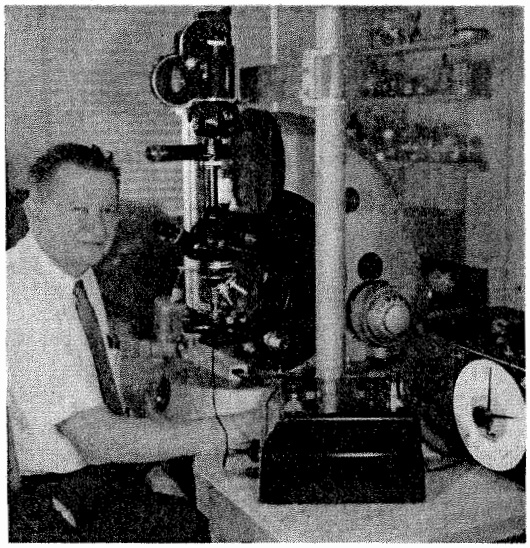
Correspondence should be addressed to the senior Assistant Chief, Mr. Moore.

EMERITUS PROFESSOR

Dr. L. R. Cleveland, Emeritus Professor of Biology from Harvard University, has arrived in Canberra to spend a year with the Division of Entomology.

Dr. Cleveland will study the inter-relationship of host insects and their parasites with particular reference to some Australian termite hosts.

Dr. Cleveland is accompanied by his wife, who is his research assistant. Their work in Australia is being supported by a grant from the U.S. Department of Health, Education and Welfare.



Shooting Match in Canberra

On Saturday, 10th March, the Wildlife Survey Section and the C.S.I.R.O. Black Mountain Divisions competed at a small arms meet at the Canberra Rifle Range and "Gungahlin".

The competing teams were made up of eleven members from Wildlife and eleven from Black Mountain.

The Wildlife team comprised Messrs. B. Brown (captain), J. F. McLaughlin, E. R. Hesterman, R. E. A. Coles, D. M. Brown, P. A. Fox, L. McLean, F. Knight, H. J. Frith, Mrs. H. Abercrombie and Dr. S. Barker.

The Black Mountain team consisted of Messrs. K. Prowse (captain), D. L. Thomson, J. R. Twine, K. J. Granger, D. G. Johnson, W. Rafferty, P. M. Firth, D. B. Quinlan, M. D. Cronch, L. J. Chinnick, and G. A. Yapp.

There were three events. The first was made up of two stages each of ten shots over 50 metres, with .22 rifles. Then followed a pistol event of ten shots at 25 metres. The final event was with shotguns — five shots at flying clay birds.

After the match, the Black Mountain team were entertained at Gungahlin, and a large number of toasts were drunk.

The day resulted in a convincing win for the Wildlife team. They went slightly ahead in the rifle shooting, further ahead with the pistol shooting, and clinched the match by winning the shotgun event by 3,089 points to 2,684.

The individual aggregate results provided a surprise. Third place-getter was Peter Fox, captain of the Canberra Pistol Club and an Australian record holder. Second place went to Bevan Brown, the Wildlife Survey Section's ace kangaroo, duck and goose shooter.

And the outright winner? Slim, 25 years old brunette Heather Abercrombie, the only woman in the field! Mrs. Abercrombie joined the Wildlife Survey Section only in October, as personal assistant to the Officer-in-Charge. Her husband is on the staff of Plant Industry.

No one knows where she learned to shoot, but the school must have been a good one.

After the match, Black Mountain issued a counter challenge, and they will have the privilege of choosing the weapons to be used.

Suggestions so far range from marbles to bows and arrows, but, as we go to press, no decision has been reached.

Heather "Annie Oakley" Abercrombie examines her pistol result.

NEW APPOINTEES

Dr. B. G. Baker has been appointed to a Fellowship in Surface Chemistry tenable at the Division of Tribophysics. After graduating in 1953 he taught chemistry for three years, but abandoned teaching for a research career in 1957. He recently completed the requirements for his Ph.D. at the University of Melbourne.

Miss Eleanor Kingsmill has been appointed to a position of rabbit parasitologist in the Wildlife Survey Section. She

Miss E. KINGSMILL

recently graduated B.Sc. from the University of Sydney, with first class honours in zoology.

Mr. M. J. Cumming has been appointed to the staff of the Chemical Engineering Section. A graduate of Melbourne University, he has been in New York for the past four years as an Instructor in Electrical Engineering at Columbia University.

Mr. I. R. Franklin, an honours graduate from Adelaide, has joined the staff of the Division of Plant Industry. He will take part in a study of radiation induced mutations in the Division's Genetics Section.

Dr. D. M. Langbridge has been appointed to a Research Fellowship in the Biochemistry Group, Division of Plant Industry. Since graduating Ph.D.

Dr. D. M. LANGBRIDGE

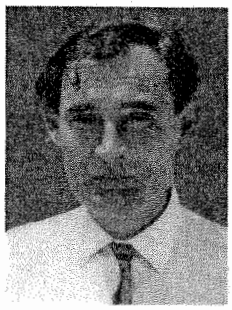
from Sheffield in 1954 he has worked with W.H.O. in Nigeria and the Cooper Technical Bureau in England.

Miss Pamela Hetherington has joined the staff of the Division of Textile Physics. She has just completed the degree course in Textile Technology at the University of New South Wales, under a Wool Research Trust Fund Scholarship.

Mrs. Julie Hill has joined the staff of the Division of Protein Chemistry. A graduate of the Universities of Alexandria and Minnesota, she has recently been on the staff of the Biochemistry Department, University of Melbourne.

Mr. R. Macara, who has joined the Division of Coal Research, is a diplomate of the Royal Technical College, Glasgow. After the war he spent ten years at Harwell, and came to Australia in 1955 to work as a chemist in industry.

Mr. P. L. Newland has joined the staff of the Soil Mechanics Section, and will be stationed in Adelaide. He has



Mr. P. L. NEWLAND

been for some years in charge of a regional Soil Bureau maintained by the New Zealand D.S.I.R. in Auckland.

Dr. J. B. Whiteoak has accepted a temporary appointment with the radio astronomy group of the Division of Radiophysics. He recently qualified for a Ph.D. degree in Astronomy at the Australian National University.

Dr. J. G. Wilson arrived in Australia last month to join a group in the Division of Plant Industry working on naturally occurring anti-fungal compounds. Since graduating M.Sc. from Sydney in 1951 he has obtained a Ph.D. at the University of Nottingham and worked at the Chester Beatty Cancer Research Institute in London. During the last two years he has been a Visiting Scientist at the U.S. National Institutes of Health Chemistry Laboratory at Bethesda, Maryland.

SKI CLUB PLANS

Plans to build a new ski lodge for the C.S.I.R. Ski Club at Falls Creek, Victoria, have unfortunately received a setback.

Plans to erect an entirely prefabricated timber building were not approved by the authorities.

It has been necessary to modify the plans to incorporate masonry foundations and ground floor. The delay means that construction is unlikely to be complete for the forthcoming season.

Twenty-four members of the Club went to Falls Creek for the Labour Day week-end. They dug the foundations, and poured six yards of concrete with great enthusiasm.

A further working bee will be held at Easter, when it is hoped to complete the building up to the first floor level.

Workers of both sexes are wanted to join the party at Easter. Volunteers should give their names to Mr. Leo Brennan, of the Division of Forest Products. The party will be staying at the Alpine Roads Flats at Falls Creek, at a cost of about £5 per head.

On Wednesday, 14th March, a general meeting of the club was held at Forest Products. A number of new members were welcomed. The meeting decided to raise the number of associate members to 130.

Clearing stumps from the site — Labour Day week-end.

Investment Opportunity

Are your savings earning less than six per cent per annum? If so, then the Directors of the C.S.I.R.O. Co-operative Credit Society Limited want you to know about the excellent investment opportunity available to you by investing your savings in the Society.

Interest paid for money received on deposit with the Society for a year or more is at the rate of six per cent. per annum.

Pro rata rates are paid for money received for shorter terms, and interest is paid at half-yearly intervals, in August and February. You may withdraw your money at any time.

A quick calculation shows that for every £1,000 invested a princely sum of £60 per annum will be earned.

It would be difficult at the present time to earn better interest with any other comparable investment.

The Society now has capital of over £70,000. This represents an increase of £10,000 since the end of last August.

The Society makes loans to members for a wide variety of needs, and loans of up to £1,000 may be made to any one member at a time.

Many loans have been made recently to assist members in the purchase of their own homes, and invariably the maximum loan has been required.

This, coupled with the recent credit squeeze, has placed a heavy strain on the resources of the Society. There is now a waiting time of up to six months before members are able to obtain their loans.

Your investment would help to reduce this delay, and greatly assist the Society in performing its important function.

In February, the Directors of the Society appointed Mr. J. Stodart to the position of part-time Assistant Secretary.

Mr. Stodart has had wide experience in this field of work and will look after all aspects of loan applications.

He will also answer enquiries concerning investments, securities required for loans, loan repayments, and all other aspects of the Society's activities.

His hours of attendance at Head Office are Mondays, Wednesdays, and Fridays from 9.30 a.m. to 12.30 p.m. His extension number is 346.

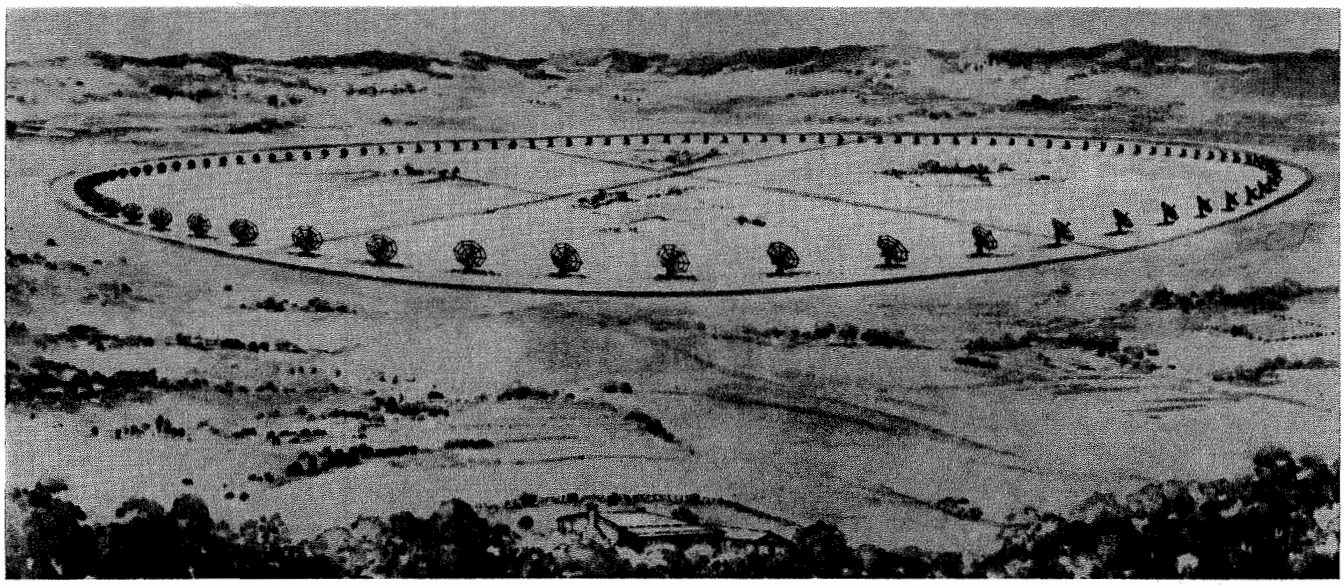
Mr. J. STODART

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

CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 38, MELBOURNE, MAY 1962

ANOTHER GIANT INSTRUMENT FOR RADIOPHYSICS



C.S.I.R.O. is to build a radio heliograph, a giant camera for taking detailed radio pictures of the Sun. Announcing this last night, the Minister-in-Charge of C.S.I.R.O. (Senator Gorton) said that the instrument had been conceived entirely within the Division of Radiophysics, and nothing resembling it existed elsewhere in the world.

Construction of the instrument would be made possible by a generous gift to C.S.I.R.O. of $550,000, announced in New York today by the Ford Foundation.

The radio heliograph will consist of 100 saucer-shaped aerials, each measuring 42 feet across. These will be arranged in the form of a circle two miles wide.

Special receivers and computers will combine the waves received by the 100 individual dishes to give a motion picture of the Sun, as seen by the "light" of radio waves.

The exact location of the new instrument has not yet been decided. It will probably be built at Parkes, N.S.W., not far from C.S.I.R.O.'s 210-foot radio telescope, which was completed last year.

The radio heliograph may help to unravel one of the most important unsolved problems in our solar system — the mystery of the gigantic explosions and storms which occur in the Sun's atmosphere.

In recent years C.S.I.R.O. radio astronomers have discovered that these explosions eject clouds of gas which emit powerful radio waves. The clouds travel at two distinct speeds.

The faster ones travel at 50,000 miles per second and probably consist of electrons which help to fill the Van Allen radiation belts around the Earth.

The slower clouds of gas, travelling at only 600 miles a second, arrive a day or two later. They cause auroras in the night sky, and often cause complete disruption of long-distance communications.

Certain types of "flares" on the Sun produce cosmic rays. These are a potential hazard to space travellers, and a reliable means of forecasting them would be of great value to astronauts.

The new instrument is the idea of Mr. J. P. Wild, leader of the C.S.I.R.O. group studying the Sun. It represents a major step forward in a long series of experiments made by C.S.I.R.O.

Up till now, it has only been possible to get very blurred pictures of the Sun's radio emissions. Mr. Wild has designed the radio heliograph to give a detailed picture of the radio flares which accompany the explosions near "sunspots" which can be seen through optical telescopes.

C.S.I.R.O.'s radio astronomers are studying radio waves from distant galaxies as well as those from our own Sun.

The big 210-foot radio telescope recently completed at Parkes can be used for studying the Sun, but because of its great sensitivity, it is most suitable for studying waves from radio stars in far distant galaxies.

C.S.I.R.O.'s new acquisition will be used solely for studying the Sun. It will give the solar radio astronomers as fine a piece of equipment for their purpose as the galactic radio astronomers already have at Parkes.

Pressing Wool by Vacuum

For some time the Division of Protein Chemistry has been investigating a novel method of packing wool into bales.

Instead of pressing wool in a mechanical press, the new method achieves the same result using the type of vacuum pump which is used in a milking machine.

An airtight plastic bag is first filled with wool and the neck of the bag is connected to the vacuum pump.

When the air is withdrawn the fibres are pressed together more tightly than if they had been compacted in a conventional press. The plastic bag is then placed inside a bale.

The idea of using a vacuum pump for this purpose was first conceived by Mr. C. Garrow. He and Mr. G. P. Flanagan have developed the idea on a laboratory scale, and several patent applications have been filed.

C.S.I.R.O. recently sought the co-operation of industrial organizations in developing the idea to the stage of practical application.

If the idea does prove to have practical possibilities, it may be superior to present methods because

- jute contamination of the wool would be avoided
- the arduous physical labour in wool pressing would be eliminated
- handling practices in the woolshed would be streamlined.

A vacuum pump in the woolshed can easily be made to work a simple hoist for handling bales.

It is likely to be some time before the invention reaches the stage of practical application. C.S.I.R.O. will give further information to potential users of the invention when this stage is reached.

State Committees

At the end of last year four of the Chairmen of C.S.I.R.O.'s State Committees retired. The Governor-General has now approved the appointments of new Chairmen.

In New South Wales, Mr. W. Sloan has been appointed Chairman of the State Committee.

Mr. Sloan, a leading figure in the baking industry, took a leading role in the establishment of the Bread Research Institute, of which he is now President. Mr. Sloan succeeds Professor H. R. Carne.

Mr. W. SLOAN

In South Australia, **Professor E. A. Rudd** succeeds Mr. E. M. Schroder as Chairman. Professor Rudd is Professor of Economic Geology in the University of Adelaide.

Mr. L. W. Weickhardt succeeds Professor J. S. Turner as Victorian Chairman. Mr Weickhardt, a former President of the Royal Australian Chemical Institute, is Technical Director of I.C.I.A.N.Z. Ltd.

Mr. L. W. WEICKHARDT

Mr. E. H. Lee-Steere is the new Western Australian Chairman, replacing Professor N. S. Bayliss. Mr. Lee-Steere is a prominent Western Australian grazier and a leading member of several graziers and woolgrowers organizations.

Mr. E. H. LEE-STEERE

The Ford Foundation's grant of $550,000 brings the total of American grants to C.S.I.R.O. to a very impressive figure.

The Rockefeller Foundation and the Carnegie Institution gave $361,000 and $250,000 respectively towards the cost of the 210-foot radio telescope.

The National Aeronautics and Space Administration recently gave C.S.I.R.O. $172,000 to support a research programme on radio antenna systems of advanced design.

All in all, the Division of Radiophysics has been granted $1,333,000 from American sources — a notable tribute to the international standing of Australian scientific research.

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A Tunnel or a Bridge? A Decision for Science.

On the west side of the mouth of Melbourne's River Yarra lies the suburb of Williamstown — on the east side lies Port Melbourne.

Ocean going ships ply busily up and down the river, to and from the hundred or so berths in Victoria Dock and the river and their distant destinations.

There are no bridges over the Yarra between the river mouth and the city of Melbourne, a few miles upstream.

If a Williamstown citizen wants to visit Port Melbourne, a few hundred yards away, he must take the ferry or set forth on a ten mile journey which will take him through the city.

The Williamstown ferry is an ancient anachronism. It is of the captive variety, which laboriously clanks its way across the river, pulling itself along on a pair of chains which span the river mouth.

It runs for a limited number of hours a day. Sometimes maintenance is necessary and it does not run at all.

Not infrequently an absent-minded motorist neglects to observe caution at the ferry approach, and drives into the river!

Fortunately, the survival rate from such accidents has been high, but the ferry, of course, is put out of action for a day or two.

Just this month, the Williamstown Council has announced its decision to terminate the service soon.

For many years, Melbournians have dreamed of a tunnel or bridge across the mouth of their river.

And now the present Government of Victoria, which has been greatly preoccupied with road planning, has decided to investigate the possibilities of fulfilling this dream.

Beginnings

The Government has begun by allotting the sum of £50,000 for a preliminary study of the foundation conditions of the crossing site.

Its principal road building authority, the Country Roads Board, has called in C.S.I.R.O.'s Soil Mechanics Section to assist it with the project.

The Soil Mechanics Section has been asked

- to advise on the methods to be used in the study
- to test soil samples
- to carry out in situ testing of foundation materials
- to report on the suitability of foundation materials to support a tunnel or a bridge
- to advise on the feasibility of various construction methods from a soil mechanics point of view.

The choice between a tunnel or a bridge will probably depend on the results of this study.

Costs

The cost of a major structure, such as a high level bridge, 160 feet clear of the water, with a central span of 1000 feet and approach spans totalling up to a mile on each side, could be as much as £15,000,000.

A multi-lane tunnel, 80 feet below the river with approaches of 2,500 feet on each side, could cost as much.

Costs have certainly risen since 1932, when the Sydney Harbour Bridge was built for £8,000,000!

C.S.I.R.O.'s investigation will help to decide which will be the most economical form of crossing, though considerations of wartime vulnerability may also influence the final choice.

Why Test?

It is impossible to design a major structure properly without first making a study of the foundation conditions.

The decision in this case to study the soil at the site first is a welcome departure from the more usual practice of deciding on the form of structure first and then seeing how the subsoil can be used or changed to provide the performance specified by the design.

If a bridge is to be built, we must know that the foundation materials are not soft and compressible, for any excessive settlement could have disastrous results.

A tunnel excavation that unexpectedly encountered flowing ground or sand containing water under pressure could endanger the lives of workmen and cause costly delays and expensive modifications.

Six men were killed in just this way when a sewer tunnel was being driven under the river in 1895.

Even if a complete preliminary investigation were to cost £300,000 (and it might well cost a substantial part of this sum) this expenditure, amounting to only two per cent of the eventual cost of the project, could well be justified.

The Study

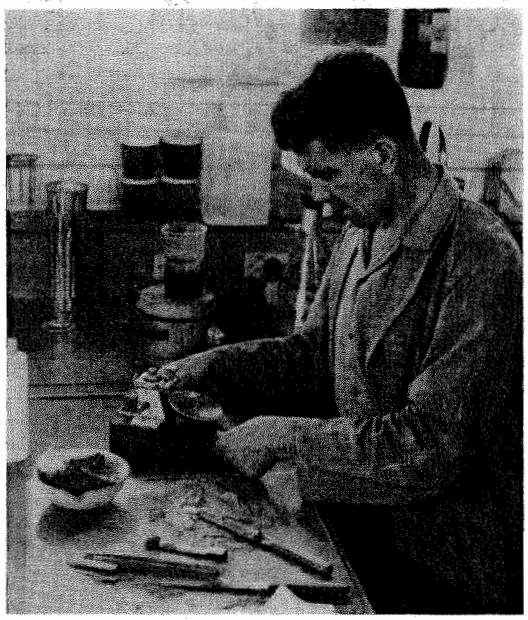
The Soil Mechanics investigation, under the direction of Dr. I. B. Donald and Dr. R. B. Ellwood, has been divided into three phases.

The first step is to find out, by boring, just exactly what materials underly the crossing site.

Secondly, all the materials encountered in the borings are tested to find out their engineering properties.

Undisturbed samples of all soils likely to be influenced by heavy loads or deep excavations will be tested to find out their strength and how much they will settle and how safe or dangerous they will be.

Finally, specific problems arising out of any proposed construction technique will have to be studied in detail.



Mr. C. de Visser carrying out routine classification of soils using a liquid limit apparatus.

Progress

Work began on the site just before Christmas. By the end of March, over 4000 feet of drilling had been done, and thousands of samples had been tested.

The size and urgency of the task called for special measures

- Extra staff were appointed to supervise soil sampling on the site
- Laboratory teams were organized to handle the endless stream of samples pouring into the laboratory
- Extra sampling equipment was obtained from South Australia
- A regular transportation system was laid on from the site to the laboratory
- Walkie-talkies were introduced to facilitate communications across the river
- Twenty-four hour a day access to the laboratory was organized
- Overtime crews, from all ranks of the Section's staff have worked almost every night, including Saturdays, to keep sample tubes moving back to the drillers.

Results

Results are accumulating rapidly. Early suppositions about silt depth rather dimmed the prospects for a bridge, but the study has already produced interesting results which drastically alter the picture of the area and make possible the consideration of a bridge.

A complete picture of the geology of the site is gradually emerging.

Basalt layers which might support bridge foundations have been located at 150 feet, but holes are being drilled to twice this depth to reveal the presence or absence of any fault or warp which might have a bearing on the long-term structural performance or stability of a bridge or tunnel.

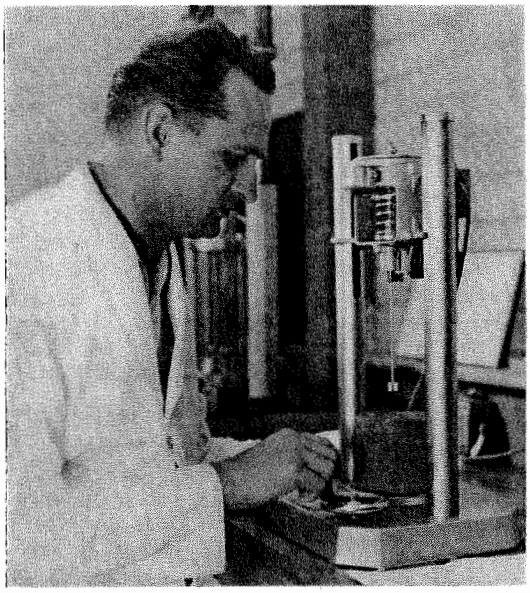
Final Stage

At present the sampling operations are extending into the river section, which is the last remaining major unknown in the geological cross-section.

Operations will be more difficult here as the rigs will have to operate from punts and the central channel must remain open for shipping.

By the end of June, enough information will have been collected to permit the calling of tenders from Australian and overseas firms, for the design and construction of what will surely be one of Melbourne's most impressive feats of engineering.

And though its foundations will be hidden from view, beneath many feet of sand and clay, the new science of soil mechanics, dating back only a generation, will have made a major contribution to its realization.



Mr. Z. Vlasic measuring the shear strength of soil with a laboratory vane testing apparatus.

TECHNICAL ASSOCIATION NEWS

The election of office bearers to Central Council is now proceeding. The declaration of the poll and the Annual General Meeting will be held at the end of May or early in June.

All members of the Association are invited to attend the Annual General Meeting, at the Division of Forest Products Conference Room, 69-77 Yarra Bank Road, South Melbourne, when the President's report will be submitted.

Here is an opportunity to gain a first hand knowledge of the activities of the Association throughout the year and we urge all members to avail themselves of the opportunity.

In addition, one or two short interesting films will be shown after the meeting.

The Equal Pay campaign has brought together several interesting parties to form a united front.

These include the A.C.T.U., A.C.S.P.A., and the High Council of Commonwealth Public Service Organizations, with which the Technical Association is affiliated.

With these bodies giving active support to the issue, we trust that success is only a matter of time. We hope it will be a very short time.

Two articles of great interest to the Technical Staff will be included in the next issue of the Gazette.

They are — (1) Members legal position whilst driving C.S.I.R.O. vehicles, and (2) Entitlements for girls leaving to get married.

We draw your attention to Head Office circulars 60/20 and 62/13. All technical staff are advised to peruse them carefully and avail themselves of the cards mentioned therein.

Tetanus is a difficult illness to control, and the use of anti-tetanus injections is more than half way to combating it.

But too many injections can be very dangerous, so the introduction of this card system will safe-guard the staff in two ways.

Heel boy!

With grateful acknowledgement to "New Scientist".

A TOWNSVILLE CENTRE FOR TROPICAL PASTURES

The establishment of a new C.S.I.R.O. research centre at Townsville, in northern Queensland, was announced by the Minister-in-Charge of C.S.I.R.O. (Senator Gorton) on 6th April.

The centre will fill an important gap in northern Australian research. It will consist of research laboratories and an associated field station of 5,000 acres.

The Government will provide a capital sum of £300,000 to finance the venture and the annual expenditure on research will rise within a short time to £110,000.

The programme of research at Townsville will combine pasture, soil and animal studies. Scientists based at the new centre will work in an area of about one-third of Queensland, extending from Rockhampton to Cape York.

C.S.I.R.O. already has pasture research stations in the Kimberleys, at Katherine, Darwin, Alice Springs, Brisbane, and in the southern States.

When the Townsville project is completed, C.S.I.R.O. will be working in every large area of Australia which has a high pastoral potential.

The new laboratories will be built on land adjacent to the University of Queensland's Townsville site. The Government has provided £50,000 this financial year for the purchase of land.

The laboratories will have a staff of about 50, including ten research officers.

The new laboratories and station will become part of the Division of Tropical Pastures which has carried out pasture research in south-eastern Queensland for several years.

Research Programme

The research programme will be carried out in the Townsville hinterland, the Cairns hinterland, the northern brigalow lands, the northern speargrass region, and the coastal regions.

South of Townsville, the area will extend into central eastern Queensland as far as the northern limits of the area being studied from Brisbane.

The research work will be carried out in collaboration with the Queensland Department of Agriculture and Stock and local graziers.

It will include a vigorous programme of testing new introduced pasture species and mixtures. Soil scientists will undertake research into soil deficiencies, and animal and pasture management practices will be studied.

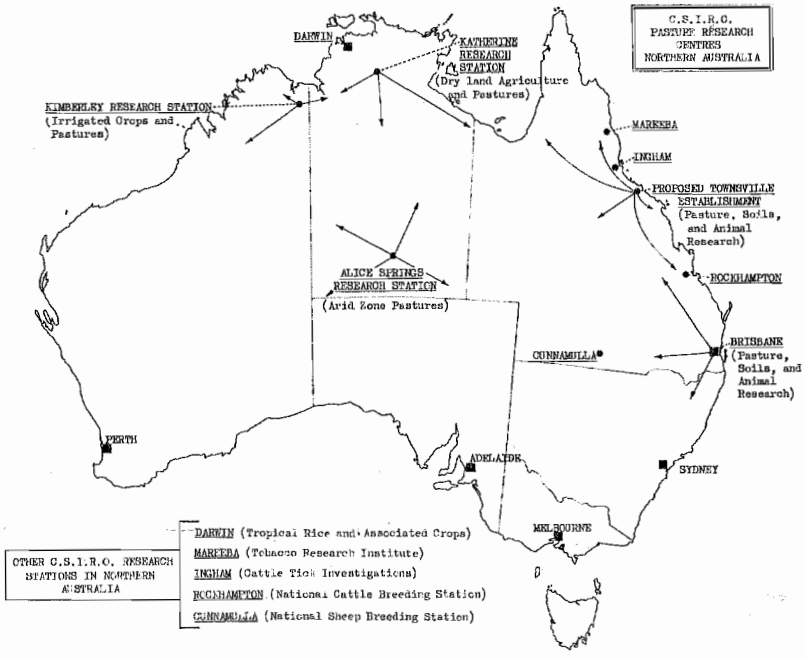
By overcoming stock nutritional deficiencies through the development of improved pastures and fodder crops, this new research programme should help to raise stocking rates, improve calving percentages, reduce losses of breeders, produce marketable animals at younger ages, increase the percentage turn-off, extend the killing season, and substantially stabilize production of store and killer animals.

At present, over two million beef cattle, or about one-third of Queensland's beef cattle population, is carried in these regions. It is confidently expected that, in many places, present production can be increased several fold.

The Division of Land Research and Regional Survey has already conducted extensive regional surveys in the Townsville and Gulf of Carpentaria areas and is currently making a survey of the Fitzroy Basin in central eastern Queensland.

These surveys will provide a basis for future pasture development work.

The research programme will be complemented by the work of the National Cattle Breeding Station at Belmont, near Rockhampton, and the Division of Entomology's cattle tick research station at Ingham.



Atomic Energy Chief

Dr. G. A. Siwabessy, Director-General of the Indonesian Institute of Atomic Energy, visited a number of C.S.I.R.O. laboratories last month.

He was accompanied by his wife, who is Deputy Head of the Institute's Nuclear Raw Material Division. Mrs. Siwabessy, a chemical engineer, was until 1959 Head of the Food Technology Laboratory in Djakarta.

Dr. Siwabessy, who is a radiologist, combines his Atomic Energy job with the Directorship of the Institute of Radiology in Indonesia.

Apart from their visits to the Atomic Energy Commission establishments, the Siwabessys visited a number of government, university, medical and industrial laboratories.

They visited the C.S.I.R.O. Division of Plant Industry, the Chemical Research Laboratories, and Head Office. In addition, Mrs. Siwabessy spent an afternoon at the Division of Food Preservation.

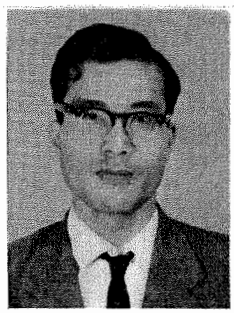
Dr. and Mrs. G. A. SIWABESSY

Courtesy Herald & Weekly Times Ltd.

International Award

The Division of Meteorological Physics will have as guest worker this year Mr. Masanori Okamoto, from the Japanese Meteorological College.

Mr. Okamoto is the winner of one of two awards made to Japanese under the Australian International Award Scheme.



Mr. M. OKAMOTO

Mr. Okamoto is a graduate of the Tokyo College of Science and the Japanese Meteorological Training College.

He will undertake research in physical meteorology until his return home in February, 1963.

APPOINTMENTS VACANT

The following vacancies for professional appointments are current:—

JOINT LEADER (S.P.R.O./C.R.O.)—Division of Food Preservation. 300/339 (May 5).

RESEARCH CHEMIST (R.O./S.R.O.)—Division of Land Research and Regional Survey. 623/15 (May 5).

AGRICULTURAL CHEMIST (E.O.I/II)—Division of Soils. 270/232 (May 14).

AGRONOMIST (E.O.I/II)—Tobacco Research Institute. 815/38 (May 14).

CHEMIST (E.O.I/II)—Division of Mineral Chemistry 601/14 (May 14).

CHEMIST/BIOCHEMIST (E.O.I/II)—Division of Forest Products. 190/630 (May 14).

MATHEMATICIAN (R.O./S.R.O.)—Division of Physical Chemistry. 586/13 (May 14).

ORGANIC CHEMIST (R.O./S.R.O.)—Division of Organic Chemistry. 606/25 (May 14).

VETERINARY PARASITOLOGIST (E.O.II/III) — Division of Animal Health. 202/189 (May 14).

Overseas Visits

Dr. W. Boas, Chief of the Division of Tribophysics, has been overseas on a four weeks visit. He has been attending an International Colloqium on the "Impact of Physical Metallurgy on Technology" held at Buenos Aires, Argentina. He also visited research institutions in Chile and U.S.A.

Mr. B. J. Potter of the Division of Biochemistry and General Nutrition will leave Australia this month to spend about five months overseas. After visiting various research centres in U.S.A., the United Kingdom and Europe, he will attend the XXII International Congress of Physiological Sciences to be held at Leiden, Netherlands.

Mr. M. J. Ridge of the Division of Building Research left last week on a trip which will take him to fifteen countries in Asia, Africa, Europe and North America. He will be contacting other scientists interested in the scientific and technical problems of the gypsum plaster industry.

Dr. A. H. G. C. Rijven of the Division of Plant Industry left last month on a six months visit to laboratories in India, England and Europe. The major part of his time will be spent working with Professor Yemm at Bristol on plant nitrogen metabolism.

HONOURS

Mr. A. J. Watson of the Division of Forest Products has been elected President of the Australian Pulp and Paper Industry Technical Association.

FOOTBALL NEWS

The C.S.I.R.O. Football Club (Melbourne) has again entered a team in the Sunday Social Football Competition. The Club will be striving to win the Sir Ian Clunies Ross Memorial Shield, at present held by Taxation Football Club.

At the Club's Annual Meeting held recently at Head Office, Alan Cross (Stores Section) was re-elected unopposed as President for the sixth consecutive year.

Ted Parker (Despatch) is Secretary, and the Committeemen are W. Ilott, J. Kennedy, P. Harris and J. Glover.

Mr. P. HARRIS

Peter Harris, who has been with the Club for fifteen years, and who was Captain for many seasons, was the second person to be accorded the distinction of Life Membership.

The only other Life Member is Les Graham.

Intending players would be welcomed. They are asked to contact any of the above Committeemen at Head Office, Extension 315.

Nutrition Conference

An Inter-Divisional Symposium on Ruminant Nutrition was held at the Ian Clunies Ross Animal Research Laboratory from 11th - 13th April.

Representatives from laboratories in all the Animal Research Divisions were present. There was a small contingent from the Division of Plant Industry, and Mr. R. Milford came down from Brisbane to represent the Division of Tropical Pastures.

Main sections of the three-day conference dealt with nutrition in maintenance, growth and fattening; nutrition and wool production; nutrition in reproduction; appetite; nutrition of grazing animals; nutrition and parasitism; endocrinological and enzymological aspects of nutrition.

Dr. F. H. N. Morley (Canberra), Dr. D. R. Lamond (Armidale), Mr. C. S. Christian, and Mr. P. G. Schinckel (Sydney).

Flying Squadron

This eighteen-foot Taipan class yacht is one of the fastest and most successful racing craft on Sydney Harbour. Named "Schweppervescence", she is part-owned and skippered by 21-year-old Ian McDonald, a Clerk in the Sydney Administrative Office.

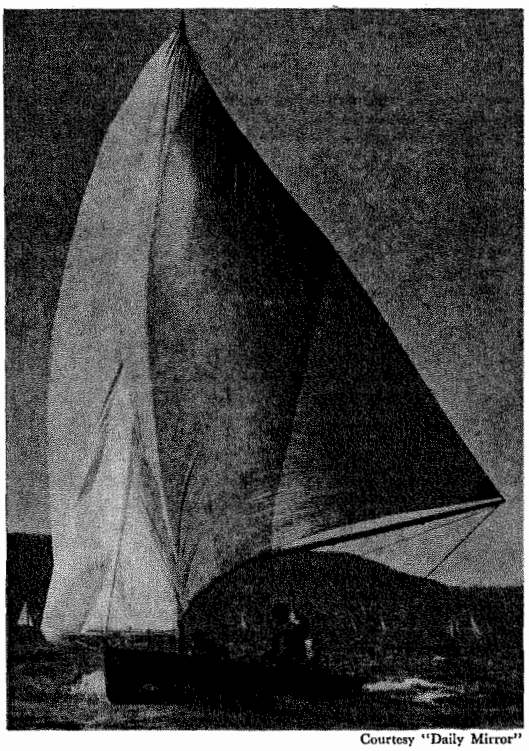
"Schweppervescence" sails in the Sydney Flying Squadron eighteen footer fleet. This is one of the two top open sailing boat groups in Sydney.

The eighteen footers are recognized as the fastest open sailing boat in the world, attaining speeds on a run before the wind up to twenty-five miles per hour.

So far this season Ian has had two first placings, three seconds (including runner-up in the Sydney Flying Squadron Championship) and four thirds.

Ian is the oldest of the crew, which is the youngest ever to have won a race in the Squadron.

"Schweppervescence" on Sydney Harbour.



Courtesy "Daily Mirror"

LONDON HOUSE

London House is an institution well known to many Australians who have held studentships and scholarships in England.

It is owned and controlled by the Dominion Students Hall Trust, and is the Trust's residential centre in London for male post-graduate students.

A similar establishment, William Goodenough House, provides accommodation for female students. It also offers accommodation in flats for married students.

London House has accommodation for 264 students in study bedrooms (with central heating and running water), bathrooms and showers on each floor, a magnificent dining hall, a cafeteria and snack bar, a well-stocked library, a chapel, three common-rooms and a billiard room.

The provision of an appropriate standard of accommodation and amenities, at a cost within the reach of residents, involves London House under present conditions in an annual loss equivalent to an "invisible scholarship" of about £50 a year to each resident.

People who are interested in the possibility of staying at one of these Houses should put in their applications well in advance. Such applications are without obligation.

E.O.'s CASE

Experimental Officers in particular will be pleased to hear that the Public Service Arbitrator (Mr. E. A. Chambers) has agreed to make his next task that of hearing their claims for new salary scales.

These claims will be heard in conjunction with those of Experimental Officers in the Department of Supply, and the Australian Atomic Energy Commission, as well as those of two other selected groups of Professional Officers in the Commonwealth Public Service.

At this stage the hearings are expected to commence about mid-June.

APPOINTMENTS TO STAFF

Dr. J. Boow, a graduate of the University of Sheffield, has joined the staff of the Division of Coal Research, where he will assist in the design and operation of equipment to measure the viscosity of slags. He has held a number of positions in the glass industry, both in Britain and in Australia.

Mr. P. J. Collin has been appointed to the staff of the Division of Coal Research. Since he obtained the A.S.T.C. diploma in 1952 he has been with the N.S.W. Departments of Agriculture and Health. He recently completed an honours B.Sc. at the University of New South Wales.

Mr. R. D. Croll has joined the Agricultural Research Liaison Section as Senior Liaison Officer. An agricultural science graduate from Melbourne, Mr. Croll has held a number of managerial positions in industry, with Eagley Mills Pty. Ltd. and New Holland (A'sia) Pty. Ltd. He has been active in the affairs of the Australian Institute of Agricultural Science, of which he is a former Victorian President.

Mr. R. H. Gunn has been appointed as Soil Scientist with the scientific survey unit of the Division of Land Research and Regional Survey. Since graduating from the University of Witwatersrand, Johannesburg, he has had a varied careeer in agricultural research in Africa, Iran and Asia.

Mr. A. C. Heron has been appointed to the staff of the Division of Fisheries and Oceanography where he will participate in the collection, cataloguing, processing and sorting of zooplankton samples. He recently graduated B.Sc. in zoology from the University of Sydney.

Mr. R. L. Hughes has transferred to the staff of the Wildlife Survey Section, where he will be engaged in research on aspects of the reproductive physiology of wild rabbits. For the past three years Mr. Hughes has been with the Division of Animal Physiology.

Dr. S. Kato has joined the staff of the Upper Atmosphere Section where he will take part in research on the Ionosphere and the Outer Atmosphere.

Dr. S. KATO

Before taking up this appointment, Dr. Kato was Assistant Professor of Ionospheric Physics at Kyoto University, Japan.

Mr. D. H. Mackenzie has been appointed to the position of Seed Production Officer in the Division of Tropical Pastures. He recently completed his honours year in the Department of Agricultural Science at the University of Queensland.

Miss Agnes Molnar, an analytical chemist, has joined the Division of Coal Research. She graduated from the University of Debrecen in Hungary

Miss AGNES MOLNAR

in 1955 and was admitted A.R.A.C.I. in 1959. Miss Molnar has worked for the last five years as an analyst in the steel and non-ferrous metal industries.

Dr. D. F. Parbery has been appointed to the staff of the Division of Land Research and Regional Survey, and will be stationed at the Kimberley Research Station. Since graduating B.Sc. from New England

Dr. D. F. PARBERY

he has taken his master's degree at Missouri and a Ph.D. at Cornell. He has lately been Director of Research for the Malayan Pineapple Industry Board.

Dr. A. J. Rixon has been appointed to a position of Soil Fertility Officer with the Regional Pastoral Laboratory, Deniliquin. A graduate of the University of Sydney, Dr. Rixon has conducted research

Dr. A. J. RIXON

on the fertility of soils of the Atherton Tablelands and the Island of Hawaii. He recently completed the requirements for his Ph.D. at the University of Hawaii.

Mr. F. P. Sharples has joined the staff of the Division of Metrology. An honours graduate in physics from the University of Western Australia, he will be responsible for the experimental activities associated with the vacuum coating laboratory.

Mr. S. N. Stuart, a recent graduate of the University of Melbourne, has joined the staff of the Division of Physical Chemistry. He will assist in theoretical investigations of the properties of matter using the methods of statistical thermodynamics.

Mr. B. W. Thorpe has been appointed to a temporary position on the staff of the Division of Tribophysics. He is no stranger to the Division, having recently completed work for an M.Sc. degree in the Division's Laboratory, under the supervision of Dr. Boas.

Mr. W. D. Woodhead has joined the staff of the Division of Forest Products. After graduating with honours from the University of Aberdeen he came to Australia in 1959. He has since been employed by the Woods and Forests Department of South Australia.

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

CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 39, MELBOURNE, JUNE 1962

OPEN DAY AT SOILS

On Thursday and Friday, 10th and 11th May, the Adelaide Laboratories of the Division of Soils were opened to the public.

Some 1200 visitors came to see displays of the research in progress.

The Open Days were held to mark the completion of the Division's new laboratory.

On the Thursday afternoon, a preview was held for the benefit of distinguished visitors.

From the South Australian Parliament came the Minister for Agriculture, Hon. David Brookman, and the Leader of the Opposition, Hon. Frank Walsh.

From the Federal political sphere, there were present Sir Philip McBride, and Mr. Robin Millhouse, M.P.

The Chairman of C.S.I.R.O., Dr. White, Dr. S. H. Bastow, Mr. C. S. Christian, and Dr. Melville represented the Executive.

Also present were senior scientists from C.S.I.R.O. and the University of Adelaide, members of the South Australian State Committee, and representatives of industry and pastoral associations.

On Thursday evening a special session was held for about a hundred members of learned scientific societies.

Friday morning was the school children's session. About 350 Leaving Honours students filed through the laboratories in organized conducted parties.

On the afternoon and evening of Friday, the laboratories were open to the general public. Wide press and T.V. coverage had been given to the preview on Thursday, and a big crowd of 600 people turned up to the evening session.

Several of the fifty exhibits on display showed different aspects of the Division's work on the nutrition of pine trees.

Visitors were showed how the analysis of foliage might be used to diagnose possible nutrient deficiencies in pine forests.

The phosphorus content of the deep sands under pine forests is important. Demonstrations showed the different rates at which various forms of phosphate fertilizer were leached out of these sands. This work is designed to clarify fertilizer practices.

The soil microbiologists showed how several fungi can stimulate the growth of pine trees, especially in poor soils. They are studying the mechanism of this stimulation.

Courtesy Adelaide "Advertiser".

Mr. G. D. Bowen explaining how fungi can stimulate the growth of pine tree roots to Sir Edric Bastyan, the Governor of South Australia. Mr. J. K. Taylor, Chief of the Division of Soils, is on the right.

Senator Gorton (second from left) joined a tour of the research station after the opening.

The microbiology group also showed how soil bacteriology could be a useful aid to oil prospecting.

Certain bacteria, which can break down the hydrocarbon gases, are most likely to be found in soils overlying oil and gas deposits. The display showed how large populations of these bacteria could be detected.

Mr. J. G. Pickering explaining the techniques of X-ray diffraction to a visitor.

DARWIN CEREMONY

A new laboratory at the Coastal Plains Research Station, forty miles from Darwin, was formally opened on Monday, 14th May by the Minister-in-Charge of C.S.I.R.O. (Senator Gorton).

Among those present were Mr. J. N. Nelson, the Member of Parliament for the Northern Territory, and Mr. R. Marsh, Acting Administrator of the Territory.

The Heads of several departments of the Northern Territory Administration were also present. Mr. C. S. Christian represented the C.S.I.R.O. Executive.

The Station, which is part of the Division of Land Research and Regional Survey, is close to the rice-growing area at Humpty Doo.

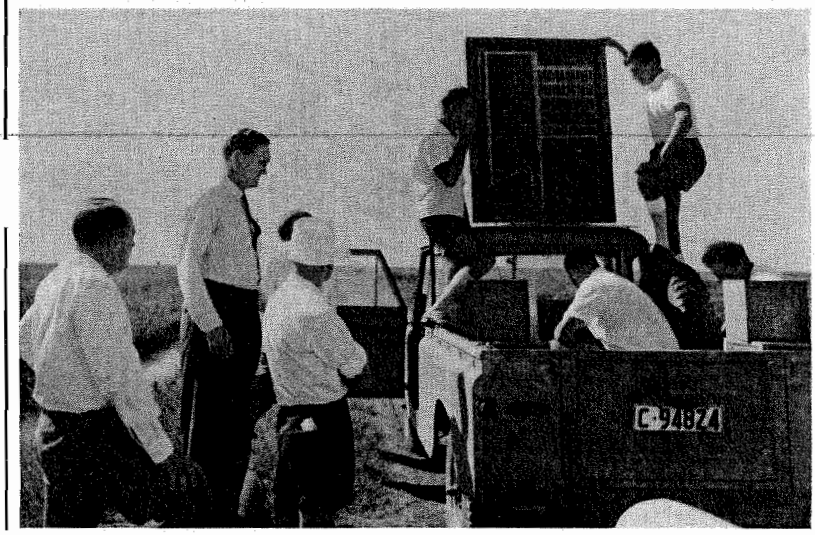
Work began there in 1959 when the Commonwealth Government, through the Northern Territory Administration, provided £124,000 for its capital development and £50,000 per annum for running costs.

Since that time it has been possible to provide accommodation and special facilities to enable research workers to carry out their programme under tropical conditions. These facilities have attracted a staff of fifteen officers to the Station.

Until the recent completion of the new building, laboratory work had been carried out under makeshift conditions.

Senator Gorton, in opening the laboratory, said that the aim of the research workers at the laboratory, in collaboration with Northern Territory Authorities, was to develop agricultural procedures for the development of the coastal plains in the Northern Territory.

The crop plant receiving major attention was tropical rice. The breeding of special rice varieties, the determination of planting, harvesting and fertilizer techniques to meet the particular conditions of the area, formed an important part of this work.



Melbourne Chair for Dr. Cowley

Dr. J. M. Cowley, Chief Research Officer in the Division of Chemical Physics, has been appointed to the Chamber of Manufacturers Chair of Physics in the University of Melbourne. He resigned from C.S.I.R.O. to take up his new post last month.

Professor Cowley had completed nearly seventeen years in what is now the Division of Chemical Physics.

He is internationally known for his pioneer work in experimental electron diffraction and the theory of electron scattering.

Professor Cowley has won a number of honours and academic distinctions.

He was awarded the D.Sc. degree of the University of Adelaide in 1957. In the same year he shared the Edgworth David Medal of the Royal Society of New South Wales with Mr. J. P. Wild, of the Division of Radiophysics.

In 1961 he was elected a Fellow of the Australian Academy of Science.

Academy Fellowship

Dr. R. G. Giovanelli, Chief of the Division of Physics, has been elected to a Fellowship of the Australian Academy of Science in recognition of his outstanding contributions to solar physics.

Dr. Giovanelli, who is 47, graduated B.Sc. from Sydney in 1937, with first-class honours in physics. He then spent two years working at the Commonwealth Solar Astronomy, and was awarded the M.Sc. degree in 1939 for his work there.

In 1940 he was awarded a C.S.I.R. Senior Studentship and spent a year at the National Physical Laboratory in England. He joined the staff of C.S.I.R. in 1941.

His research interests have been mainly in the field of solar physics, including the fine structure of the sun's outer layers, and the theory of the emission of radiation from high temperature atmospheres and its application to the interpretation of solar spectra.

Dr. Giovanelli was awarded the D.Sc. degree of the University of Sydney in 1949, and in the same year he won the Edgworth David Medal of the Royal Society of N.S.W.

Dr. R. G. GIOVANELLI

Problems in "Glass-House" Construction

The nineteen-fifties saw an architectural revolution take place in the design of office buildings in the world's big cities.

For decades, our office buildings were built, or seemed to be built, of stone. Sometimes the stone was merely a veneer to a brick or concrete construction.

Fashions changed, from the rococo of the late nineteenth century to the plainer style of the immediate pre-war era.

Through all these changes, the pattern of windows changed hardly at all. Windows grew a little bigger, perhaps, but they continued to be holes in the wall arranged in a regular geometric pattern, constituting a good deal less than half of the facade of the building.

A New Fashion

In the 1950's architects, probably influenced by Lever House and the U.N. headquarters buildings in New York, turned to the "glass box" form of construction.

In the immediate post-war years very little office building took place, as the industry strove to catch up with a backlog of houses, schools and hospitals.

When the boom in office building did begin, "glass boxes" began to spring up in all the capital cities of Australia.

The new form of construction brought its own technical problems, some of which have engaged the attention of C.S.I.R.O.'s Division of Building Research. One of the most important of these problems has been trouble with the use of coloured glass.

I.C.I. House

One of the first cases occurred in Adelaide, where widespread cracking of coloured panes began to appear. But the most notorious case, which has been much in the public eye, has been the case of I.C.I. House in Melbourne.

I.C.I. House is a notable building, dominating the Melbourne skyline from an elevated position not far from C.S.I.R.O. Head Office. It was, until recently, the tallest building in Melbourne.

As the first example of "glasshouse" construction *par excellence* in Melbourne, it has been a fascinating talking point for both informed and uninformed critics of architecture.

On its north and south sides, the building has curtain walls containing clear glass view windows and coloured glass panels. On the east and west sides the curtain walls contain only coloured glass acting as a screen to the concrete wall behind it.

Cracks in the Facade

During the first year after the building was completed, a few panels cracked and some of the small fragments fell out, tumbling to the street below. Eventually after about ten panels had failed, the Company realized that it had a real problem on its hands.

It took immediate action. A canopy was put out over the pavement to protect passers-by from possible harm from falling glass. And the Division of Building Research was called in to help the company solve the mystery of why the coloured panes were cracking.

Thermal Stress?

In previous studies, the Division had found that trouble was often due to what is called thermal stress. In these cases, the window panes had absorbed heat from the Sun, and had begun to expand.

But the edges of the panes, being shielded from the Sun by the retaining beds, remained relatively cool, and restrained the expansion. Hence a state of tension was set up in the glass edge from which a crack eventually started. This trouble was most likely to occur in dark coloured glasses, which absorb more of the Sun's heat.

But this problem can be overcome in the manufacture of the glass. The manufacturer can make a type of glass which is heated and rapidly cooled to "freeze in" stresses which toughen the glass, leaving the surface layers in compression and a central portion in tension.

An Explanation

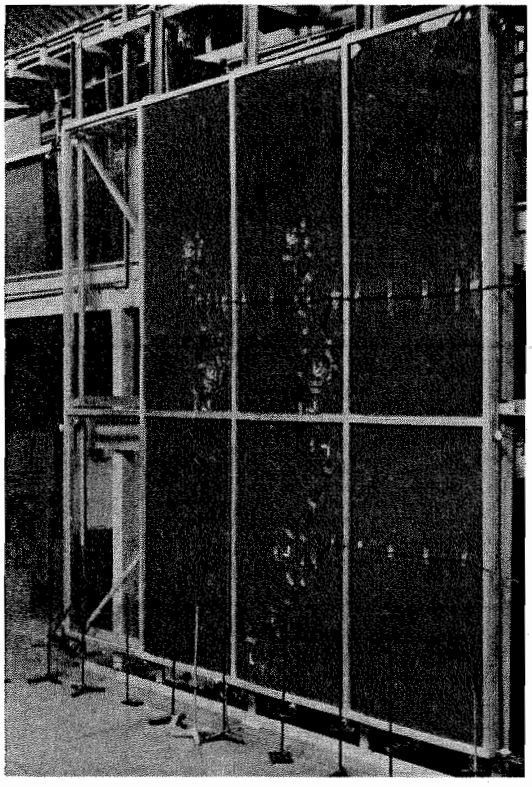
Not all the panes fell out after failure. Examination of several that remained in their frames on the building showed a crack pattern radiating from two small fragments where failure had originated.

On every occasion a small spherical impurity or "stone", about eight thousandths of an inch in diameter, was found at the point where failure had started, in the central layers of the glass. The "stones" were identified as particles of nickel sulphide.

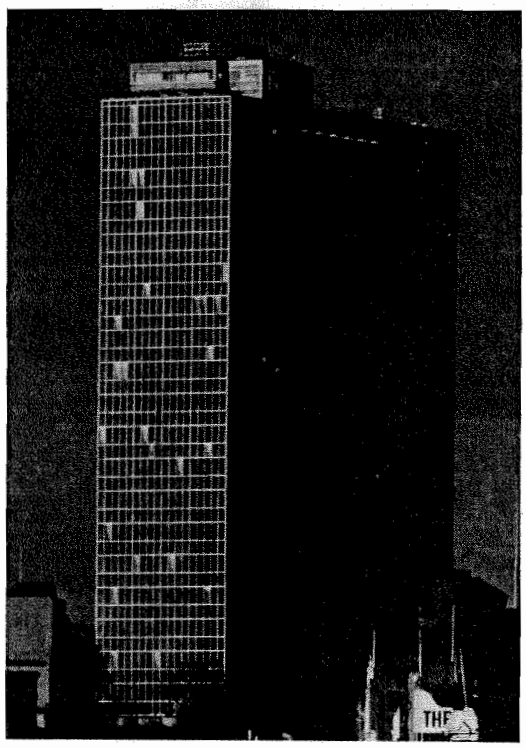
It was found that the presence of the stones could be revealed by a close study of the panels, using an oblique source of parallel light.

Examination of the panels showed several other kinds of "stones", but only the nickel sulphide ones, recognized by their silvery or brassy colour and metallic lustre, were found at the crack initiation points.

Exhaustive tests showed that the other particles, probably of ferric oxide and chromic oxide, were harmless.



In the laboratory, a full size curtain wall frame has been strained diagonally. Two panes have cracked, but not in the same way that they crack on the building. Deformation of the wall was not the cause of failures on the building itself.



A long distance shot of the west wall of I.C.I. House. The bright spots are painted hardboard panels, replacing broken panes.

Other Causes?

Other contributory causes of failure were not overlooked. An investigation under the direction of Dr. L. K. Stevens, of the University of Melbourne, was aimed at finding out whether actual deformations of the curtain wall itself could cause cracking.

A full size frame was set up, having the same construction and method of mounting used on the building. Diagonal loading of the frame did eventually produce failure of two of the panels but only after being subjected to distortion far in excess of any distortion observed on the building. Even then, the failure was not of a type observed on the building.

From this and other tests it was concluded that deformations of the curtain wall that do exist could not cause the panes to crack.

So the cause seemed to be the nickel sulphide "stones". It remained to explain just why these could cause all the trouble.

Two Crystal Forms

There are two distinct crystallographic forms of nickel sulphide, known as alpha and beta. An inversion from one form to another takes place in the temperature range 280°-379°C.

Rapid quenching in the toughening process does not allow time for the inversion from the alpha form (which exists at high temperatures) to the beta form. The inversion takes place later, and is accompanied by an increase in volume.

Dr. G. K. Kullerud, of the Geophysical Laboratory in Washington, found that the inversion was accompanied by a volume change of about two and a half per cent.

It can be calculated that this expansion can set up in the glass a stress equal to about twelve tons to the square inch —quite enough to cause it to crack!

What Next?

The Company is now taking down the glass from its west wall. Each pane will be examined for nickel sulphide "stones". If they occur in only a few of the remaining panes, the wall may be re-glazed with stone-free glass. If stones occur in a high proportion of panes, the wall may be re-surfaced with some entirely different material.

TECHNICAL ASSOCIATION NEWS

Over a hundred friends, colleagues and past colleagues, gathered in the Common Room at the Veterinary School, Sydney University on the evening of 3rd May to say farewell and "Thank you" to Fred Hamilton.

Fred joined C.S.I.R. at the McMaster Laboratory in March, 1931, and is leaving to become Assistant Manager of the Veterinary Division of Merck, Sharp & Dohme (Aust.) Pty. Ltd.

Dr. D. F. Stewart, Associate Chief of the Division of Animal Health, and Mr. H. McL. Gordon spoke of their contact with Fred from his early Veterinary School days to the present time.

They spoke of his outstanding and varied abilities and skills, and of his devoted service to the McMaster Laboratory in particular and to C.S.I.R.O. in general.

Professor McFarlane, Dean of the Faculty of Veterinary Science referred to Fred's close association with the Faculty Staff and of the considerable help and co-operation he has always given them.

Mr. Warren Summerell spoke on behalf of the friends who had gathered for a more informal farewell on the previous Friday.

Fred was presented with a silver tray, half-a-dozen pewter tankards, a watch and an album of photographs recording his activities in C.S.I.R.O.

Electrochemistry Conference

The first Australian Conference on Electrochemistry will be held in February, 1963, in Sydney and Hobart, under the joint sponsorship of the Royal Australian Chemical Institute, the University of Tasmania, and the University of New South Wales.

A number of distinguished chemists will attend, including Australian and overseas scientists who will act as chairmen of the eleven individual sessions.

A strong American contingent will include Professor P. Delahaye, of Louisiana State University, and Professor J. O'M. Bockris, of the University of Pennsylvania.

Chairman of the first session, on "Solid State Chemistry", will be Dr. A. L. G. Rees, Chief of the Division of Chemical Physics.

Each session will consist of a review paper presented by the session Chairman followed by contributed papers giving results of original research.

The Organizing Committee would like to hear as soon as possible from people intending to present a paper or to enrol for the Conference.

Information and enrolment forms are available from Dr. F. Gutmann, of the Physical Chemistry Department, University of New South Wales, and Dr. J. N. Baxter, of the Chemistry Department, University of Tasmania.

Adventures in New Guinea

Survey work in the wilds of New Guinea is often adventurous, and sometimes dangerous.

This account of some of the highlights of the 1961 survey is an extract from an article by Roy Pullen, a member of the team.

"The team began heading southwards towards Lake Kutubu, via Kagua.

As much of this country had not long been under government influence, and some of the more isolated valleys had only seen three or four patrols, these were occasions when the carriers and ourselves had to be kept close together under protection of our armed native police.

This was a precaution against possible attack by tribesmen who might get the inclination to "try the government".

In the limestone ranges armed men watched our progress from high pinnacles and yodelled news of our approach from ridge to ridge.

Although a certain amount of tension was apparent at times we made our traverses without seeing any arrows fly in anger.

Leech Country

Once across the Waga River we entered leech-infested forest country. By the time we reached the Mubi valley hardly one of us was not well bitten, and blood was streaming down the legs of the carriers and ourselves.

Several days walk from where we entered the Mubi valley brought us to Lake Kutubu. This is a stretch of water twelve miles long surrounded by heavily wooded ridges, mostly of limestone.

Kutubu will be long remembered by us for its good swimming and jovial company, the novelty of traverses by outboard-powered canoe, and the dashes to and fro over the lake to catch planes which never seemed to arrive.

To get the survey party out of Kutubu to Tari, Ken Granger had brought down from the north about 100 Huri carriers.

A Death

Unfortunately, just after arrival at Kutubu, one of them died of some ailment of long standing, not associated with the march.

There was some delay while matters of burial were first argued out, then carried out, but when we eventually got moving towards Tari all seemed well.

This next stage was a six-day journey of innumerable river-crossings and climbs over steep ridges and densely forested plateau.

On arrival within sight of Tari the traverse party struck trouble at the Huria River. The clan of the carrier who had died became all worked up about his demise, laying the blame on C.S.I.R.O.

Arson Attempt

Incited by the man's female relatives, they set out to burn down the Huria River rest house about our ears, but when they found we had just vacated it by landrover, they were not quite sure what to do.

A sudden heavy downpour of rain decided it for them — they went home and cooled off.

A good road connected Tari to Karoba, our farthest point west. Along this road was the interesting Haibuga Marsh where reclamation of swamps by native engineering has extended the agricultural land.

Previously the drains, often 10-15 feet deep, had to be dug with native digging sticks, but the acquisition of European implements such as spades and mattocks has been a stimulus to such projects.

On Strike

Back at Tari we found the Huris still sulking about their mate who died in Kutubu and quite unwilling to convey our cargo over the Doma Peaks region.

So it was decided to fly over the range to Margarima and work back in towards the Domas from there.

Now we were working eastwards and gradually closing the circle as we got nearer to Mendi, the point of our departure on 26th June.

We reached Mendi on 16th September after another side track into the limestone valleys close to where we had penetrated en route to Kutubu before.

Escaped Murderers

Again we had to take care with the local people as strong government patrols were combing the area to retrieve some murderers who had escaped from gaol. The people were in a nervous state of tension.

A swift look at Mt. Giluwe was followed by a visit to the dividing ridge between the Mendi valley and that of the Kaugel to the north before returning to finish our examination of the Mendi basin itself.

During this trip, while at Komia, we were startled one evening by a roaring from the creek next to our camp and rushed down to its bank to discover that a cloudburst on the slopes of Mt. Giluwe had caused the creek to rise some 8 feet in as many minutes, and the sudden wild spate was rolling big boulders along the bed.

No damage was done and it was completely normal by next morning.

As we entered October the weather began to severely hamper our daily operations with rain setting in at about 2 p.m. every afternoon, so on 3rd October we vacated the last rest house at Tende and closed the 1961 survey of the Southern Highlands."

APPOINTMENTS VACANT

The following vacancies for professional appointments are current:—

BIOCHEMIST (E.O.I/II)—Division of Fisheries and Oceanography. 320/237 (June 4).

EXPERIMENTAL OFFICER (E.O.I/II)—Division of Food Preservation. 300/344 (June 11).

EXPERIMENTAL OFFICER (E.O.I/II) — Division of Physical Chemistry. 586/15 (June 11).

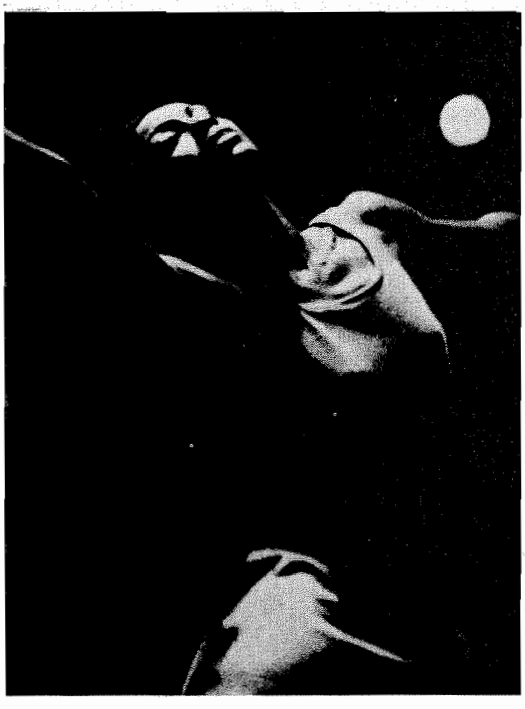
STATISTICIAN (S.R.O./P.R.O.) — Division of Mathematical Statistics. 440/124 (June 11).

PHYSICIST (R.O.)—Division of Forest Products. 290/634 (June 25).

ENTOMOLOGIST (R.O./S.R.O.)—Division of Entomology. 180/209 (July 2).

FELLOWSHIP IN ECOLOGY (R.O./S.R.O.)—Division of Plant Industry. 130/542 (July 2).

PHYSICIST (R.O./S.R.O.)—Division of Applied Physics. 750/247 (July 2).



Eric Smith, photographer at the Division of Building Research, is a member of "Group m", a band of photographers with a modern outlook. Members of the group exhibited their work in the Melbourne Treasury Gardens during Moomba. The group assists the Museum of Modern Art with a yearly exhibition, "Photovision", which has just finished in Melbourne and is now moving to Sydney and Launceston. Among the commended prints at "Photovision" was this action dance photograph . . . Eric finds this kind of subject even more inspiring than bricks and concrete!

DINNER DANCE

The Melbourne Divisions and Sections of C.S.I.R.O. will hold their annual Dinner Dance this year on Saturday, 14th July, at the new and refurbished Earls Court at St. Kilda. Tickets, which have been reduced this year to 70/- a double, will be available on the "lay-by", as arrangements have been made to collect instalments on pay days. Ticket secretaries are Jack Lavery, Rosalind Smith and Margaret Hespe, all of Head Office. Our picture shows Margaret checking proofs of the invitation card with compositor Brian Banks.

OVERSEAS VISITS

Mr. W. R. Blevin, of the Division of Physics, is making a short visit to North America and Europe. He will attend a meeting of the International Committee on Weights and Measures in Paris, and visit a number of standards and industrial laboratories working in the photometry field.

Dr. C. F. Bruce, of the Division of Applied Physics, left last month on a five months trip which will take him to Japan, North America, Britain, Russia, Europe, and South Africa. He will attend meetings in the International Organization of Legal Metrology (in Vienna), the International Advisory Committee on the Definition of the Metre (in Paris), and the International Commission of Optics (in Munich).

Mr. K. A. Davidson, of the Division of Radiophysics, left recently to spend nine months at Boulder, Colorado, U.S.A. He has been invited by the University Corporation for Atmospheric Research to assist in setting up equipment for cloud physics research.

Mr. P. Goodman, of the Division of Chemical Physics, has been awarded a Post-doctorate Fellowship in the 1961/62 Programme of the Royal Norwegian Council for Scientific and Industrial Research. He left recently to work at the electron diffraction laboratories of the Central Institute for Industrial Research in Oslo.

Mr. E. G. Hall, of the Division of Food Preservation, is making a short visit to London. Experimental shipments of apples and pears are at present being sent to Britain, and Mr. Hall will, as part of the experiments, examine the fruit when it arrives at its destination.

Dr. Shirley Jeffrey, of the Division of Fisheries and Oceanography, leaves this week for America, where she will spend one year. She has been invited to work on marine chlorophylls at the Kaiser Foundation Research Institute at Richmond, California.

Mr. B. J. Potter, of the Division of Biochemistry and General Nutrition, left last month on a visit to U.S.A., Britain and Europe. He will attend the XXII International Congress of Physiological Sciences at Leiden, Netherlands, in September.

Mr. T. Talsma, of the Irrigation Research Station, Griffith, recently left for Holland on a post-graduate studentship. He will spend a year at the Agricultural University, Wageningen, studying aspects of soil physics associated with salinity.

Dr. D. S. Taylor, of the Division of Textile Industry, will leave next week on a short visit to Britain and North America. He will discuss the commercial development of the Division's Comb Control Unit and Sliver Converter with manufacturers in Bradford. He will also present a paper to the annual conference of the Textile Institute at Eastbourne.

Dr. E. O. P. Thompson, of the Division of Protein Chemistry, left last month to spend a year overseas. He will spend three months at the Wool Research Institute at Aachen, West Germany, and three months with Professor F. Sanger at Cambridge. Dr. Thompson will then proceed to Professor Neurath's department at the University of Washington, where he has been awarded a six months' fellowship.

A Popular Uncle

Courtesy "Daily Telegraph".

John Hicks gets his picture of Uncle Vince, with Margaret looking on.

"Please could you take a picture of our Uncle Vince Taylor when he gets his Bachelor of Commerce degree at the University of New South Wales?

"We would like to be there, but it is too far away. We hope you can get the picture — he is a very nice uncle

"P.S. We have money saved and can pay."

Thus wrote Margaret Hicks, 8, and her brother John, 11, to the Editor of Sydney's "Daily Telegraph". Their uncle Vince is C.S.I.R.O.'s internal auditor for New South Wales and Queensland.

When the "Daily Telegraph" photographer found Vince after the graduation ceremony, he had a surprise in store for him.

For Margaret and John had persuaded their parents to bring them up to Sydney from Victoria, and had been allowed time off from school to come.

When the photographer arrived, they were busy taking their own pictures of their uncle.

Vince, incidentally, was not the only C.S.I.R.O. clerk to take out his degree at the ceremony.

Bill Burridge, of the Salaries Section, received the first B.Sc. degree in Applied Psychology conferred by the University.

International Award

Mr. L. J. Lynch, of the Division of Food Preservation, has been selected for the International Award for 1962 of the Institute of Food Technologists.

This highly prized award is made annually to a member of the Institute who has made outstanding efforts to promote the international exchange of ideas, or whose work has led to such an exchange of ideas or to better understanding, in the field of food technology.

Mr. L. J. LYNCH

Mr. Lynch is the second Australian to receive this award. Dr. J. R. Vickery, Chief of the Division of Food Preservation, received it in 1960.

Mr. Lynch is a graduate with first-class honours in Agriculture from Queensland University.

HONOURS

Dr. O. H. Frankel, Member of the Executive, has been awarded the 1962 Farrer Memorial Medal by the Farrer Memorial Trust. The medal is awarded for outstanding service to Australian agricultural science. At the forthcoming meeting of A.N.Z.A.A.S. in August he will receive the medal and deliver the Farrer Memorial Oration.

Dr. D. F. Martyn, Officer-in-Charge of the Upper Atmosphere Section, has been elected a Fellow of the International Academy of Astronautics, a body founded in 1960 with headquarters in Paris. Dr. Martyn is the first Australian to be elected to a Fellowship.

Mr. H. A. Stephens, of the Foundry Sands Section, Chemical Research Laboratories, has been awarded the 1962 Oliver Stubbs Medal of the Institute of British Foundrymen. Mr. Stephens is a Past President of the Australian Branch of the Institute.

U.S. Entomologist

Dr. Harold T. Gordon, insect toxicologist at the California Agricultural Experiment Station, Department of Entomology and Parasitology, Berkeley, California, has arrived in Canberra to spend six months with the Division of Entomology.

Dr. Gordon will study the biosynthesis of aldehydes in the scent gland of the green shield bug (*Nezara viridula*).

APPOINTMENTS TO STAFF

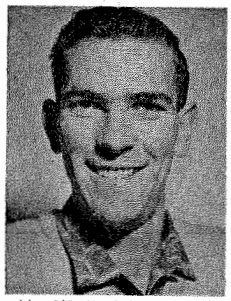
Miss Jennifer Andrews has been appointed an Ian McMaster Scholar at the McMaster Laboratory, Division of Animal Health. She graduated recently from the University of Sydney with an Honours

Miss JENNIFER ANDREWS

degree in Zoology. She will work on the ecology of freshwater snail vectors of trematode infection in domestic animals.

Mrs. Barbara Bursztyn has joined the group working on fungicides in paints at the Division of Building Research. She came to Australia from Poland in 1959 and gained her diploma from the Royal Melbourne Institute of Technology this year.

Mr. W. F. Colebrook, a recent graduate in agricultural science from Sydney, has joined the staff of the Division



Mr. W. F. COLEBROOK

of Animal Physiology. He will take part in research on the undernutrition of sheep.

Mr. H. G. L. Coster has joined the Division of Applied Physics, where he will work on the precise measurement of direct current. He recently completed his honours year in the Physics School at Sydney University.

Mr. J. G. Lang has joined the staff of the Soil Mechanics Section. He will take part in a study of Australian soil

Mr. J. G. LANG

sampling procedures. A diplomate of Swinburne Technical College, Mr. Lang has been on the staff of the Victorian State Electricity Commission.

Miss Jennifer McDougall has been appointed to the staff of the Division of Animal Genetics, where she will work with the microscopy group. She is a recent graduate in botany from the University of Sydney.

Miss Rosemary Parker, a recent graduate in biochemistry from Sydney, has been appointed to the Division of Animal Genetics, where she will work with the electron microscopy group. Miss Parker was previously on the staff of the Royal Prince Alfred Hospital.

Mr. C. A. J. Paulson has joined the staff of the Division of Coal Research, and will arrive in Australia this week. A graduate in chemical engineering from King's College, Durham, he has been for the past two years on the staff of British Petroleum Ltd.

Mrs. Judith Strong has joined the Plant Introduction group of the Division of Plant Industry. An American citizen, she holds the B.A. degree from

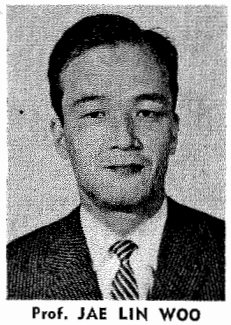
Mrs. JUDITH STRONG

Grinnell College in Iowa. She has previously worked as a librarian and as a botanical illustrator.

Dr. G. A. Stiven has joined the staff of the Division of Land Research and Regional Survey, and will be stationed at the Coastal Plains Research Station, near Darwin. Since graduating in 1949 from the University of the Witwatersrand, he has been with the Southern Rhodesian Department of Agriculture and with the Field Research Department of African Explosives and Chemical Industries Ltd.

Dr. J. R. Surtees has joined the Division of Organic Chemistry and will undertake research on organometallic and organic phosphorus compounds. A graduate of Imperial College, University of London, he has been for the last two years with the pharmaceutical firm of John Wyeth and Bro. Ltd., in England.

Professor Jae Lin Woo has been appointed to a temporary position at the Division of Textile Industry. He is a graduate and a staff member



Prof. JAE LIN WOO

of the engineering department of Seoul National University in Korea. Professor Woo holds a master's degree in textile technology from the Massachusetts Institute of Technology, and spent a year at Harvard in 1959.

Operational Research

Dr. J. C. Weston, deputy chief scientific officer in the D.S.I.R. Building Research Station in England, is at present visiting Australia at the invitation of C.S.I.R.O.

He is here to investigate the desirability of starting operational research on building in Australia.

Before returning to England shortly, he will report on his findings to the Commonwealth Government Building Research and Development Advisory Committee.

Dr. Weston, who is in charge of the operational research and economics division at the U.K. station, said on his arrival in Australia that the value of the scientific study of many aspects of building materials was well established.

However, corresponding scientific investigation into building operations and costs had been made only comparatively recently.

That type of research used many methods with the common aim of getting improved value for money by erecting buildings which were better designed and more quickly and efficiently built.

Labor costs had been reduced by ten to twenty per cent. in England by setting out a detailed schedule of operations before the work began and using it to control the progress of the work. Similar reductions might not be possible in Australia.

The use of room-sized precast concrete panels for the construction of multi-storey flats could reduce costs by 5 to 7 per cent. and labor by 20 to 25 per cent. and yield a 35 per cent. return on capital invested in the extra plant involved.

Dr. Weston said that as a result of work with the British Ministry of Education on the design of schools the research station had been able to halve the costs of schools per pupil place, a phenomenal achievement.

Dr. Weston (left) was met in Adelaide by Mr. Ian Langlands, Chief of the Division of Building Research.

Courtesy Adelaide "Advertiser".

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

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CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 40, MELBOURNE, JULY 1962

Birthday Honours

The Chairman of C.S.I.R.O., Dr. F. W. G. White, was created a Knight Commander of the Order of the British Empire in the Queen's Birthday Honours.

Sir FREDERICK WHITE

Sir Frederick White is the fourth Chairman of C.S.I.R. and C.S.I.R.O. to receive a knighthood, the others being Sir George Julius, Sir David Rivett, and Sir Ian Clunies Ross.

Several other scientists and benefactors of science were honoured by the Queen.

Mr. Adolph Basser, a noted Sydney philanthropist, became a Knight Bachelor.

Mr. W. H. Connolly, a member of C.S.I.R.O.'s Victorian State Committee, and **Dr. J. Vernon,** a member of the New South Wales State Committee, were both made Commanders of the British Empire (C.B.E.).

A C.B.E. was also bestowed on **Lady Grimwade,** who has been a noted benefactress of science.

Mr. D. J. Stevens, Director of the Commonwealth X-ray and Radium Laboratory, was awarded an O.B.E.

Grant from U.S. Air Force

The United States Air Force Office of Scientific Research has agreed to grant $29,300 to support a research project in the Division of Physics.

The research project is concerned with the thermal expansion of solids at low temperatures. Leader of the research team is Dr. G. K. White.

Dr. White is interested in the problem of measuring expansion coefficients at very low temperatures, to further knowledge of the inter-atomic forces, and to investigate the electron contribution to the expansion.

In 1959 he began to apply a sensitive method of detecting length changes to this problem, and has already published preliminary reports on the expansion coefficients of copper, iron, aluminium, chromium, palladium, lead, and potassium chloride down to temperatures near two degrees absolute.

The detection method is based on the accurate expansion of 3-terminal capacitances, largely developed by Mr. A. M. Thompson and co-workers in the Division of Electrotechnology.

This can enable length changes as small as a thousand-millionth of a centimetre to be detected in a suitable expansion cell.

Computer Network For Commonwealth

Federal Cabinet has agreed to the establishment by C.S.I.R.O. of a system of electronic computers for the use of C.S.I.R.O., Universities, and Commonwealth Government Departments and Authorities.

It is hoped that the first stage of the project, which will cost over £1,500,000, will come into operation in about eighteen months' time.

The central unit of the system will be a large and powerful computer, located in Canberra. The Government will set aside £100,000 for a laboratory to house it.

"Satellite" computers will be set up in Sydney, Melbourne, Canberra and Adelaide. All the units will be programmed in the same way and will make up an integrated network.

About forty people, including twelve scientists, will be recruited to staff the project. The position of Officer-in-Charge of the Computing Laboratory has already been advertised.

C.S.I.R.O. will be the biggest single user of the network. Several other Government Departments and agencies, including the Atomic Energy Commission, the Bureau of Meteorology, the P.M.G.'s Department and the Aeronautical Research Laboratories, will make extensive use of the computers.

In the future, the Atomic Energy Commission and some Departments and Universities will acquire their own "satellite" computers which they will operate themselves as part of the system.

The development of automatic computers in recent years has been dramatic. In some branches of scientific research calculations which would have taken a life-time can now be made in a few hours.

The use of computers is revolutionizing weather forecasting and is making possible the detailed analysis of complicated chemical compounds.

The needs of C.S.I.R.O. and other Commonwealth users are growing fast. By 1965, C.S.I.R.O. alone will need at least 5,000 hours of "satellite" computer time in a year, plus 1,500 hours on the central unit.

Other Government users will together need more than that.

At the present time, Australia's computing needs are doubling every year.

PRESIDENCIES AND HIGHER DEGREES

Dr. D. F. Martyn, Officer-in-Charge of the Upper Atmosphere Section, has been elected Chairman of the Technical Sub-committee of the United Nations Committee on the Peaceful Uses of Outer Space.

Dr. D. F. MARTYN

Dr. W. Boas, Chief of the Division of Tribophysics, has been elected President of the Australian Institute of Metals.

Dr. W. BOAS

Mr. J. R. Freney, of the Division of Plant Industry, has been awarded the Ph.D. degree of the University of New England. His thesis was entitled "Sulphur compounds in soil and their conversion to forms available for plant growth".

Miss Pamela Bell, of the Wheat Research Unit, has been awarded the M.Sc. degree of the University of Sydney. Her thesis was entitled "A critical study of methods for the determination of non-protein nitrogen".

Mr. L. G. Peres, of Head Office, has been awarded the degree of Master of Public Administration from Harvard University.

OPEN NIGHT

Courtesy "Geelong Advertiser"

Hon. Hubert Opperman, Federal Minister for Transport, with Dr. M. Lipson at the Division of Textile Industry's Open Night.

On Friday, 1st June, an Open Night was held at the Division of Textile Industry. The occasion was the formal opening of the Ian Clunies Ross Foundation's appeal in Geelong.

The Laboratories were open for inspection from 7 p.m. until 8.30 p.m. At 8.30 p.m. the appeal was inaugurated by the Federal Minister for Transport, Hon. Hubert Opperman.

The Chief of the Division, Dr. Lipson, the Australian Chairman of the Campaign, Mr. E. Angus Jones, and Dr. S. H. Bastow also spoke.

The Foundation's film about Sir Ian was then shown, together with "The Mallee Fowl" and "Radioastronomy in C.S.I.R.O.".

Almost 1,000 people turned up, including many parliamentary and civic leaders from the Geelong district. Great interest was shown in the Foundation, and also in the work of the Division.

Seventy members of the staff volunteered to give their services for the evening.

A Geelong Appeal Committee, with thirty-five members from local industry, schools and organizations, has been formed.

The Chairman is Dr. Lipson and Administrative Officer, Geoff Watson, is the Secretary/Treasurer.

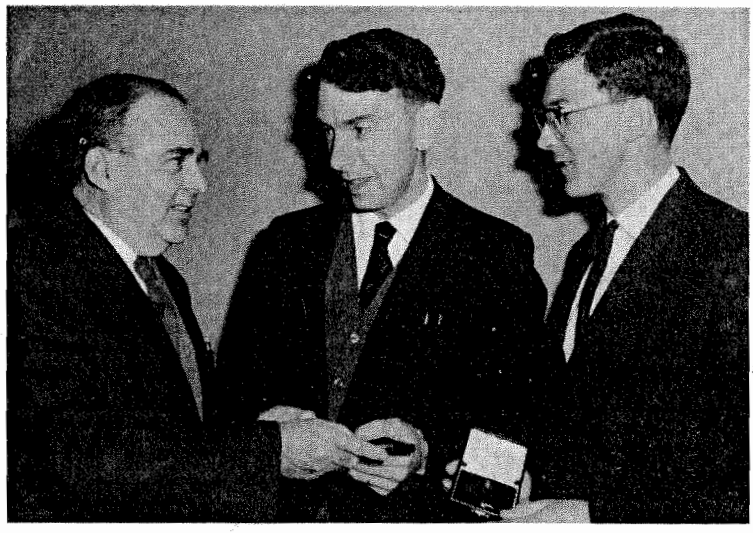
Father and Son

Dr. J. R. Wilson has joined the staff of the Division of Tropical Pastures. After graduating with first-class honours in agricultural science from Sydney, he spent eighteen months at the Grasslands Division of D.S.I.R. in New Zealand. For the past three years he has been working in Britain with the Agricultural Research Council's Unit of Plant Morphogenesis and Nutrition.

Dr. Wilson is a second-generation C.S.I.R.O. man. He is a son of **Mr. H. H. Wilson,** administrative officer at the McMaster Laboratory. Mr. Wilson joined the Division of Entomology thirty-two years ago. He transferred to the McMaster Laboratory in 1936 and, apart from four years service with the R.A.A.F., has been there ever since.

Dr. J. D. Morrison, of the Division of Chemical Physics, has been awarded the H. G. Smith Memorial Medal of the Royal Australian Chemical Institute, for his contributions to the knowledge of the constitution of some Australian natural products.

In our picture, the Institute's President, Dr. H. E. Dadswell, is presenting the H. G. Smith Medal to Dr. Morrison (centre), and the Rennie Medal to Mr. I. G. McWilliam, of I.C.I.A.N.Z. (right).



Penicillin in Milk — A Case History

On 22nd May, Dr. Dan Murnane, of I.C.I.A.N.Z., told the Australian Veterinary Association that dairy farmers were imperilling public health by letting milk become contaminated by antibiotics, especially penicillin.

Newspaper reporters present at the meeting seized on the statement, and the national press gave it front-page treatment.

And so the public was made aware of a problem which had been of concern to the dairy industry for years.

Dr. Murnane, a former officer of C.S.I.R.O.'s Division of Animal Health, had been a pioneer of the use of penicillin for treating mastitis in Australia.

"It is lamentable", he said, "that a product which has served Australia so well for twenty years is now being used to the point at which it is rebounding."

When penicillin first became readily available, it seemed to be the answer to the dairy farmer's prayer. In most cases, it rapidly cured mastitis, a disease of the cow's udder.

The "starter" bacteria, which are used to turn milk sour in the early stages of cheesemaking are highly susceptible to attack by certain viruses called bacteriophage.

Sometimes, however, a "starter" would fail to work, even in the absence of bacteriophage. On occasions, this was found to be due to the presence of penicillin in the milk.

After this was discovered, one of Mr. Czulak's associates, Miss Barbara Keogh, worked out the susceptibilities of the various "starters" to penicillin.

The cheese-maker's problem was eased — if the milk was contaminated with the antibiotic, he could use a more resistant strain of starter.

The first public intimation of the dangers to public health did not come to light until 1958.

"The Third Floor brought their own cow!"

Courtesy Herald & Weekly Times.

State Departments of Agriculture and other authorities warned dairy farmers that milk from penicillin treated cows should not be sent to milk depots or dairy factories for three days after a cow had been treated.

But in some cases, this warning was disregarded.

First Awareness

C.S.I.R.O.'s Dairy Research Section first became aware of penicillin contamination in the early 'fifties.

At that time Mr. J. Czulak was studying the causes of failure of "starter" bacteria in cheesemaking.

In that year, Mr. E. Munch-Petersen, of the Division of Animal Health, told the Australian Society of Dairy Technology that antibiotics, even if only present in small amounts, could produce allergic symptoms in sensitive people.

"In Australia," he said, "antibiotics are freely available to farmers who wish to treat their own cows with mastitis.

"Whether it is in the best interests of the farmers or the community in general to permit this to continue may be an open question. It certainly seems as if it's no-one's business to look into it."

Research Began

These words stimulated research workers to take up the subject. Various organizations began to examine methods for the identification and detection of penicillin.

Such tests would be needed if legislation prohibiting contamination was to be enforced.

In C.S.I.R.O., Miss Keogh devised a test for penicillin which was sensitive enough to detect traces in farm milk, but simple enough to be used in the average dairy laboratory.

This test would enable factories to "screen" farm supplies for penicillin.

In the laboratories of the Kraft organization, Dr. Jill Naylor (another ex-C.S.I.R.O. officer) developed a more sophisticated test for the quantitative analysis of very small quantities, which are found in bulked or bottled milk.

Scientists in the Victorian Department of Agriculture showed that a marker dye could be incorporated in veterinary penicillin, so that contaminated milk could be instantly recognized by its colour.

Bigger Doses

Meanwhile, further evidence of contamination was accumulating. Although veterinarians consider that doses of 25,000 units of penicillin are quite adequate, manufacturers were putting up doses of 100,000 units, and even 1,000,000 units.

Farmers used the bigger doses, and not always for cures —some used it as a preventive.

While doubtless most farmers discarded milk containing penicillin, a few sent such milk into depots. Their milk was bulked with that of other farmers.

In this way, gross contamination of say, three per cent of the supply can lead to traces of penicillin being found in a much larger proportion of the milk supply.

Recent tests have shown that more than half of Melbourne's milk supply may contain traces of it.

Medical Concern

Medical evidence on the dangers of penicillin was also hardening.

The medical profession had come to accept that traces of penicillin could

- Cause allergic reactions in the small proportion of the population hyper-sensitive to the drug;
- Cause people not already sensitive to penicillin to become sensitive;
- Encourage the development in the human body of penicillin resistant organisms.

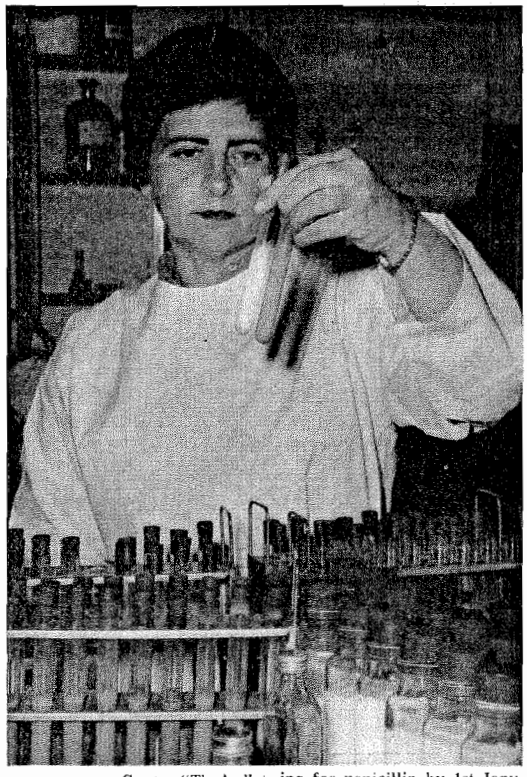
In 1960, scientists took the lead in the establishment of a committee to look at the problem and put the industry's house in order.

This industry committee consisted of representatives from various farmers' and manufacturers' organizations, State Milk Boards, the Australian Dairy Produce Board and C.S.I.R.O.

Dr. I. D. B. Newsam, of Animal Health, and Mr. L. L. Muller, of Dairy Research, were both members of the committee.

Pilot Survey

The committee arranged a pilot survey in an area of the New South Wales milk zone, in which the Department of Agriculture, the Milk Board and the University of Sydney took part.



Courtesy "The Age"

Miss Barbara Keogh, of the Dairy Research Section, using a simple test she has developed for the detection of penicillin in farm milk.

The survey was designed to find how effective proper control and extension would be in reducing the incidence of contamination.

Within a short time, the incidence of penicillin in farm milk in the area was reduced from twelve per cent to two per cent.

Just last month, the committee finalized a series of recommendations to be forwarded to the Australian Agricultural Council.

The main recommendation is that milk factories and depots should be obliged to start testing for penicillin by 1st January next, and that all contaminated milk should be rejected.

The detection tests devised by Miss Keogh and Dr. Naylor are suggested as standard methods.

Critics of the industry, when the penicillin story broke, were quick to say, in print, that the industry had done nothing about the problem.

It soon emerged that the industry, and the scientists who study its problems, had done a great deal about it.

Dangers to the public had been foreseen long before the public itself grew concerned.

By the time penicillin contamination became a public issue, the scientific and technological work had been almost completed. The ball is now in the court of the people who make and enforce the laws.

TECHNICAL ASSOCIATION NEWS

The elections for Central Council and State Branch office bearers for the ensuing year have been held. Results of the Central Council and Victorian Branch elections are now to hand.

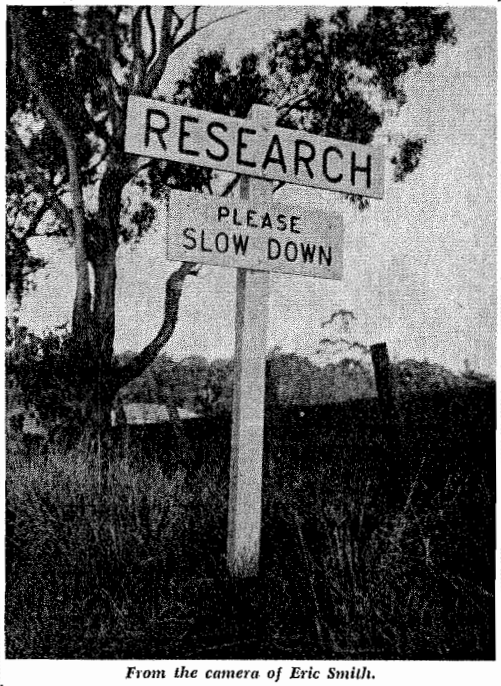
Central Council

Federal President: N. G. Richards (Meteorological Physics).
General Secretary: H. F. Heath (Forest Products).
General Treasurer: G. K. Thomson (Forest Products).
Publicity Officer: R. A. Humphris (Publishing Section).
Victorian Delegate: J. L. Little (Fodder Conservation).
South Australian—Proxy: R. Lewis (Building Research).
New South Wales—Proxy: E. McArthur (Forest Products).
Queensland—Proxy: F. J. Daniels (Forest Products).

Victorian Branch

Chairman: J. L. Little (Fodder Conservation).
Secretary: F. J. Daniels (Forest Products).
Treasurer: E. McArthur (Forest Products).
Delegates: R. A. Humphris (Publishing Section), A. W. Thompson (Engineering Section), J. McGeachin (Building Research), R. Esdaile (Tribophysics), N. G. Richards (Meteorological Physics), W. Stark (Dairy Research), V. R. Squires (Plant Industry, Deniliquin), S. Rutherford (Forest Products), Alexis Bell (Textile Industry).

It is hoped that election results from other States will be received in time for publication in next month's "Co-research".



From the camera of Eric Smith.

Siratro-Subterranean Clover of the North?

The Division of Tropical Pastures has succeeded in breeding an efficient legume which can be grown over a wide range of conditions in Northern Australia.

The new legume, called "Siratro", could, in time, do for tropical Australia what subterranean clover has done for temperate Australia.

It grows very well in the speargrass zone, along the coast, in the more northern part of the Northern Territory, and is now making a good showing in the brigalow.

The Editor of Queensland's "Country Life", Mr. Wallace Skelsey, goes so far as to say that Siratro will transform millions of acres of speargrass country in an even more spectacular manner than subterranean clover has done in the southern States.

Mr. Skelsey made his statement after visiting Moolboolaman, a property in the Gin Gin district where experimental work has been proceeding since 1953.

Adapted from an article in Queensland "Country Life" by Wallace Skelsey.

Moolboolaman has had excellent results from two other legumes, both having provided results that would normally be a cause for excitement.

But they have been completely overshadowed by Siratro, which not only produces a tremendous bulk of high protein fodder, but has shown remarkable ability to put nitrogen into the soil to benefit associated plants.

It has proved such a vigorous grower on speargrass ridges with an average 40-inch rainfall that it is choking out pests like Noogoora burr and eucalypt seedlings.

As with all new plants, seed is something of a problem. The possibilities are so good that everything possible should be done to multiply Siratro as quickly as possible.

Moolboolaman started three years ago with one acre of small plants and now has 27 acres, of which 12 acres is available for seed this year. Harvesting of seed is to commence almost immediately.

The original paddock has a 3 ft. 6 in. fence around it which is no longer visible — Siratro has covered the fence.

"I think people will have a hard job to credit the way Siratro has grown on this property unless they actually see it," Mr. Elliot, part-owner of Moolboolaman, told Mr. Skelsey.

Siratro was first planted at Moolboolaman in December, 1960. One acre of small plants was set out under heat-wave conditions. Mr. Elliot felt that Siratro would have to be a miracle plant to survive.

It was! Despite hot dry conditions it got off to a good start and now has complete control of the paddock.

Siratro was developed at the Cooper Laboratory, Lawes, from a couple of parent plants introduced from Mexico. "I have seen those plants; they were miserable specimens," said Mr. Elliot.

"It is incredible that from such unpromising material Dr. Hutton and his co-workers have bred up a plant which, I am satisfied, is the solution to Queensland's coastal legume problem."

"The habits C.S.I.R.O. succeeded in putting into Siratro are almost unbelievable," he stated. "In the first instance, it is a heavy seeder. It starts seeding in December and will continue to seed right up until May.

"Its habit is to climb: It climbs over Noogoora burr or eucalypt seedlings until it weighs them down and smothers them.

"It sends runners along the ground, with a root at each node, which then becomes a permanent plant.

"Latest types Dr. Hutton has selected are rhizomatous. That means they have the ability to send a root along underground. Thus the plant can extend itself in three different ways—underground, along the surface and by seed.

"Fortunately, stock do not eat voraciously: they graze it in conjunction with other feed. One of the big disadvantages with some of our tropical legumes is that protein-hungry cattle are inclined to concentrate on them, with the result that we lose the plant.

"Siratro, while being high in protein, is not extremely palatable. Stock graze it in association with the grasses."

Mr. P. A. Elliott, of Moolboolaman, inspects a field of Siratro. The legume has almost covered the 3 ft. 6 in. fence in the centre of the picture.

V.L.F. NOISE

The U.S. National Aeronautics and Space Administration has agreed to send Australian research equipment aloft in space.

An agreement had been signed between N.A.S.A. and C.S.I.R.O., under which the U.S. body will help us with an important research project.

Equipment designed and built at the Camden laboratory of the Upper Atmosphere Section is now nearing completion.

It is expected that this equipment will be incorporated in the payload of an Aerobee rocket to be launched from Wallop's Island, Virginia, later this year.

If this preliminary test is successful the equipment may then be sent into orbit in a Scout Satellite.

The C.S.I.R.O. equipment is designed to detect and transmit very low frequency radio noise. The noise is generated in the upper atmosphere where electrically charged particles, shot out from the sun, enter the magnetic field of the earth.

The Upper Atmosphere Section is studying the origin of this noise. With the help of the R.A.N., instruments have been successfully flown in high altitude balloons near Nowra, New South Wales.

But these radio waves, which fall on large localized areas in or near Australia, are almost certainly changed by their passage through the layers surrounding the earth.

It is hoped that equipment placed in a satellite will circle the earth and locate the regions of space in which the waves are produced.

OVERSEAS VISITS

Mr. D. E. Byth, of the Division of Tropical Pastures, has been awarded a Research Assistantship at Iowa State University. He left Australia last month and will spend three years at Iowa, working on various aspects of soya bean research.

Dr. R. Carrick, of the Wildlife Survey Section, left last month to spend a year abroad. He will visit a number of research centres in Europe, America, and Russia, and will attend a number of conferences. These include a S.C.A.R. Symposium on Antarctic Biology (in Paris), the Thirteenth International Ornithological Congress (at Ithaca, U.S.A.), and the First World Conference on National Parks (at Seattle). Early in 1963 he will visit Antarctic bases as a guest of the Argentine Navy.

Mr. A. B. Costin, of the Division of Plant Industry, left last month on a brief visit to New Zealand to inspect portions of the tussock grasslands and mountain lands. He will advise the Tussock Grasslands and Mountain Lands Institute's Committee of Management on various alpine problems.

Mr. J. Czulak, of the Dairy Research Section, left last month on a Colombo Plan mission to India. He will advise the Indian government on problems associated with the manufacture of cheese from buffalo milk. Mr. Czulak will then visit Japan, on a mission for the Australian Dairy Produce Board, and U.S.A., to discuss cheese mechanization with potential users of Australian equipment.

Mr. J. F. Kefford, of the Division of Food Preservation, left last month on a visit to North America, Europe and England. He has just attended the Annual Conference of the Institute of Food Technologists at Miami, Florida, and he will read a paper at the First International Congress of Food Science and Technology to be held at London in September.

Mr. F. G. Nicholls, of Head Office, left for New York last month on the first stage of a trip to Thailand. He will visit the U.N. in New York, U.N.E.S.C.O. headquarters in Paris, and F.A.O. headquarters in Rome. He arrives in Bangkok this week.

Dr. D. L. Serventy, of the Wildlife Survey Section, left Australia last month for America, where he will attend an International Ornithological Congress at Cornell University, Ithaca, New York State.

Mr. I. W. Stapleton, of the Division of Protein Chemistry, left recently for the United States. He has been granted leave for a period of two years to undertake a research studentship in Professor Carmack's department at the University of Indiana.

Mr. K. L. Taylor, of the Division of Entomology, spent three weeks in New Zealand last month looking at Sirex wasp research. He included in his itinerary visits to the D.S.I.R. Division of Entomology and the Forest Research Institute at Rotorua.

Mr. G. W. Wright, of the Division of Forest Products, left last month to attend the Eighth British Commonwealth Forestry Conference in East Africa, as an Australian representative. He will be away for about six weeks.

Journey's End

"Derwent Hunter", the Division of Fisheries and Oceanography's 72-foot schooner, was paid off last month after twelve years' service as a fisheries research vessel.

One of the reasons for the schooner's retirement is the high cost of repairs to damage caused by battling seven gales in two years.

Four weeks ago the schooner returned to Sydney with £1,000 gale damage to its steering and sails.

The skipper, Captain Richard Davies, and the crew of five, sailed the schooner from its berth at Darling Harbour to the Government pound at Garden Island.

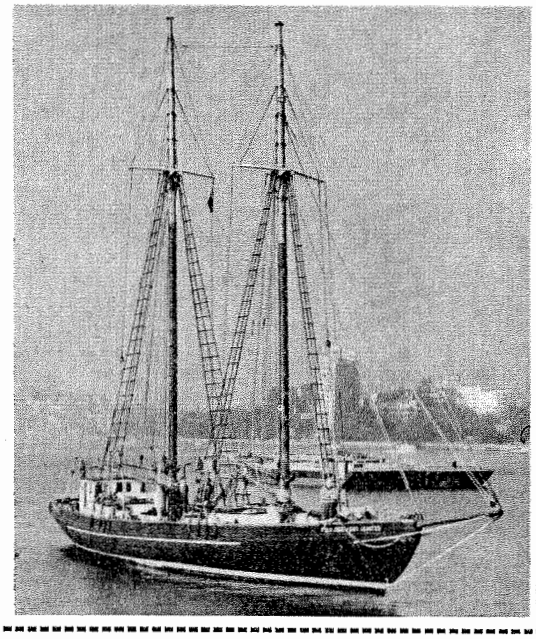
The chief mate, Mr. Ron Spaulding, 50, of Hobart, who has been in sailing ships for 35 years, lowered its flag.

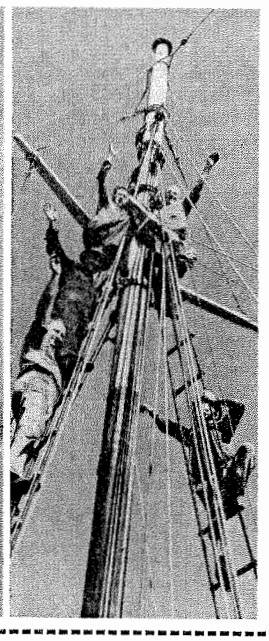
C.S.I.R.O. used the Derwent Hunter between 1950 and 1955 and 1959 and 1962 to trace tuna fishing grounds off the east Australian coast.

It has not been decided if the schooner should be sold, or if its replacement should be bought or chartered.

Left: The schooner, "Derwent Hunter", tied up at Garden Island after its last research cruise. Right: Members of the crew of the Garden Island tug, "Wattle", in the rigging of one of the "Derwent Hunter's" masts.

Courtesy "Sydney Morning Herald".





New Appointees

Mr. B. Dorien-Brown, who resigned from the Division of Metrology in 1957, has joined the staff of the Division of Applied Physics. He will take part in a comprehensive vibration study on the Parkes radio telescope.

Mr. A. P. Kennedy has joined the staff of the Division of Animal Physiology, and will be stationed at Armidale. Since graduating with honours in

Mr. A. P. KENNEDY

agricultural science from Sydney in 1949, he has been with the N.S.W. Soil Conservation Service, and has farmed for several years at Booroowa.

Miss Barbara Lee, a B.Agr. Sc. graduate from Sydney, has joined the Division of Animal Physiology, and will be stationed at Armidale. She has

Miss BARBARA LEE

been for the last year on the staff of the School of Wool Technology, University of New South Wales.

Dr. G. M. Lukazewski arrived in Australia last week to take up an appointment with the Division of Mineral Chemistry. Since graduating Ph.D.

Dr. G. M. LUKAZEWSKI

from the University of London in 1960 he has held a post-doctoral fellowship at the Battersea College of Technology.

Mr. J. M. Hopkinson arrives next week on the "Arcadia" to take up an appointment at the Tobacco Research Institute, Mareeba. For the past three years he has been working for his Ph.D. degree in the agriculture department of the University of Nottingham.

Dr. R. J. Roberts has joined the staff of the Division of Entomology, and will work on

Dr. R. J. ROBERTS

the biological control of Noogoora burr. Although he is an Australian, his entire university training has been in America. He recently graduated Ph.D. from Illinois.

Foundry Sands Section Moves

The Foundry Sands Section of the Chemical Research Laboratories is to be transferred from the Royal Melbourne Institute of Technology to Fishermen's Bend.

At Fishermen's Bend, the group will be absorbed into the Cement and Refractories Section.

The decision to transfer the group has been determined by a progressive change in the nature of the Foundry Sands work and the requirements of the foundry industry.

A more basic approach to some of the industry's problems can best be made in closer association with the Cement and Refractories Section.

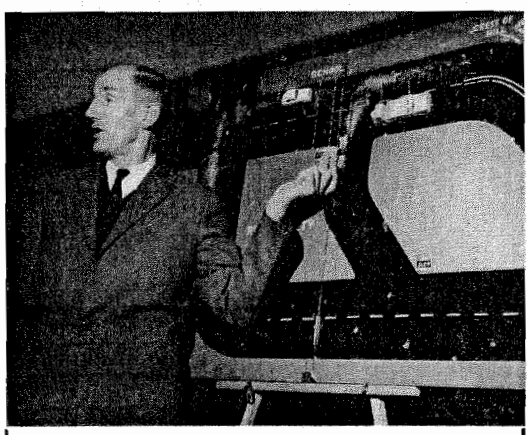
Dr. J. M. Preston, a leading figure in the British textile industry, will arrive in Australia in August to join the Division of Textile Industry. Dr. Preston, who holds the D.Sc. degree from Liverpool, will carry out liaison work with the wool textile industry.

Mr. D. R. Scotter has joined the staff of the Soil Physics Section of the Division of Soils. He will be stationed at Griffith. Until recently, Mr. Scotter was a trainee agricultural scientist with the New South Wales Soil Conservation Service.

Mr. D. J. Swain, a recent graduate in agricultural science from Sydney, has joined the Division of Land Research and Regional Survey. He will be stationed at Katherine, where he will study the field agronomy of arable crops.

Mr. C. E. Warble has joined the Cement and Refactories Section, where he will assist with work on the synthesis of minerals and other refractory materials. A graduate of Wayne State University, Detroit, U.S.A., he was previously a petrologist with the Victorian Country Roads Board.

ROAD SAFETY



A recent lecture on Road Safety at the Ian Clunies Ross Animal Research Laboratory proved highly popular. Over a hundred members of the staff turned up to hear Mr. E. T. Izard of the New South Wales Road Safety Council.

Mr. Izard's informative and amusing talk was followed by a question period. After time ran out, fifteen members of the staff stayed behind to ask more questions.

The Road Safety Council would be glad to arrange a similar lecture for any other C.S.I.RO. establishment in the Sydney Area.

Three New Films

The Film Unit has released three new films entitled "Building on Research", "Green Pea Harvest Prediction" and "Clunies Ross — A Man of Science".

"Building on Research" (colour, 28 minutes) was produced for the Building Research and Development Advisory Committee.

It shows how research in Australia has contributed to the better use of traditional building materials, such as masonry, timber and plaster, and how some new materials have been developed.

The research programmes being carried out on lighting, ventilation and fire-resistant materials are also covered.

The film had its first public screening at the recent Annual General Meeting of the Australian Institute of Builders in Perth.

"Green Pea Harvest Prediction" (colour, 12 minutes) was produced for the Division of Food Preservation to show how the "maturometer", an instrument developed by the Division, assesses and predicts the maturity of peas.

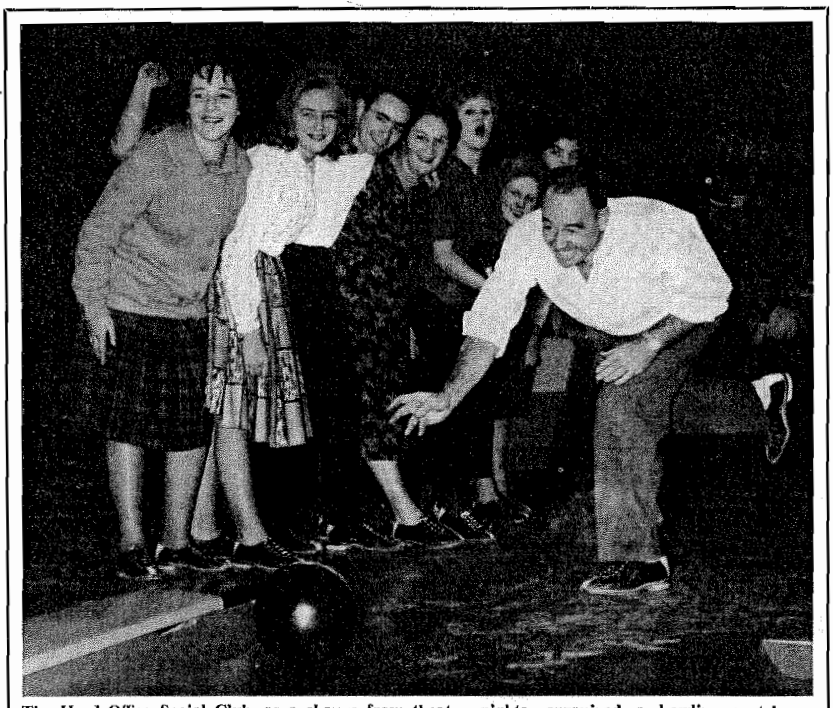
This enables commercial producers and canners to forecast accurately, days in advance, just when a crop will be ready to be harvested.

"Clunies Ross — A Man of Science" (black and white, 12 minutes) was compiled largely from archival film material. The film shows some of the rapid advances made in the last ten years as a result of industrial and scientific research.

It was produced for the Ian Clunies Ross Memorial Foundation to further the appeal for funds to establish a National Science Centre, which will be known as Clunies Ross House.

The film will receive extensive television release from both the Australian Broadcasting Commission and commercial networks. It has already been shown in Melbourne, Sydney, Adelaide and Hobart.

C.S.I.R.O. staff in Brisbane and Perth will have a chance to see it on Friday, 6th July, when it will be transmitted by the A.B.C. in their Rural Programme.



The Head Office Social Club, as a change from theatre nights, organized a bowling match on 19th June at the Heidelberg Bowl. Our picture shows Jack Bourne in action. The Social Club is extending its activities — a mystery car trip and barbecue is now being planned.

Holiday Club

Members of the Anglesea Holiday Club are advised that the 15th Annual General Meeting will be held at 8 p.m. on 31st July at the Division of Forest Products.

Formal notice will be given in due course, but this early announcement is made to enable members to reserve this date.

From Ghana

Mr. Francis W. Addo-Ashong, of Ghana, arrived at the Division of Forest Products in April for a two-year visit. Mr. Addo-Ashong has an Oxford M.A. degree in Forestry and has left a position of Acting Conservator of Forests in the Ghana Forest Service to come to Australia.

Mr. F. W. ADDO-ASHONG

After his period of training he will be in charge of the Forest Products' Research Unit to be established under the National Research Council of Ghana. Mr. Addo-Ashong's visit is under the auspices of the Special Commonwealth African Assistance Programme.

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

CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 41, MELBOURNE, AUGUST 1962

FOUR NEW DIVISIONS

Four research groups within C.S.I.R.O. have been accorded the status of Divisions of the Organization.

The new Divisions are

- **The Division of Applied Mineralogy**
- **The Division of Chemical Engineering**
- **The Division of Dairy Research**
- **The Division of Wildlife Research.**

The Division of Applied Mineralogy (Chief, Mr. A. J. Gaskin) will consist of the former Cement and Refractories Section together with a research group engaged on investigations into foundry practice.

Mr. A. J. GASKIN

Members of the Division have, in the past, done valuable work for the cement, concrete, ceramics, refractories and foundry industries. Recently, arrangements have been made to establish a unit of the Division in Western Australia.

The Division of Chemical Engineering (Chief, Dr. H. R. C. Pratt) was formerly the Chemical Engineering Section, which has expanded rapidly in recent years.

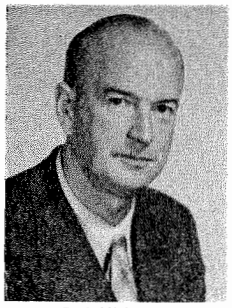
Dr. H. R. C. PRATT

The Division's recent work has included research on the utilization of brown coal, the desalting of water, and the development of new processes for ore treatment, grinding and mixing. The Division maintains a process equipment laboratory for the use of industry.

The Divisions of Applied Mineralogy and Chemical Engineering will be units of the Chemical Research Laboratories at Fishermen's Bend, Victoria.

The Division of Dairy Research (Chief, Mr. G. Loftus Hills) was formerly the Dairy Research Section. It has expanded recently because of the financial support given to it by the dairy industry through the Australian Dairy Produce Board.

The Division has had outstanding success in its efforts to mechanise cheese manufacture.



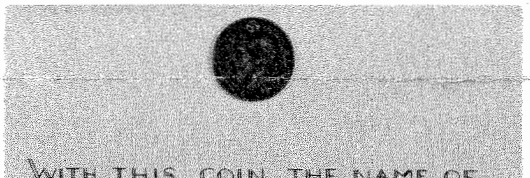
Mr. G. LOFTUS HILLS

Other projects have resulted in improvements in methods of casein manufacture, the development of new dairy products, and a better understanding of the factors governing the smell, taste and texture of dairy products.

The Division of Wildlife Research (Chief, Mr. H. J. Frith) is best known for its outstanding work on myxomatosis and other methods of rabbit control. Various other pests of agriculture, including the kangaroo and the dingo, have been studied.

Mr. H. J. FRITH

Some of the Division's researches, such as the work on the mutton-bird, are concerned with conservation rather than control. The Division organizes the Australian bird-banding scheme from its headquarters in Canberra.



Playwright's Prize

Bob Schoenfeld, of the Editorial Section at Head Office, has shared the first prize in one of Australia's most important literary competitions.

This is the annual competition organized by the Journalists' Club, Sydney, for Australian works of art, literature and music. The 1961 competition was for a stage play. The first prize of £500 was divided between two plays, one by Hal Porter, and the other by Bob, who writes under the nom-de-plume of "Robert Amos".

The Club ran the competition with the co-operation of the Playwrights' Advisory Board, an honorary organization which for many years has been devoted to the interests of Australian stage playwrights and which has had much experience in running its own competitions.

It was the P.A.B. which gave joint first prize to Ray Lawler's "Summer of the 17th Doll", a play which became famous afterwards on the professional stage.

In 1956 the P.A.B. judged the initial stage play competition of The Journalists' Club and awarded first prize to Richard Beynon's "The Shifting Heart" and second prize to Barbara Vernon's "The Multi-Coloured Umbrella". Both plays were professionally produced with success.

Bob's winning entry was called "When the Gravediggers Come". The play follows the fortunes of people of various nationalities in a Chinese city

Mr. R. SCHOENFELD

that has been thrown into anarchy by the impending arrival of the Chinese Communist armies.

In addition to winning first prize, Bob's second entry, "A Game of Numbers", was highly commended by the judges, and placed among the first four entries.

Increase in Wool Research Grant

The grant for research on sheep and wool has been increased by £115,574 to £2,964,559 for the current financial year.

The Minister for Primary Industry (Mr. Adermann) announced this on 17th July.

C.S.I.R.O. will receive £2,408,654 (an increase of £129,654). Of this, £1,062,000 will be for biological research, representing an increase of £108,000. £830,000 will be for textile research, an increase of £106,500.

C.S.I.R.O. will also get £309,654 to cover the works and machinery required for its three textile laboratories in Melbourne, Sydney and Geelong.

Australian universities will receive £246,519 for work in animal husbandry, veterinary science, agriculture, agricultural economics, physiology, surgery, wool technology and related fields.

Mr. Adermann said textile research was being supported in the University of New South Wales School of Textile Technology and in the Gordon Institute of Technology, Geelong.

Scholarships had been provided at both institutions to train students for the wool textile industry.

At the post-graduate level, two of the three wool research fellowships tenable at universities for work of interest to the industry would be available for award in 1963 to graduates with at least one year of post-graduate training.

In addition, post-graduate training was available at universities under the many projects financed from the wool research trust fund.

Mr. Adermann said this training was the prime purpose for which the annual grants were made to these university schools since it is from these sources that Australia had to draw the bulk of her future research workers.

In the current financial year economics research in the wool section of the Bureau of Agricultural Economics will be covered by a grant of £63,750.

Applied research and extension in the State departments, which provided the vital links between the findings of the fundamental research worker and their application by the man on the land, had been provided for by grants to all States, which totalled £121,036.

In addition, a special grant of £25,000 had been made for the third year to provide additional sheep and wool officers in the various States, as arranged with the Australian Agricultural Council.

A sum of £4,000 would cover the cost of another refresher school for State sheep and wool extension officers in 1963.

HONOURS

Mr. R. R. Ingpen of the Agricultural Research Liaison Section has been admitted to full membership of Britain's Society of Industrial Artists in the category of General Illustration. Membership is based on assessment of representative works by specialist examining boards. Mr. Ingpen is only the fifth Australian so honoured.

Mr. L. C. Lloyd, of the Division of Animal Health, has been awarded the Ph.D. degree of the University of Sydney. His thesis was based on a study of an inherited cystic condition on the skin of Merino sheep.

Mr. J. P. Wild of the Division of Radiophysics has been elected a member of the American Philosophical Society. He is the fourth Australian to receive this honour, the others being Sir Macfarlane Burnet, O.M., F.R.S., Sir Ronald Fisher, F.R.S., and Sir Douglas Copland.

Post-Graduate Committee

The Vice-Chancellor of the University of Sydney, Emeritus Professor S. H. Roberts, has announced the formation of a Post-Graduate Committee in Veterinary Science.

In making the announcement, Professor Roberts said that the establishment of this Committee would be of inestimable value, not only to the veterinary profession, but indirectly to all livestock owners in New South Wales.

Representation includes the New South Wales Division of the Australian Veterinary Association, Faculty of Veterinary

Mr. R. E. CHURCHWARD

Science, C.S.I.R.O., New South Wales Department of Agriculture, and the Veterinary Inspectors' Institute.

The Senate has appointed Mr. R. E. Churchward of C.S.I.R.O.'s Agricultural Research Liaison Section as Chairman of the Committee and Honorary Director of Post-Graduate Studies.

The Committee will provide post-graduate instruction for veterinarians in country areas, with the result that they will be kept informed of the latest developments in veterinary science to the benefit of all stock owners.

S(COR)

Research on the Roof of Australia

The rain in Spain, according to Professor Higgins, stays mainly on the plain. In Southern Australia, and indeed in most parts of the world, it falls mainly on the mountains.

The high peaks and plains of the Great Dividing Range constitute a vast water catchment area. In winter an area as big as Switzerland is covered with snow, and skiers travel to a dozen resorts in the mountains.

In summer the trout fishermen take over, fishing in the crystal clear snow-fed streams and lakes.

From the ranges spring many of Australia's biggest rivers — the Murray, biggest of them all, the Murrumbidgee, the Snowy, the Goulburn, and many more.

The Snowy Mountains Authority is steadily making progress on its huge project — the harnessing of the catchment water for power generation, and the diversion of the waters into rivers which will provide water for irrigation and urban water supply.

Over the mountains, C.S.I.R.O. has carried out its biggest rain-making experiments.

Conservation

It is of vital importance that the catchments should be properly conserved.

Since the last century, graziers have driven their sheep and cattle up to the high country in summer to graze the alpine pastures.

The old graziers knew that the mature grasses weren't very palatable to stock, so it was common practice to burn off the pastures, which encouraged more palatable new growth.

The combination of grazing and burning caused a marked deterioration in the condition of the alpine plant communities.

Scientists from State Authorities have known about this deterioration for many years, and have made a number of reconnaissances of the area.

In 1955 C.S.I.R.O.'s Division of Plant Industry appointed Mr. Alec Costin to the staff, to study the ecology of the alpine country.

The project was welcomed by the Snowy Mountains Authority and by the Australian Primary Producers' Union, which wanted facts on land use in the high country.

In 1957 the Australian Academy of Science set up a committee to report on land use in the mountain catchments.

The committee, of which Mr. Costin was a member, included among its recommendations the exclusion of grazing animals from the high country over 4,500 feet, and the prohibition of burning.

Investigations

Alec Costin, with his colleagues Neil Cromer and Dane Wimbush have a base for operations on the Kosciusko road.

From there, they study in the field the ecology of the alpine plant communities in the Snowy Mountains.

They know that the plants can affect the quality of water, the seasonal distribution of its flow, and the total amount running into the rivers and dams.

Quality

To the city dweller, mountain streams seem to consist of pure, clean, almost distilled water. But not all of them are crystal clear.

When rain falls or snow melts on an impervious land surface, it runs along the top of the ground, washing away topsoil in suspension.

Not only does it cause erosion, but it carries suspended soil into the dams. The soil, sinking to the bottom of a dam, could silt it up and render it useless long before the dam has had an economic life.

From the conservationists' point of view, it is best for the water to penetrate the surface. It will then filter through the earth and emerge eventually through mossy bog outlets as a spring.

Spring water really is crystal clear and free of suspended soil.

Seasonal Distribution

In the spring the snows melt. The water runs swiftly into the dams, and is used to generate electricity.

If the snow melts too quickly, the water will run into the dams too quickly, and will overflow over the spillways.

As a result, the water can't be used for power generation. One of the aims of the conservationist, therefore, is to prolong the snow-melting season.

One way of doing this is by planting snow gums, which shade the snow from the direct sun and also protect it from wind.

The promotion of infiltration helps here too, since it minimizes peak run-off.

Total Flow

Cold snow is a powder, like sand, and snow can easily be blown off the ranges by wind. Trees are a help in preventing the loss of snow.

Measurements in the Guthega catchment between 1956 and 1960 have shown that timbered areas accumulate up to 100 per cent more snow than deforested areas, and retain it up to a month longer.

Trees also collect more water from rain, fog, and cloud.

Re-establishment

All the results obtained so far suggest that the best conservation measures are the re-establishment and preservation of our natural alpine vegetation.

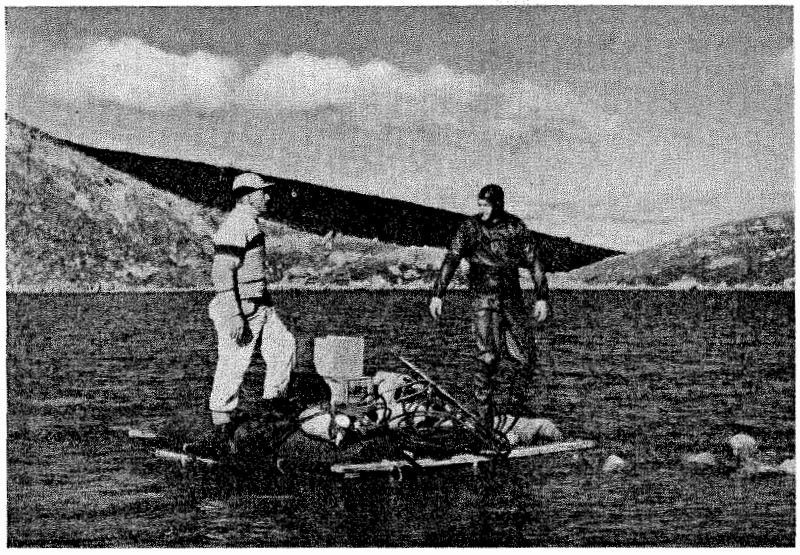
Plants introduced from other countries do not do as well as the native species, probably because they are not adapted to the frequent freeze-thaw cycles which are found in the Australian highlands.

Nor are conifers superior to snow gums.

The main aim is to restore the country to the state in which we found it. This will involve reafforestation and the encouragement of regrowth in our pasture plant communities.

It will mean the elimination of grazing, trampling and burning.

Our snow gums and pasture plants, if restored to their proper state, will promote infiltration, extend the peak season of water flow, and give us more water.



Alpine ecologists are interested in the way in which the alpine soils and plants communities have developed. They are able to obtain clues by analysing pollen and wood remains from the bottom of glacial lakes. In our picture, a frogman is about to descend ninety feet to the bottom of Blue Lake to take a sample.

OVERSEAS VISITS

Mr. A. J. Antcliff, of the Commonwealth Research Station, Merbein, left last month to spend a year abroad. He will spend nine months working at Imperial College, London, under Professor H. K. Porter, F.R.S. Mr. Antcliff will attend the Tenth International Horticultural Congress in Brussels in September.

Mr. R. L. Wright, of the Division of Land Research and Regional Survey, has undertaken a year's assignment with U.N.E.S.C.O. in Pakistan. He will initiate geomorphological work as a component of Pakistan's integrated resources surveys.

Dr. N. S. Ham, of the Division of Chemical Physics, left last month to spend twelve months at the Massachusetts Institute of Technology, where he will work with Professor J. S. Waugh on magnetic resonance. He will attend a Gordon Research Conference on Instrumentation before commencing work at M.I.T.

Dr. A. McL. Mathieson, of the Division of Chemical Physics, left last month to spend four months in Europe, North America and Japan. He will attend international meetings at Münich and Prague and he will visit Harvard University for a period of one month to study developments in the field of structure analysis with Professor W. N. Lipscomb.

Mr. J. P. Wild, of the Division of Radiophysics, made a short trip abroad last month. He had been invited to deliver two lectures at a Summer School on Radio Astronomy held at Jodrell Bank. He made short visits to Holland and France before returning to Australia through U.S.A.

Mr. J. Bingley, of the Division of Animal Health, left last month for Argentina. He has been seconded to F.A.O. for a two year period, and will serve as an animal production officer with a technical assistance mission in Buenos Aires.

TECHNICAL ASSOCIATION NEWS

The results of Branch elections held in New South Wales, South Australia and Queensland were as follows.

New South Wales Branch

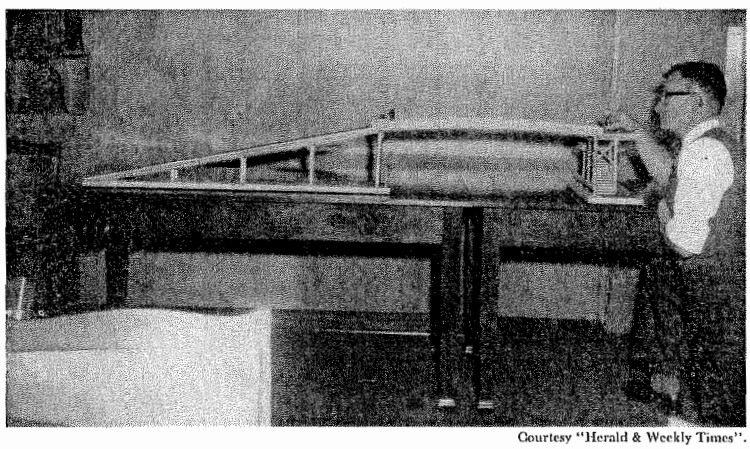
Chairman: W. J. Menzies (Animal Genetics).
Secretary: L. F. Clague (Radiophysics).
Treasurer: R. E. Coyte (Animal Physiology).
Delegates: R. McInnes (A.C.T.), Miss J. R. Franklin (Animal Health), R. O. Banyard (Applied Physics), Miss N. Rout (Animal Physiology), L. O'Loughlin (Coal Research), K. Richards (Fisheries & Oceanography), K. Boehme (Food Preservation), S. R. Meszaros (Physics), N. Thorndike (Radiophysics), J. Snaith (Textile Physics).

South Australian Branch

Chairman: M. Hughes (Soils).
Secretary: R. Buckley (Biochemistry & General Nutrition).
Treasurer: Miss J. Hawkes (Mathematical Statistics).
Delegates: J. Pickering (Soils), P. Monk (Biochemistry and General Nutrition).

Queensland Branch

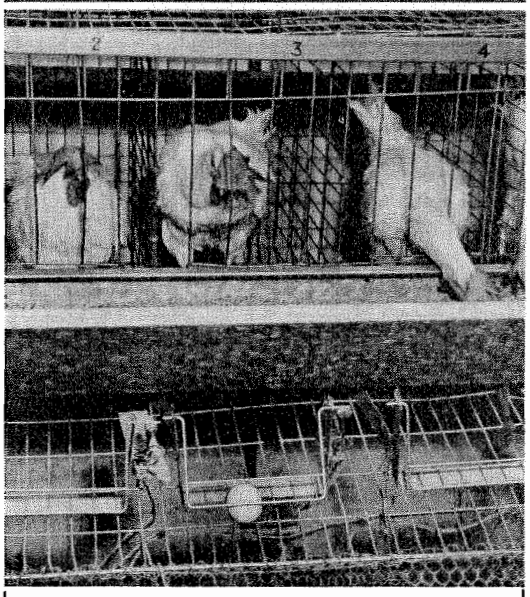
Chairman: P. G. Sheaffe (Tropical Pastures).
Secretary: R. B. Waite (Tropical Pastures).
Treasurer: Miss J. Moore (Soils).
Delegates: R. Panitz (Tropical Pastures), R. Summersgill (Soils), H. Warwick (Samford and Beerwah), H. Kiers (Lawes and Mareeba), N. Youlton (Cannon Hill and Yeerongpilly).



Courtesy "Herald & Weekly Times".

The Victorian Government and the Traffic Commission are investigating the possible adoption of a timber overpass for some pedestrian and school crossings. The overpass was developed privately by Mr. Frank Dale of the Division of Forest Products. Victoria's assistant Chief Secretary, Mr. Meagher, and the chairman of the Traffic Commission, Mr. Thorpe, have seen a scale model of the overpass, and the Country Roads Board has seen a picture of it. The overpass could be removable, and a quote of £2,500 had been received.

THE EGGATRON



The Division of Animal Genetics will exhibit its "eggatron" at the World Poultry Congress in Sydney this month. What is an eggatron? Read on —

A Leghorn hen said to her rooster:
"Please act as my production booster.
Your kind support will egg me on
to score high in the eggatron."

"The eggatron?", said he, perplexed,
"what will these bird-brains think up next?"
"It's a device", she said, "in which
each laid egg operates a switch
of which the function is to tutor
a programmed digital computer
to register, an instant later,
appropriate production data."

"What", said the cock, as off he ambled,
"if the results should come out scrambled?"

SAFETY HANDBOOK

A comprehensive C.S.I.R.O. Safety Handbook has now been published, and copies are being distributed to every member of the staff.

The book contains ten chapters, describing general safety measures ("Avoid excessive exertion . . .") and the particular hazards which might be encountered from chemicals, electricity, machine tools, motor cars, and radioactive substances.

Some of the chapters are especially written for certain members of the staff. The chapter on workshop hazards, for example, should be specially noted by the trade staff.

But all members of the staff are asked to become familiar with the booklet and its contents.

An administrative officer or a typist may not be exposed to the same hazards as a laboratory or a workshop worker. But he or she may be the nearest person when an accident does occur.

A knowledge of emergency first aid or artificial respiration, derived from the handbook, could save a life.

The handbook has a bright red cover, so that copies can be easily spotted. A copy should always be available in every work room.

For the scientific, technical and workshop staff, the handbook should be indispensable.

All the chapters on accident prevention should be read thoroughly. Even experienced chemists will learn something new about chemical hazards.

Safety officers and safety committees cannot protect the staff against all the dangers found in C.S.I.R.O. establishment. It is largely up to individuals to recognize the hazards around them. The handbook is designed to help people to recognize these hazards, and to protect themselves against them.

Special safety problems with unusual hazards may arise from time to time. If the Handbook does not describe appropriate precautions, advice and information can be obtained from the C.S.I.R.O. Safety Officer, 314 Albert Street, East Melbourne.

THE LONDON CHARIVARIA

The Division of Dairy Research's discovery of powdered butter has attracted world-wide attention. "Punch" made the following comment.

"Powdered butter, the new delicacy from Melbourne, is the most instant of modern instances. Why de-ice the fridg-èd article over a low burner when you can whip out your compact, sprinkle the dust with a few drops of water, and butter at its buttermost makes the poster come true?

"Powdered marmalade, caviar and pâté de foie gras are obviously around the corner, but I still don't see how you're going to get the authentic powdered treacle with the delicate trickle guaranteed to spill on the cloth before it can be twirled smartly enough round the spoon."

Monash Chair

Dr. D. G. Lampard, of the Division of Applied Physics, has been appointed Professor of Electrical Engineering at Monash University. He will take up his new appointment this week.

Dr. D. G. LAMPARD

Dr. Lampard, who is 35, is a graduate of Sydney and Cambridge. He was a visiting lecturer at Columbia University, New York, in 1954. He left C.S.I.R.O. in 1960 to become Professor of Communication Engineering at the University of New South Wales, but rejoined us in 1961.

6-24

Courtesy "Rydge's".

"Why don't you quit fooling around with that stuff and invent something practical, like a no-calorie eclair?"

Sirex Wasp Research

Tasmania has been chosen by the Division of Entomology as the main centre for its research programme into the eradication of the sirex wasp.

The work will be carried out at the Pittwater pine plantation near Hobart.

The prospect of extensive damage to softwood plantations throughout Australia by the wasp has become so alarming in recent years that steps for its eradication involved top-level discussions at the Premiers' conference last year.

As a result, a committee was established to inquire into the most effective ways of combating the wasp.

The Commonwealth and the States agreed to provide funds for a research and eradication programme, and £200,000 has been made available.

Of this amount, the Commonwealth is providing £100,000 on a pound for pound basis with the States.

Last February the whole of Tasmania was gazetted a quarantine area for the sirex wood wasp.

Previously the quarantine provision has related only to the Southern part of the State, the southern part of the State.

Last May the committee set up to deal with methods of attack on the wasp met in Hobart.

Since then the committee has decided to make a two-pronged attack on the wasp.

The research work will be carried out at Pittwater. The company owning the plantation has offered its co-operation and made available an area of the plantation for the research work.

In Victoria and South Australia a survey programme and a programme of possible eradication will be undertaken.

Mr. K. L. Taylor will be in charge of the research programme at Pittwater. He will carry out basic research on the habits of the sirex wasp and its parasites.

State and Commonwealth forest authorities will investigate the possibility of developing a strain of *pinus radiata* that will be resistant to the wasp and the fungus attached to it. Trials will be made to ascertain if treatment of the growing trees can increase resistance to the wasp.

Mr. Taylor will commence the research programme in Tasmania within the next few weeks.

Preliminary arrangements for the importation of parasites of sirex have already been made, in co-operation with the Commonwealth Institute of Biological Control and forest authorities in New Zealand.

A Promising Wool Process

A Melbourne company director has made a discovery which he thinks will open important new fields for the use of wool.

His process for turning wool into a fabric will also make many existing woollen articles much cheaper to produce.

The inventor is Mr. R. G. Tugen, of Hawthorn, Victoria.

By his process it is possible to form finished articles direct from carded wool without the usual steps of spinning the yarn, knitting or weaving the fabric, and then making up the article.

A successful method for the production of non-woven pure wool fabrics and garments could be an important improvement in wool technology.

The process depends on the well-known felting properties of wool, and cannot be applied to other fibres.

Mr. Tugen has assigned his patent rights to C.S.I.R.O. The Division of Protein Chemistry, which has been developing the process for the last nine months, hopes that it can be brought to the stage of industrial application.

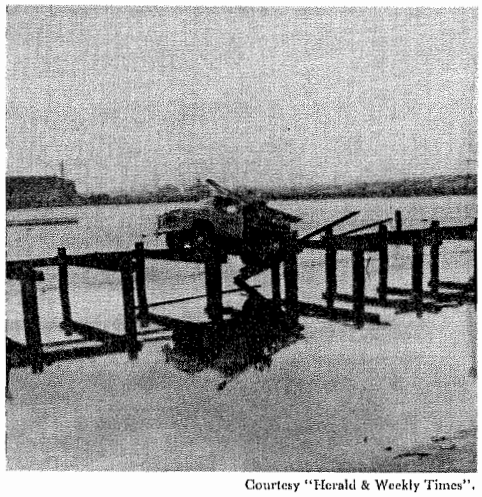
The Division is anxious for commercial enterprise to assist in further developmental work.

Simple articles — berets and mittens — have already been made in tests.

Embossed, decorative patterns can be made on the articles in a way that was not previously possible. Lace-like material has also been formed.

Mr. Tugen believes that his discovery could mean the "rebirth" of the felting industry.

A large English textile firm had already indicated its interest in the process.



Courtesy "Herald & Weekly Times".

Two C.S.I.R.O. research workers jumped off this precariously-teetering truck when a small jetty it was crossing in Hyde Street, Newport, collapsed under it last month. The men, David Lucas and John Lang, of the Soil Mechanics Section, edged their way from the cabin on to the jetty. The truck tipped on an angle above swamp water, supported only by two collapsed iron girders, on which the wheels had been going. A tow-truck with a heavy crane freed the vehicle after some hours.

Parties, Dances in Three Cities

On Saturday, 14th July, C.S.I.R.O. staff in Melbourne and Sydney went dancing.

In Melbourne, the annual C.S.I.R.O. Dinner Dance was held at Earl's Court, St. Kilda. Over six hundred people from all the Melbourne Divisions and Sections were present.

Among those at the official table were Sir Frederick and Lady White, Dr. and Mrs. S. H. Bastow, Dr. and Mrs. I. W. Wark, Dr. and Mrs. O. H. Frankel, Mr. and Mrs. G. B. Gresford and Mr. and Mrs. W. Ives. A special guest was Dr. Subrahmanyan, Director of the Central Food Technological Research Institute, Mysore, India.

A feature of the dance was a table decoration competition. It was won by the Division of Building Research. One of their exhibits was a beautifully constructed and fitted eighteen-inch high model of an old country outhouse. Second prize went to Engineering Section and third prize to Finance Section, Head Office.

Bottles of champagne were presented to the winning tables.

In Sydney, a hundred and sixty people, mainly from the North Ryde Divisions, staged a highly successful ball at the State Ballroom. The ball was organized by Lynne Wilson and Pamela Rosevear (Coal Research) with the assistance of Helen English (Food Preservation) and Judy Leuin (Bread Research Institute).

Guests came from all the North Ryde laboratories, from the Bread Research Institute, the Division of Textile Physics, and the Sydney Administrative Office.

There was even a guest from "Gilruth Plains", C.S.I.R.O.'s sheep-breeding station at Cunnamulla, Queensland. This was Miss Marilyn Gibbs, who was formerly on the staff of the Bread Research Institute.

At the Melbourne dinner dance. From left — Messrs. J. Belkin, R. McVilly and E. Walton.

The ball was such a success that it is likely to become an annual affair.

In Canberra, a ball will be held on Friday, 7th September at the Hotel Rex. Dancing will be from 8 p.m. until 1.30 a.m. and there will be a floor show. Chairman of the organizing committee is Denis Young, of the Wildlife Survey Section.

Top: Wildlife Research celebrated its new status on Friday evening, 13th July. From left: Messrs. D. Young, P. Magi, I. Bogg and Miss Anne Hammond.

Bottom: Organizers of the Sydney ball with their partners. From left — Judy Leuin, Lynne Wilson, Pamela Rosevear and Helen English.

Test Team Selection

Peter Johnson, of the Finance Section, Sydney Administrative Office, has been chosen to tour New Zealand this month with the Australian Rugby Union test team.

Peter's selection climaxes one of his best seasons. When the New Zealand tourists were in Australia in May, he was Australia's vice-captain in both tests. When Jim Lenehan withdrew from the First Test be-

Mr. P. JOHNSON

cause of injury Peter became the Australian captain.

Peter was also vice-captain of the New South Wales team which defeated New Zealand 12 - 11.

The forthcoming New Zealand tour will be Peter's second, as he was with the 1958 touring side. He has also toured South Africa with the Australian team, and has represented Australia in tests here against Britain, France and Fiji.

NEW APPOINTEES

Dr. A. Miller has been appointed to a post-doctoral fellowship in the Division of Protein Chemistry. He recently graduated Ph.D. from the University of Edinburgh. Dr. Miller and his wife will arrive on the "Neptunia" this month.

Dr. F. Radler has been appointed to the staff of the Commonwealth Research Station, Merbein. A graduate of the Universities of Göttingen and Munich, he has been for seven years with the German Federal Research Department for Vine-Breeding. He and his family will arrive in Australia this month in the "Neptunia".

Mr. V. Balodis, a naturalised Australian of Latvian birth, has joined the Division of Forest Products. A graduate of the University of Queensland, he has previously been for

Mr. V. BALODIS

seven years with the Forestry Commission of New South Wales, and a further seven years with the Queensland Forest Service.

Dr. B. P. Setchell has joined the staff of the Division of Animal Physiology. Since graduating B.V.Sc. from Sydney, he has been at the Veterinary Research Station, Glenfield, N.S.W., latterly as Officer-in-Charge of the Nutrition Research Laboratory. From 1955-57 he was at Cambridge, working for a Ph.D. under a Walter and Eliza Hall Fellowship.

Mr. J. C. Godfrey has joined the staff of the Chemical Engineering Section to assist in research and development work

Mr. J. C. GODFREY

on mixing operations. He recently graduated with honours in engineering at the University of Adelaide.

Mr. R. M. Scott has joined the staff of the Division of Land Research and Regional Survey. Since graduating from St. Andrews in 1949 he has been with the Colonial Service in Ghana, Kenya and Tanganyika. He will join the Division's New Guinea Survey as a Soil Surveyor.

Mr. G. W. Small, who has joined the staff of the Division of Applied Physics, is a Sydney graduate in electrical engineering. For the last three years

Mr. G. W. SMALL

he has been in Britain, as a post-graduate apprentice with the Associated Electrical Industries group at Manchester.

Mr. A. Weeks has been appointed to the staff of the Soil Mechanics Section. A graduate of the University of Wales, he has previously been with the British Coal Utilization Research Association, the Morgan Crucible Company, and British Insulated Callender's Cables. Since arriving in Australia eighteen months ago, he has been on the staff of the Australian Mineral Development Laboratories.

Mr. E. Tauber, a naturalised Australian of Polish birth, has joined the staff of the Division of Building Research. After gaining a diploma in ceramic engineering from Sèvres he

Mr. E. TAUBER

spent a year as Director of the Ceramic Research Association in Israel. For the past ten years he has been with Australian Consolidated Industries Ltd.

Dr. J. R. Wilmhurst has been appointed to the staff of the Division of Coal Research. After gaining a technical college diploma by part-time study while on the staff of the Kraft organization, he became research assistant to Professor W. Davies in Melbourne. He graduated B.Sc. in 1958 and Ph.D. this year.

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

APPOINTMENTS VACANT

The following vacancies for professional appointments are current:—

CHEMIST/METALLURGIST (R.O./S.R.O.)—Division of Applied Mineralogy. 604/8 (August 13).

STATISTICIAN (R.O.)—Division of Mathematical Statistics. 440/136 (August 13).

PHYSICIST/ENGINEER (R.O./S.R.O.)—Division of Food Preservation. 300/347 (August 27).

PHYSIOLOGIST (R.O./S.R.O.)—Division of Entomology. 180/214 (August 27).

SENIOR PHYSICIST/Engineer (P.R.O./S.P.R.O.)—Division of Food Preservation. 300/346 (August 27).

MATHEMATICIAN (S.R.O./P.R.O.)—Scientific Computing Research Laboratory. 900/2 (September 10).

042##1962

CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 42, MELBOURNE, SEPTEMBER 1962

Industrial Research for W.A.

Plans for the expansion of C.S.I.R.O. activities in Western Australia were announced on 14th August by the Minister-in-Charge of C.S.I.R.O. (Senator Gorton) and the Premier of Western Australia (Mr. Brand).

Mr. W. E. EWERS

C.S.I.R.O. is to build two new research laboratories on a 27 acre site at the Perth suburb of Floreat Park, opposite the Commonwealth Games Stadium. The University of Western Australia has generously agreed to make this land available to C.S.I.R.O.

It is expected that construction of the first new laboratory will begin next year. The building will be of three storeys, containing about 27,600 square feet of laboratory space. The cost will be of the order of £230,000.

This first building will be occupied by officers of the Divisions of Plant Industry, Soils, Entomology, Fisheries and Oceanography, and Mathematical Statistics. The building now occupied by C.S.I.R.O. in the University Grounds at Crawley will be vacated.

Second Building

Construction of the second building, to house a group of industrial research scientists, will follow later. The date of commencement will depend on the availability of works funds, but it is hoped that construction will begin within five years.

C.S.I.R.O. will, however, begin industrial research in Western Australia next year. A small research group will be established in Perth to work on minerals and related subjects.

At first, the group will consist of not more than half a dozen people, but its strength will be gradually built up in successive years. It will work on problems of national importance which are related to the resources and the economy of Western Australia.

The group will be temporarily accommodated in the chemistry and geology departments of the University.

Group Leader

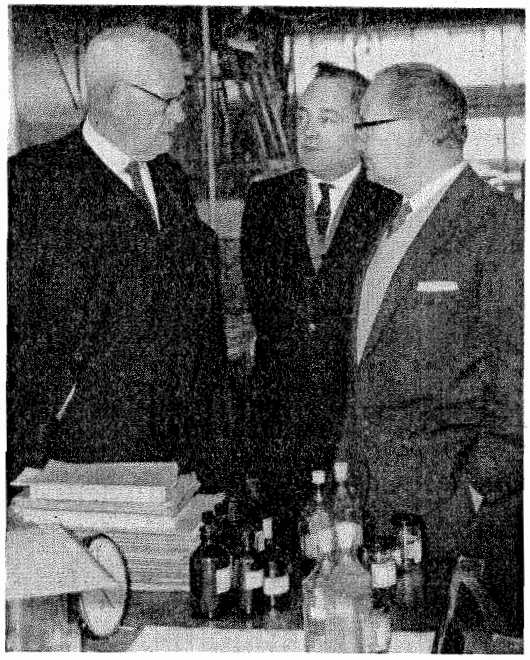
The industrial research group will be a section of the Division of Applied Mineralogy. It will be led by Mr. W. E. Ewers, who has been Secretary of the Chemical Research Laboratories since 1955.

Mr. Ewers, who is aged 42, was educated at the University of Western Australia which awarded him an M.Sc. degree during the war for his research on the production of alumina from the mineral alunite.

Mr. Ewers will arrive in Perth to take up his new post in December.

Linkage

The range of the new group's work will not be wide enough to cover the interests of all branches of Western Australian secondary industry. It will, however, provide a link, at the scientific level, between the State's industry and the various industrial research laboratories of C.S.I.R.O.



Senator W. H. Spooner, Minister for National Development, and Mr. S. Cochrane, Chairman of the Joint Coal Board, visited the Division of Coal Research last month. The visitors inspected many of the division's current research projects. Our picture shows Senator Spooner (left) discussing dealkylation of tar oils with Mr. J. D. Brooks and Mr. H. R. Brown.

VISITORS FROM ABROAD

Mr. R. F. Casin, a Senior Forest Products Technologist from the Forest Products Research Institute of the Philippines, arrived at the Division of Forest Products in July for a stay of approximately twelve months under the Colombo Plan.

Mr. Casin is in charge of the Seasoning Section of the Institute, and will work in the Seasoning Section of the Division during his stay.

Mr. R. F. CASIN

Mr. A. Gagin, a graduate of the Hebrew University at Jerusalem, is spending a month at the Division of Radiophysics. He is attached to the Artificial Rain Project in Israel, and is gaining experience in Australia of cloud seeding techniques, ice forming nuclei, and physical measuring techniques developed by the Division's Cloud Physics group.

Professor E. George Stern, Research Professor of Wood Construction at the Polytechnic

Prof. E. G. STERN

Institute of Virginia, U.S.A., will spend approximately three weeks in Australia during October lecturing to engineers, architects, students, and trade groups. He will also discuss research on timber fastenings at the Division of Forest Products.

Professor Stern is well known amongst timber engineers in many countries for his expert knowledge on nails and other timber fastenings.

His services as a lecturer on developments in timber fastenings and the use of timber in light structures, including houses, have been sought internationally, and he has twice visited Europe to lecture to engineering and trade interests concerned with the structural use of timber, and the development of nails for their various specialized uses.

Professor Stern, who will be accompanied by his wife, plans to arrive in Australia on September 30th. He will visit all six States before going on to New Zealand.

Dr. V. SUBRAHMANYAN

Dr. V. Subrahmanyan, Director of the Central Food Technological Research Institute, Mysore, one of the laboratories of the Indian Council for Scientific and Industrial Research, paid a short visit to Australia in July.

Dr. Subrahmanyan, who received recently the Babcock-Hart Award of the Institute of Food Technologists, for his efforts to improve the nutrition of the Indian people, made full use of his short stay in Australia.

He visited food processing plants and saw the research activities of the Divisions of Food Preservation, Protein Chemistry, and Dairy Research. He also visited the Bread Research Institute of Australia, the Department of Food Technology in the University of New South Wales, and the Food Preservation Research Laboratory of the Queensland Department of Agriculture and Stock.

Sir Ronald Fisher's Death

Sir Ronald Fisher, F.R.S., Senior Research Fellow in the Division of Mathematical Statistics, died in Adelaide on 29th July, at the age of 72.

Sir Ronald's work on the theory of statistics and the design of experiments revolutionised research in agriculture, animal and plant breeding, medicine, biology and engineering.

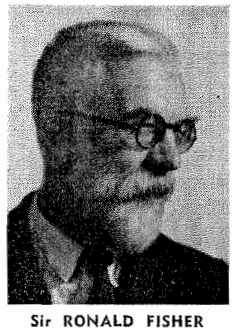
Born in London in 1890, Sir Ronald was educated at Harrow and Cambridge.

In 1919 he joined the Agricultural Experiment Station at Rothamsted in England, and in the next fifteen years he developed the theories of statistics, experimental design and interpretation of results which made his name famous.

In 1933 he left Rothamsted to become Galton Professor of Eugenics at the University of London, and in 1943 he went to Cambridge as Balfour Professor of Genetics. Later, he became President of Gonville and Caius College at Cambridge.

Sir Ronald's books "Statistical Methods for Research Workers" and "The Design of Experiments" have become standard works of reference throughout the world.

He came to Australia in 1959 to spend six months as a guest of the Division of Mathematical Statistics.



Sir RONALD FISHER

He liked Adelaide, and decided to make his home there. He came to stay in January, 1960. He is survived by Lady Fisher, one son and six daughters.

Soil Mechanics Survey

An engineering survey party from the Soil Mechanics Section is at work in the region of Mt. Isa. The party, under the leadership of Dr. G. D. Aitchison, includes specialists in several fields, with a strong bias to civil engineering.

The party plans to supplement information about Northern Australia already obtained by the Division of Land Research and Regional Survey. Since the end of the war this Division has been accumulating scientific knowledge about the agricultural potential of vast regions of Northern Australia.

The first practical requirement for realizing this potential is the provision of services — roads, railways and reservoirs. Up until now, no comprehensive study has been made of the suitability of our northern soils for road construction, for example.

The party now in the field will study the engineering properties of soils in the Dajarra-Mt. Isa-Cloncurry region. If the work is successful, it may be extended to cover the greater part of North Queensland.

Several interested parties are involved in this study. They include three C.S.I.R.O. groups, the R.A.A.F., the Department of National Development and the Queensland Department of Main Roads.

The C.S.I.R.O. branch of the Administrative and Clerical Officers' Association, the C.S.I.R.O.O.A. and the C.S.I.R.O.T.A. are conducting negotiations whereby members of the staff can purchase safety belts for their cars Full details are not yet available. Further information should be available shortly. Enquiries should be made to your Association representative in your Division or Section.

Fibroma Virus — A Threat to Myxomatosis?

The story of myxomatosis is perhaps the best known in the history of Australian science. Nowhere in the world has there been a more dramatic example of biological control.

The facts of the story are simply told. In the early 1930's, Dame Jean Macnamara and others advocated the importation of myxoma virus to Australia as a means of controlling rabbits.

In a long series of experiments, before and after the war, C.S.I.R.O. research workers were unable to effect the ready transmission of the virus from one rabbit to another.

In 1951, when scientists were almost on the point of abandoning the experiments, the Division of Wildlife Research was able to report that an epidemic had been established in the Murray Valley.

The disease spread rapidly, and by 1956 the Australian rabbit population had dropped to about ten per cent of the 1951 level.

The Bureau of Agricultural Economics estimated that, in the years following 1951, the value of Australia's primary production was thereby increased by £50,000,000 per annum.

Since 1956, rabbit numbers have risen somewhat. Myxomatosis has declined in its efficacy for two reasons. Firstly, strains of the virus have become attenuated in the field, and secondly, the wild rabbit population has developed some genetic resistance to the disease.

The research emphasis in C.S.I.R.O. has shifted. The Division of Wildlife Research is conducting behavioural studies on the rabbit to see how myxomatosis can be supplemented as a control measure by effective poisoning with "1080".

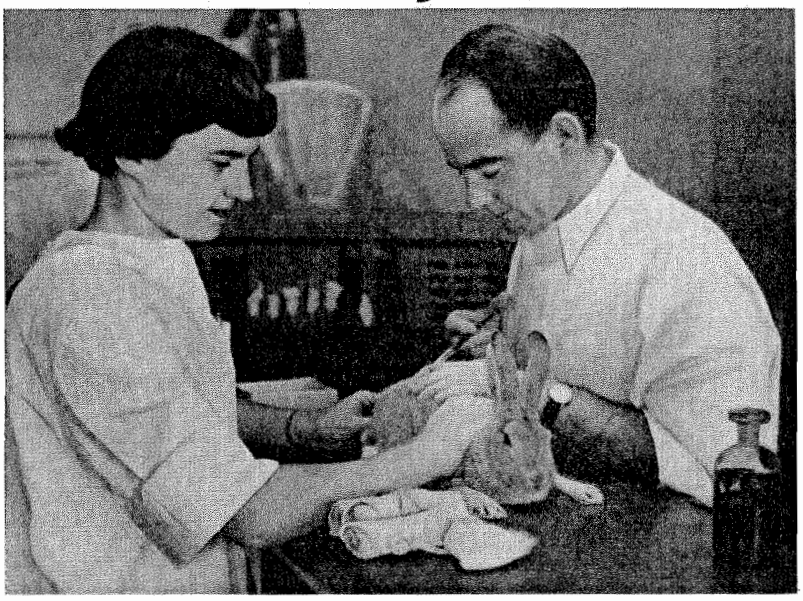
The Division of Animal Genetics is trying to find out how wild rabbit populations resist myxomatosis, and is striving to obtain an understanding of the mechanism of the disease.

In spite of some decline in its effectiveness, myxomatosis remains the most important factor in rabbit control.

Any threat to myxomatosis would therefore be a matter of great concern to the farming community. And recently graziers became concerned at the appearance of what they believed to be such a threat.

Commercial rabbit farmers in New South Wales had begun to use fibroma virus to protect their rabbits from myxomatosis. Fibroma, originally a disease of the American cottontail rabbit, confers on its host a marked immunity to myxomatosis.

Farmers' organizations were naturally concerned with the possibility that fibroma might be transmitted from commercial rabbit farms to the wild population.



Scientists were divided on the question of whether fibroma constituted a real risk to the effectiveness of myxomatosis. One school maintained that there was a grave risk of fibroma spreading to wild rabbits, and would lead to the large scale immunization of the population.

The great majority said that this was untrue — that there was no evidence that fibroma spread easily from one rabbit to another.

Influential farmers' organizations sought to ban fibroma, and its use was banned in all States except New South Wales.

To resolve the situation, C.S.I.R.O., the New South Wales Department of Agriculture and the Victorian Vermin Destruction Board invited Dr. Richard Shope to come to Australia to investigate the matter.

Dr. Shope, the discoverer of fibroma, is on the staff of the Rockefeller Institute, New York.

Dr. Shope's report was released in June. It came down heavily on the side of those who wished to ban, or at least rigidly control fibroma.

"The indiscriminate and inadequately controlled use of fibroma virus in protecting domestic rabbits in commercial rabbitries against myxomatosis is considered," he wrote, "to be a potentially hazardous procedure.

"The possibility that fibroma virus used in this way might escape into the wild rabbit population and thus interfere with the effectiveness of rabbit control by myxomatosis is of definite but unknown magnitude.

"The invocation of certain rigid regulations concerning the manufacture and distribution of fibroma virus as well as the conditions under which its use in commercial rabbitries will be permitted could markedly diminish the potential danger from this virus."

Dr. Shope went on to affirm his belief in the future value of myxomatosis.

"Myxomatosis," he said, "despite the fact that some strains of field virus have undergone attenuation and some wild rabbits have developed genetic resistance, remains a very effective basic means of rabbit control in Australia.

"The establishment of a rabbit control authority, to be responsible among other things for the development, discovery, and release of virulent strains of myxoma virus on a systematic and aggressive scale each year, is recommended."

He concluded with this warning.

"While myxomatosis has been and can continue to be an effective means of controlling the Australian wild rabbit, it is my belief that it alone will never eradicate this pest.

"For complete eradication, the basic kills achieved each year by myxomatosis will have to be augmented by the vigorous, aggressive, and well planned application of other means of rabbit destruction. Among these, the systematic and intelligent use of 1080 should be an effective adjunct.

"Careful consideration should furthermore be given to decommercialization of rabbits in Australia. Whether this should include domestic as well as wild rabbits would depend upon how effectively a domestic rabbit industry could be controlled."

The Shope report was considered at a meeting of the Agricultural Council in Perth last month. The C.S.I.R.O. view of the matter, expressed to the Council, said that the scientific facts when analysed cannot remove all doubt that some risk may be involved. In view, therefore, of the importance of controlling wild rabbits as effectively as possible, any continued use of fibroma must be under closely prescribed conditions.

This view was endorsed by the Council. Mr. Entcknap, the New South Wales Minister for Agriculture, was present, and subscribed to the view of his colleagues in the Council. It is reasonable to assume that New South Wales must be carefully looking at the prospect of new legislation on fibroma.

The length of the illness preceding the death of this rabbit being inoculated at the Australian National University will provide a measure of the killing capacity of the strain used.

TECHNICAL ASSOCIATION NEWS

Meeting with Executive

Representatives of the Executive met Central Council on 9th July. Several items of mutual interest were discussed.

The Association has felt for some time that there were some obscurities concerning the transfer of technical staff within the Organization.

The Executive's policy was stated to be that technical staff are "personally classified" — that is, an individual's ability, experience and qualifications determine classification within the scope appropriate to the duties.

In the light of this, a person could not expect to gain a higher classification by transferring to another position. This has some bearing on the present policy relating to internal advertising of technical staff vacancies.

Technical staff can advance by virtue of their own increasing responsibilities whereas clerical staff, for example, can only progress from grade to grade by promotion to positions of higher grading.

The point was made that a technical staff vacancy may have a range of classifications and the classification actually given to the position may depend on the qualifications and experience of the individual accepted for the position.

The Executive feels that the necessary duplication of advertising technical staff vacancies both internally and externally would be a heavy financial burden, and would be a retrograde step as it would require all advertisements to be issued from Head Office.

The Executive will help in any case where members wish to transfer interstate permanently, or to move from a field station to the city.

Central Council agreed to provide detailed information to enable the Executive to consider the extension of reimbursement of study fees to adults. Central Council feels that, as conditions stand, there is a definite penalty on reaching the age of twenty-one in that the individual becomes ineligible to receive reimbursement of study fees.

All members with information which they consider to be relevant to this subject should contact their Divisional Representative or Branch Secretary.

Items of particular interest to New South Wales members were —

- a survey of staff changes in outer Sydney areas
- extended study leave
- parking restrictions in Sydney University Grounds.

The staff turnover revealed by the survey was surprisingly high but this is now mainly of historical interest, as present turnover is much lower and more in line with the overall average.

Extended study leave to cover University imposed restrictions on part-time study in New South Wales would not be forthcoming. A letter would be sent to the University of New South Wales pointing out the difficulties which had been brought about by recent policy changes.

It was suggested that further action could be taken by the Sydney administration concerning the Sydney University's parking and traffic controls.

The safety problems at the gates of the Ian Clunies Ross Laboratory are to be referred to the Safety Committee of the Laboratory.

PUFFING BILLY

Mr. A. P. Wymond, Information Officer of the Division of Forests Products, holds an unusual honorary office. He is president of the Puffing Billy Preservation Society.

For the benefit of non-Victorian readers, it should be explained that Puffing Billy is a diminutive 60 year old train, which hauls passengers (many of them children) through the Dandenong ranges in the weekends.

The line was opened in 1902, but to the distress of many train-lovers, was closed down some years ago.

Mr. Wymond and a thousand members of the Society have worked for the past 4¼ years to restore the line.

Their efforts were rewarded when, on 28th July, portion of the line was re-opened by the Victorian Assistant Minister for Transport, Hon. E. R. Meagher, in the presence of 2000 people.

"Puffing Billy" is now running from Belgrave to Menzies Creek every Saturday and Sunday afternoon.

The Society hopes to have a further section of the line opened this summer.

Our picture shows Mr. Wymond speaking at the official re-opening of the 2' 6" gauge line.

PHOTOGRAPHIC AWARD

John Masterson (right), of the Division of Radiophysics, has won this year's annual trophy for photography given by the Sydney "Sun".

The trophy is awarded for the best black and white print submitted by an Australian in the Sydney International Exhibition.

John's entry was titled "Moment of Truth". The picture was taken at a charity show for the children of the Redfern Area.

It was bad weather, and they were all over-awed and a little strained at the prospect of seeing Father Christmas for the first time.

When he eventually arrived, hundreds of children started to pour over the fence on to the oval.

Mr. J. MASTERSON

"I don't know who the three children in the picture are," said John, "I took them the moment they caught sight of him."

Wollongbar Cattle Project

The Division of Animal Genetics has chosen Wollongbar, in the Lismore district of northern New South Wales, as the area in which to continue its investigations into the possibility of breeding zebu cross dairy cattle capable of good production in hotter areas.

Developmental work has been going on for almost ten years at the McMaster Field Station, Badgery's Creek, N.S.W. Here zebu cattle of the Sindhi and Sahiwal breeds, donated by the Government of Pakistan in 1953, have been mated with Jerseys.

A large proportion of the first cross has been culled for production and sons of the selected crossbreds will now be used at Wollongbar.

The New South Wales Department of Agriculture has given valuable assistance with the selection of the site and other arrangements for the project, and has provided laboratory space at its Wollongbar Agricultural Research Station. The Department will continue to help by recording the production of the cattle.

Eight farmers in the district are co-operating in the project and six hundred cows in their herds will be used to progeny test the bulls bred at Badgery's Creek. The bulls selected on their performance at Wollongbar will be used in the experimental herd to breed more young bulls for testing.

The first inseminations will be made in the 1962 breeding season and the bulls used this year will be evaluated on the results of their heifers' production in the 1965-6 season.

Each year a fresh batch of bulls will be used in this way. It will be at least ten years before a reasonable proportion of the herds will be of cows produced by bulls selected after progeny test.

At the McMaster Field Station, the young bulls to be used at Wollongbar will be selected on their performance in the hot room. This will measure their ability to lose heat and maintain their food intake under hot conditions. Their efficiency in using feed will also be measured.

The results of these various tests, in addition to the milk production records, will be used in the final selection of the bulls for progeny testing at Wollongbar.

Mr. R. W. Hewetson, of the Division of Animal Genetics, will be the resident officer at Wollongbar responsible for the field work.

This Month's Overseas Travellers

Dr. J. H. B. Christian, of the Division of Food Preservation left last month for America and Europe. He will attend three international conferences -- the VIIIth International Congress for Microbiology in Montreal, a conference on Microbiological Quality of Foods at Franconia, New Hampshire, and the 1st International Congress of Food Science and Technology in London.

Dr. M. F. Day, of the Division of Entomology, left last month for a ten weeks visit to America and Europe. He will attend the VIIIth International Congress for Microbiology in Montreal, the Vth International Congress for Electron Microscopy in Philadelphia, and an Insect Pathology Conference in Paris.

Dr. K. A. Ferguson, of the Division of Animal Physiology, left last week on a five weeks visit to America and the United Kingdom. He will attend the Laurentian Hormone Conference at Mt. Tremblant, Quebec, this week.

Dr. A. C. Hurley, of the Division of Chemical Physics, leaves next week to spend an academic year as Visiting Professor of Theoretical Chemistry at the Iowa State University of Science and Technology. Dr. Hurley will travel to America via Japan where he will be an invited speaker at the Informal Meeting on Recent Development in Quantum Chemistry, Hakone National Park, and will present a paper to the International Symposium on Molecular Structure and Spectroscopy, Tokyo.

Mr. G. Loftus Hills, Chief of the Division of Dairy Research, left last month to spend three months overseas. His main destination is the XVIIth International Dairy Congress in Copenhagen.

Dr. E. Phillis, of the Division of Land Research and Regional Survey, left last month for Malaya. He has been seconded for one year to an F.A.O. Technical Assistance Mission as an Agricultural Officer (Plant Physiology).

Dr. P. Plackett, of the Division of Animal Health, left last week to spend five months abroad. He will visit a number of research institutions in America and Europe to discuss progress in research on pleuropneumonia. He began by attending the VIIIth International Congress for Microbiology in Montreal.

Dr. E. W. Radoslovich, of the Division of Soils, left last month for Washington, where he will work at the Carnegie Institution for a year. He attended the 11th Clay Conference in Ottawa in August, and he will attend an International Union of Crystallography Conference in Rome next year.

Dr. A. L. G. Rees, Chief of the Division of Chemical Physics, left last week to attend the 2nd International Symposium on the Chemistry of Natural Products, Prague, as a guest of the Czechoslovak Academy of Science. Dr. Rees was Chairman and Convener of the Organizing Committee for the 1st Natural Products Symposium held in Australia in 1960.

Dr. G. E. Rogers, of the Division of Protein Chemistry, left recently for America. He has been invited to give a paper to the Fifth International Congress for Electron Microscopy at Philadephia this month.

Dr. J. R. Simpson, of the Division of Plant Industry, left recently to spend six months in Europe. He will visit a number of agricultural research institutions in Europe, and will spend three months at the University of Nottingham working on the release of available nitrogen from soils.

Dr. J. R. Vickery, Chief of the Division of Food Preservation, left last month for Moscow, where he will attend a Conference of European Meat Research Workers. Before returning home he will also attend the 1st International Congress of Food Science and Technology in London.

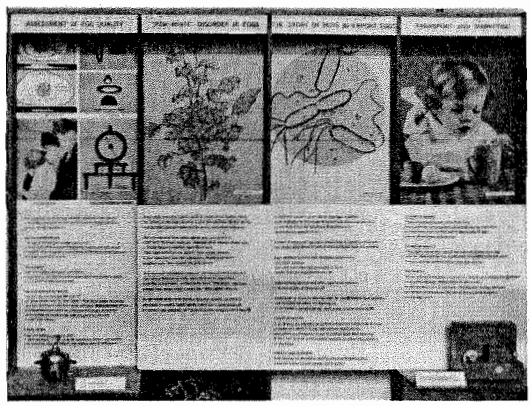
HONOURS

Mr. B. G. Baker, of the Division of Tribophysics, has been awarded the Ph.D. degree of the University of Melbourne. His thesis was entitled "Catalytic hydro-cracking of saturated hydro-carbons over evaporated metal films".

Mr. R. H. Clarke, of the Division of Meteorological Physis, has been awarded the M.Sc. degree of the University of Melbourne for a thesis on "The structure and behaviour of sea breezes and cold fronts in Australia".

Mr. W. Shepherd, of the Fodder Conservation Section, has been awarded the degree of Master of Agricultural Science by the University of Melbourne for a thesis entitled "Susceptibility of hay species to mechanical damage".

Mr. W. H. Taylor, of the Division of Building Research, has been made a Member of the Institution of Engineers (Australia). The designation "Member" is given to engineers who have made a noteworthy contribution to the science or practice of engineering, or who have acquired an exceptional degree of eminence in the profession.



A glimpse of C.S.I.R.O.'s exhibit at the World Poultry Congress. The whole exhibit showed the eggatron and panels on egg quality, pink-white disorder, egg rotting, transport and marketing.

Professor Hadley Read, American authority on agricultural communications, arrived in Melbourne on 4th August to begin a three-month stay in Australia. He has been invited here by C.S.I.R.O. to attend the 1962 Australian Agricultural Extension Conference and to work with the Agricultural Research Liaison Section. Professor Read is Extension Editor of the University of Illinois College of Agriculture. His main responsibility there is to convey farm and home news to the people of Illinois. His staff includes press writers, radio and television broadcasters, artists, photographers, film makers, agricultural journalism teachers, and research workers. He will be meeting people engaged in similar activities in Australia. Professor Read, who is President of the Association of American Agricultural College Editors, made a similar tour of several European countries in 1950. Our picture shows Prof. Read (centre) with Messrs. R. Ingpen and K. Loftus Hills.

WINNING BREAK

Marie Davis, of the Head Office library staff, is a rising star in the Australian skiing world.

This winter, in her first racing season, she has chalked up a notable list of successes.

She began her winning run in July, when she notched fastest time in the inter-club races at Mt. Buller, skiing for Australian Women's Ski Club. Not for the first time in history, a girl recorded a faster time than the men.

Later, she went on to win the Arlberg Cup at Buller. She then competed in the Victorian championship, and finished third in the downhill.

Last month, Marie took a week's leave to compete in the New South Wales and Australian championships at Thredbo.

She continued her run of successes by winning the New South Wales giant slalom, and by finishing third in the national downhill event.

Marie was then chosen to represent Victoria in the five-woman interstate team, which won against strong competition from New South Wales and Canberra.

Marie now has her sights set on the next winter Olympics, to be held at Innsbruck in eighteen months time.

If she succeeds in her ambition she becomes C.S.I.R.O.'s first Olympic representative.

APPOINTMENTS TO STAFF

Mr. F. F. de Castillejo, a Spaniard, has joined the staff of the Division of Fisheries and Oceanography. Since graduating in physics from Madrid in 1956 he has done oil and mineral exploration work in Spain and in Australia.

Mr. F. F. de CASTILLEJO

Dr. J. Dunderdale will arrive from England this month to take up an appointment with the Division of Coal Research. Since taking his Ph.D. at London in 1954 he has worked as a spectroscopist in several industrial research laboratories, including that of British Titan Products Co. in Durham.

Mr. J. D. Dunsmore has joined the staff of the Division of Wildlife Research. After graduating in veterinary science from Sydney in 1955, he practised as a veterinarian for three years. Since 1958 he has been working for a Ph.D. degree at Sydney under a George Aitken Pastoral Research Scholarship.

Mr. H. G. Hull has been appointed to the staff of the Division of Mineral Chemistry. He was previously at Fishermen's Bend in 1949-50. In the intervening years he has obtained his diploma from the Royal Melbourne Institute of Technology, and has worked for seven years as a development chemist in I.C.I.A.N.Z.

Mr. H. G. HULL

Dr. G. Kruger will arrive in Australia this week to take up an appointment with the Division of Coal Research. He is a graduate of the Universities of Western Australia and Sydney. For the past year he has held a post-doctoral fellowship at the University of Manchester under Professor A. J. Birch, F.R.S.

Mr. J. P. Langlands has been appointed to the staff of the Division of Animal Physiology and will be stationed at Armidale. He will arrive in Australia this month. Since graduating with first-class honours from Wye College, University of London, he has been working for his Ph.D. degree at the Rowett Research Institute in Aberdeen.

Dr. P. K. Macnicol has rejoined the staff of the Division of Plant Industry and will be stationed at the Tobacco Research Institute, Mareeba. He resigned from the Division in 1958 to work at Tübingen, Germany, under an Alexander von Humboldt-Stiftung scholarship. After gaining his doctorate *magna cum laude* in 1961 he went to Los Angeles on a year's post-doctoral fellowship at the University of California.

Mr. J. H. O'Keefe has been appointed to the position of radiochemist in the Division of Animal Genetics. Since gaining his diploma in 1947 he has worked with the Australian National Power Alcohol Company, I.C.I.A.N.Z., and the Australian Atomic Energy Commission.

Miss LYNETTE OSBORNE

Miss Lynette Osborne has joined the Division of Forest Products, where she will work on fungal decay in timber. Since graduating M.Sc. from Melbourne last year she has been on the staff of the Botany Department, Bedford College, University of London.

Dr. P. C. Owen will arrive in Australia this month to take up an appointment with the Division of Land Research and Regional Survey. He will be stationed at the Coastal Plains Research Station, near Darwin. Dr. Owen served during the war as a forester in Sierra Leone. Since the war, he has spent thirteen years at Rothamsted, and four years with Fisons Fertilizers Ltd.

Mr. J. W. Phillips has been appointed to the staff of the Division of Coal Research and will arrive in Australia this month. In the 1940's he had research experience in the fields of radar and radio-astronomy. Since 1951 he has been on the staff of the Central Research Establishment of the National Coal Board, and has been Head of the Physics Department there since 1954.

Dr. A. H. REISNER

Dr. A. H. Reisner has joined the staff of the Division of Animal Genetics. An American citizen, he is a graduate of Stanford and Indiana Universities. Since graduating Ph.D. in 1957, he has worked at the Karolinska Institute for Cell Research in Stockholm, as a post-doctoral fellow at Indiana University, and as a lecturer in zoology at Sydney University.

Mr. C. L. ROSENFELD

Mr. C. L. Rosenfeld, a Rumanian citizen, has joined the staff of the Division of Food Preservation. He graduated in chemical engineering in 1959 from the University of Technology, Timishoara, Rumania. For the last two years he has been with Andrews Laboratories in Sydney.

Mr. J. Rothwell has joined the Division of Radiophysics on a one-year appointment. He is on leave from Associated Electrical Industries, Manchester. As a representative of that firm, Mr. Rothwell supervised the installation of the servo equipment for the drive and control systems of the Parkes radio telescope.

Mr. A. D. Young, a recent graduate in engineering from Adelaide, has joined the staff of the Division of Chemical Engineering. He will take part in research and development work on mixing operations.

Are You Needing Any Money?

The response to a recent appeal to investors to place money on deposit with the C.S.I.R.O. Co-operative Credit Society has been so overwhelming that the waiting time for loans has been considerably reduced.

The Directors are pleased with the response and wish to announce that funds are now available for loans to members.

Membership of the Society is open to all officers and employees of the Organization. The minimum requirement for membership is the purchase of five £1 shares in the Society, which may be purchased outright or by instalments. An entrance fee of 2/- is also charged to cover initial costs. The Society has assisted, and is prepared to assist, its members to purchase furniture and household appliances such as refrigerators, T.V. sets, radiograms and home air-conditioning units, to purchase materials for the erection and renovation of homes, and to meet medical, dental, and hospital expenses.

The Society has also helped its members to purchase homes by lending money for second-mortgage purposes. It has also been a source of finance for members who have purchased new and secondhand cars.

Before approving a loan the Directors must be satisfied as to the "risk-rating" of the borrower, and in most cases will require security for a loan.

Such securities take the form of a lien on the borrower's superannuation contributions, title deeds to homes and land, registered mortgages on property owned by the borrower, or assurance policies (if the surrender value is approximately equal to the loan required). In some cases a suitable guarantor is sufficient as a loan security.

Interest rates for loans are 7¼%, calculated quarterly on the balance then outstanding. This works out at a flat rate of about 4¾%. This rate is much more favourable than the rates generally charged under hire-purchase agreements.

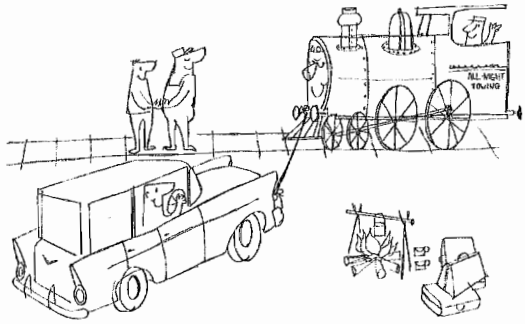
The maximum amount the Society is able to lend is £1000. A 5-year period of repayment is desirable as the Society has a death-indemnity cover for all loans contracted to be repaid within this period. This means that dependents do not have to bear the burden of the loan should anything unforeseen happen to the borrower.

Further enquiries are welcomed by the Society, and should be directed to Mr. J. Stodart, Assistant Secretary of the Society. He is available at extension 346, Head Office, on Monday, Wednesday and Friday mornings.

Tow-Truck-Outback Style

In a 14,000 mile drive through the outback you're bound to strike at least one spot of trouble.

C.S.I.R.O. entomologists Alex Mahon and Eric Holm struck theirs between Broken Hill and Ivanhoe, after covering nearly 9,000 miles of a survey and collection trip.



Their Holden station sedan became bogged after heavy rain late one evening.

They built a fire of discarded railway sleepers and prepared to make themselves comfortable for the night.

Just then, they saw a powerful headlight approaching, and a few minutes later a large diesel train appeared, coming down the railway line parallel to the road.

Now, in most places, trains don't stop to help distressed motorists. But in the outback, things are different.

The driver stopped his train beside the fire, and came over to find out what the matter was.

After a good deal of searching, a long length of rope was discovered. A few minutes later, the train was backing slowly down the line, hauling the Holden out of the bog on to high, solid ground.

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CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF — NUMBER 43, MELBOURNE, OCTOBER 1962

A.N.Z.A.A.S. MEETING IN SYDNEY

Successful Congress

An enrolment of nearly four thousand for the A.N.Z.A.A.S. Sydney Congress in August is fairly convincing evidence of the continuing vigour of A.N.Z.A.A.S.

This, together with meetings of about twenty specialist societies held in association with the Congress, seems to indicate that there is some enthusiasm in Australia for science, or at any rate, for get-togethers of scientists.

The specialists who met before the Congress were treated to rather better weather than those who came later. For a large part of the Congress week, Sydney's temperatures were well below normal, and delegates suffered in the cause of science in the unheated lecture theatres of the University of Sydney.

In the Congress programme, there was more provision than usual for sessions in symposium form. In many of these, several sections joined to discuss topics of common interest.

Although a few voices were heard complaining that this reduced the time available for specialist papers, it was generally regarded as a desirable move. Specialist papers were by no means eliminated.

At several points during the Congress, the question of Commonwealth funds for research was raised.

In his Presidential Address to the Physics Section, Professor Bart Bok, of the National University, after discussing some of the problems of financing University research, recommended the establishment in Australia of a National Science Foundation, on the pattern of the American N.S.F., to administer allocation of Government funds for research.

In a Symposium held the same evening, this subject was discussed at some length. The opening speakers were Sir Frederick White, Professor W. N. Christiansen, and Professor R. J. W. Le Fevre.

Their papers gave a clear picture of the present situation in Australia, and left the audience convinced that a much larger scale of spending was needed.

The meeting carried a motion calling on the General Committee of A.N.Z.A.A.S. to take action to attempt to have a National Science Foundation set up.

The range of subjects covered was, as usual, enormous. Some complained of surfeit. A few speakers strayed into territory which contained traps for the unwary.

One learned economist, in reply to a question, said that a large proportion of the research work of C.S.I.R.O. was irrelevant to the needs of Australia and inferred that those engaged in such work should be moved to something more relevant, such as "development and application".

In another odd occurrence, the members of the on-the-spot audience and television viewers heard the Chairman of a Symposium, introducing the four speakers, tell the audience what he thought the speakers were going to say, and then talk for ten minutes explaining why he wasn't going to agree with them.

The Sydney press found phenacetin, eyedrops, and television programmes and their effects on adolescents more newsworthy that most things discussed at the Congress. But the total amount of space given to Congress news was considerable, and might indicate that science now has rather more news value than it had a few years ago.—*J.F.H.W.*

The Farrer Oration

Dr. O. H. Frankel, who gave the Farrer Memorial Oration, chose as his subject "The Social Responsibility of Agricultural Science".

He said that agricultural science had helped to conquer the earth for man's use. It had helped to bring about the population explosion. So, like other applied sciences, it had assumed a social importance which involves social responsibilities.

After discussing the future responsibilities of agricultural scientists in Australia, Dr. Frankel turned to the world food problem.

"Of the 3,000 million people now living," he said, "about one third live in communities which are adequately supplied with all the elements of food that humans require for a healthy and active life.

"Were we to treble our meat production as a result of developments in the North, and were India in a position to buy our entire meat export, we would add less than an ounce a week to the meat ration of the average Indian.

The solution to Asia's problems, Dr. Frankel said, lies in other directions. And Australia could help.

"Can we conceive," he asked, "of a scheme by which Australian universities, perhaps in partnership with C.S.I.R.O., could combine in establishing one — or, to be even more ambitious, more than one — University School of Agriculture in Asia?

"Let us envisage a faculty covering agricultural science and the biological and physical sciences basic to agriculture, jointly controlled by the host university and an Australian academic body, possibly set up under the auspices of the Australian Academy of Science; an initial staff of about 20, with at least 12 Australians, half from Universities and half from C.S.I.R.O.; a tour of duty of from two to four years, with all rights and privileges of the Australian position maintained; compensation for the University (or C.S.I.R.O.) to finance replacement by a temporary appointment or fellowship; financial support through a Government sponsored Foundation, which is certain to attract a great deal of support in Australia and overseas.

He concluded with this warning.

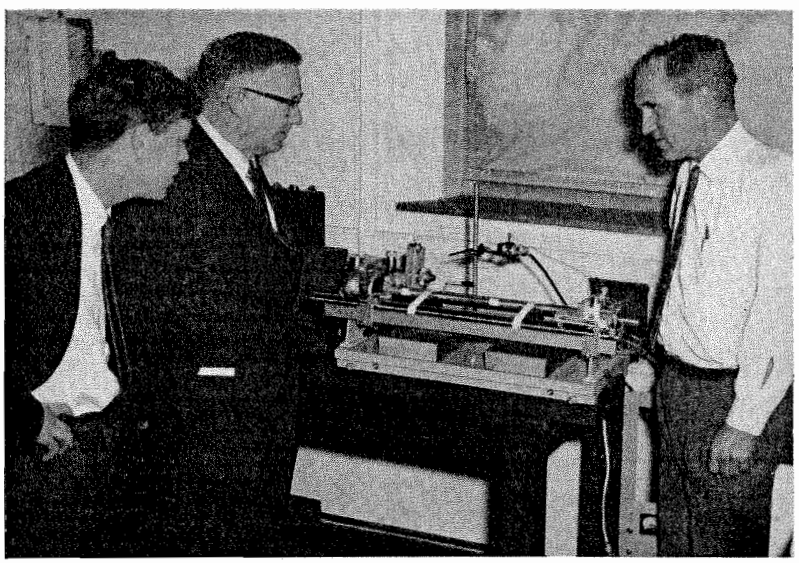
"If a supreme effort is needed to provide for the now inevitable 6,000 millions, could we cope with more? Clearly, our responsibility as agricultural scientists is great; for were we to succeed in riding the oncoming wave, shall we not be relied upon to ride the next?

"And if so, what would be the consequence for the productivity, the resources, the very structure of the earth, what the social consequences for our species, our way of life, our liberties, our civilization?

"Fifteen years ago, when many atomic scientists protested against the development of the weapons that they themselves had made possible, there were good reasons for hoping that they would never be exploded.

"We evolve not weapons of death, but weapons of life, yet are they not more fatal in the end?

"Can science, can agricultural science, lead us to a global economy rather than beckon us to global destruction and to self-destruction? This I regard as the greatest of our responsibilities."



Dr. O. Heavens (Royal Holloway College, University of London), Dr. I. W. Wark and Dr. J. V. Ramsay inspecting the Division of Physics' helium neon laser. The laser consists of an electronically excited gas in a long quartz tube, mounted between two interferometer mirrors. An extremely intense beam of coherent radiation is emitted down the length of the tube. Plans are being discussed for the National Standards Laboratory to apply lasers for setting up standards of measurement to higher accuracy.

Presidential Address

"The return of prosperity to the building industry would not make a major contribution to solving long-term employment problems," Mr. Ian Langlands, Chief of the Division of Building Research, said at the Congress.

"However, it could 'act as a catalyst in stimulating the economy generally'," he said.

Mr. Langlands was delivering his Presidential Address to the Engineering and Architecture Section.

"Building is doing what has been widely advocated since the war — rapidly becoming industrialised, with a consequent reduction in site labour," he said.

New building had been expanding in volume at an average rate of about 5.8 per cent. a year over the last 10 years.

But, even if this rate continued, it was probable that direct employment in the industry would continue to increase less rapidly than the total work force.

"Employment in factories manufacturing building components will probably not rise in proportion to the population," he said.

Four Visitors from Abroad

Dr. R. Minkowski, one of the world's leading astrophysicists, recently visited Australia to assist C.S.I.R.O. radio astronomers in interpreting the results which are now emanating from the 210-ft. radio telescope at Parkes. In addition his advice was sought on new lines of investigation which could lead to very important discoveries with this instrument. Dr. Minkowski is on the staff of the Mount Wilson and Palomar Observatories in U.S.A.

Mr. J. A. Gulland, a Principal Scientific Officer at the Fisheries Laboratory, Lowestoft, England, is visiting the Division of Fisheries and Oceanography for about three months. He will work on the

Mr. J. A. GULLAND

population dynamics of the stocks of fish and other marine populations in Australian waters. During his stay in Australia he will visit fishery centres throughout the Commonwealth to study the collection of basic material. In November he will conduct a study group on the methods of population research.

Dr. William L. Gamble recently arrived from Dodge City, Kansas, U.S.A., to begin work with the Division of Building Research. He is a 25 year old Fulbright scholar, who received his Ph.D. degree

Dr. W. L. GAMBLE

earlier this year from the University of Illinois. After a year of work with Dr. F. A. Blakey on the Concrete Flat Plate Project, Dr. Gamble will return to the University of Illinois to teach and continue research as an Assistant Professor of Civil Engineering.

Dr. E. R. Lemon, of Cornell University, U.S.A., is visiting the Division of Plant Industry under a Fulbright Fellowship. He will be here for about twelve months. Dr. Lemon will work on problems associated with the measurement of the turbulent transfer of carbon dioxide between the atmosphere and vegetative surfaces in collaboration with members of the Agricultural Physics Section.

CERES – Plant Industry's Controlle

CERES was formally opened on Wednesday afternoon, 29th August, by Mr. R. G. Menzies, Prime Minister of Australia.

Mr. Menzies said that if we were to ask ourselves what had been the great distinguishing feature of this century, apart from wars and political confusions, the answer would be the flowering of science and the growing application of science and technology to the problems, the practical work-a-day problems, of the world.

"I'm perfectly certain," he said, "that this is, in particular, true of agricultural scientific work. Each time we open a report by a statistician or by a demographer and we're told how rapidly the population of the world will double, we would need to be very insensitive to the problems of life if we weren't appalled by the idea that the same earth will have to sustain so many more thousands of millions of people.

"And it will sustain them only if, literally, the earth is encouraged to bring out its harvest. And in this field of scientific investigation I think we see one of the great hopes of the future of mankind.

"One of the great hopes of future peace, oddly enough, because in a starving world there will always be war. And the great hope of peace with a growing population in the world is that men of devotion and women of devotion and distinction should give their talents to the kind of investigation that will be conducted here."

Extension

Mr. Menzies went on to discuss the present limitations of Australia's agricultural extension effort.

"If I were asked," he said, "to name one defect in our present technological equipment I would say it is that there's too great a gap in point of time and in point of space between the work done in a place like this and the work done on the farm or sheep station.

"In other words, we are, so far in Australia, rather failing on the extension of the results of research to the man on the farm.

"This requires, of course, a great deal of co-operation between Commonwealth and States — we have divided authorities on it — but it also requires in the farmer himself a realization that he will not get the benefit of these investigations until he is not only interested but enthusiastic and keen and demanding about getting it brought to him and his farm."

Introduction

Sir Frederick White, in introducing Mr. Menzies, said that the present prosperity of Australia was due largely to the skilled development of our agricultural industries over 150 years.

"It is a curious but important fact," he said, "that practically all our agricultural plants have been brought here from overseas — our wheats, our most productive pasture plants, our principal fruits and vegetables.

"This assisted migration continues, for primitive Australia is devoid of plants of high productivity on which man depends for his principal agricultural needs.

"We cannot develop the tropics without introductions which must be tailored to suit our environment. We cannot improve the productivity of the pastures of the South without breeding better varieties of grasses and pasture legumes from introduced plants.

"Our wine grapes, our tobacco, our sugar cane, our fruits and vegetables are susceptible to great extension in area of production and in productivity.

"The scientific problems of plant growth are difficult. It is in the challenge of this science that my colleagues find their professional satisfaction.

"Biological science is on the threshold of a new era of discovery which will have profound repercussions in practical agriculture.

"The variability of the weather in the field or garden makes plant studies in the open prolonged and difficult. The growth and development of all plants is controlled by the climate. The germination of seed, the period of dormancy, flowering, and the setting of seed are all critical seasonal events in the life of the plant.

"For high production each species or variety must be grown in a climate which gives the maximum rate of growth and provides the longest growing period.

"The length of the daylight, the rising temperatures of Spring, the periods of low temperature, the humidity of the air, all exert a profound and controlling influence.

"The purpose of this Laboratory is thus simple to conceive. All these climatic factors will be fixed or varied at will, so that the plant biologist may more precisely make his studies."

Thanks

Dr. O. H. Frankel thanked the Prime Minister for opening the phytotron, and acknowledged the key parts played by many biologists and engineers.

He paid tribute to two overseas visitors who were present at the opening — Dr. Frits Went, designer of the world's first phytotron, and Dr. Schwabe, a pioneer of cabinet design.

It was Dr. Les Ballard, he added, who first had the courage to say that the Division of Plant Industry should have a phytotron.

Dr. Frankel acknowledged the encouragement, in the early days of Mr. Bert Goodes and Sir Arthur Coles, and the help given by Dr. Coombs, of the Reserve Bank.

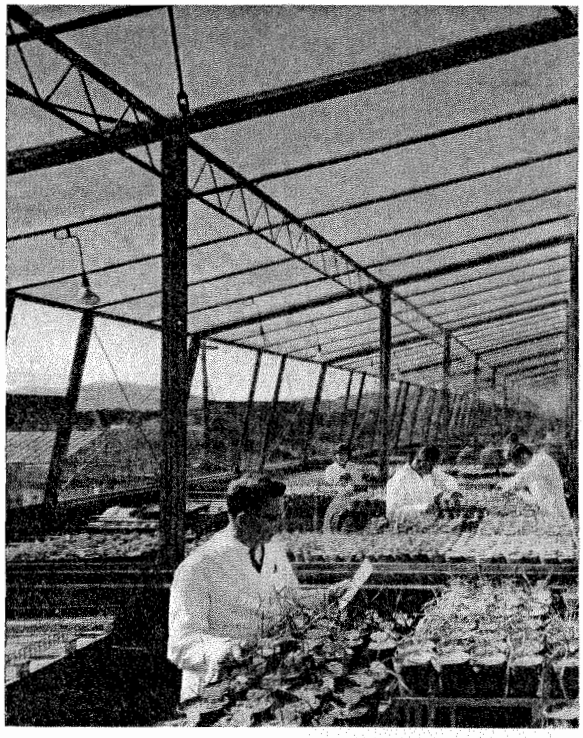
He praised the work of Mr. R. N. Morse and his colleagues in the Engineering Section. "It is to them," he said, "that much of the credit for the ingenuity, for the thousand and one details that went into this building, is due."

"Then," said Dr. Frankel, "there was Dr. Lloyd Evans. So much in this building, and in the work that has already gone into it, is his that it is almost impossible to say what is not."

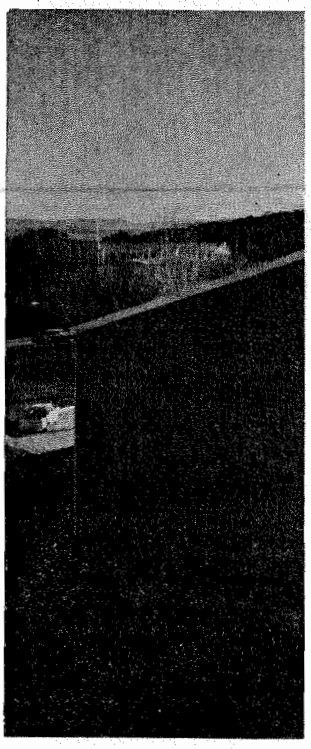
Finally, said Dr. Frankel, there were the architects, Grounds, Romberg and Boyd, their engineering consultants, W. E. Bassett and Partners, and the builders, Messrs. K. D. Morris and Sons.

"Roy Grounds," he said, "did the kind of job that perhaps few, perhaps no other architect could have done.

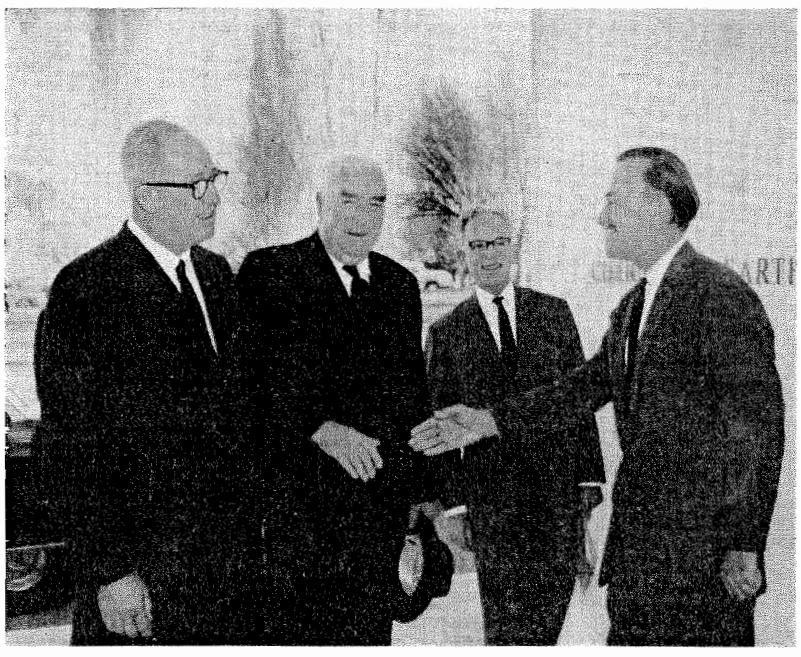
"You have here a factory, essentially a factory, a service building, and yet it has become a thing of daring and beauty, a thing that will last. Something that is a pleasure to look at and in which every craftsman, every technician, caught the spirit."



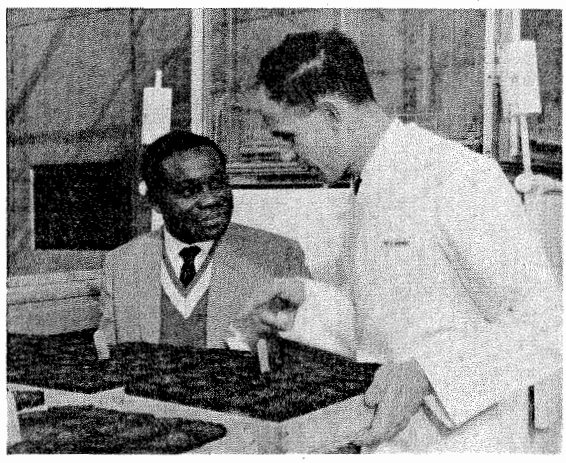
A view through the fifteen glasshouses on the north side of the phytotron. Climatic factors in each glasshouse are maintained at different levels.



A view of the phytotron from the eastern end, Black Mountain is in the background.

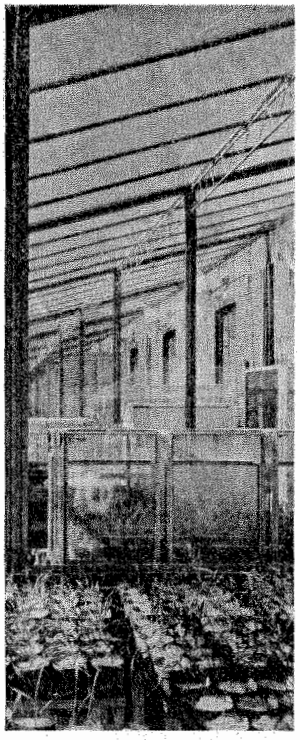


Mr. R. Milton Moore, Assistant Chief of the Division of Plant Industry, welcoming Sir Frederick White, the Prime Minister, and Dr. O. H. Frankel to the phytotron.



Mr. J. Ludwig, the phytotron's resident biologist, explaining a point to symposium visitor, Mr. Wutoh from Ghana.

d Environment Research Laboratory



C.S.I.R.O.'s phytotron is a laboratory in which plants can be grown under a wide range of closely controlled climatic conditions. It is one of the world's finest facilities for plant research.

The word "phytotron" is coined from two Greek words meaning "plant" and "instrument". The Australian phytotron has been named "CERES" from the initial letters of Controlled Environment Research Laboratory.

In mythology Ceres was the goddess of plant growth.

The Canberra phytotron is a two-storey building, 214 feet long and 78 feet wide. It contains fifteen naturally lit glasshouses, each 150 square feet in area. In each glasshouse day and night temperature can be closely controlled.

In addition, there are 140 cabinets (later to be increased to 200) in which plants can be grown under even more closely controlled conditions.

Some of these cabinets will be used inside the glasshouses. Some others, in which plants are grown under artificial light, are used elsewhere in the building.

The building contains offices, preparation rooms, an engine room, a workshop, dark rooms and a "frost" room.

How it works

On a cold winter's day in Canberra, the temperature of one of the glasshouses must be kept at 90° Fahrenheit. On a warm summer evening, the temperature of another must be kept at 50° F.

The method of control is an ingenious application of what is known as the "heat pump", or reverse-cycle refrigeration.

As soon as the temperature becomes slightly too high, the refrigeration cycle begins to operate, cooling the glasshouse. The heat is released into a large pond of water underneath the building.

At night, if the temperature becomes too cold, the cycle can be reversed. The warm water in the pond can be cooled, while heat is released into the glasshouses.

Each cabinet has its own refrigeration system and detector so that it can be maintained at a constant temperature.

Because day length is important in many plant growth experiments, the cabinets have steel shutters which can be programmed to open and close automatically at predetermined times, simulating any required day length.

Some of the cabinets are artificially lit, so that summer day-length conditions can be simulated during the short days of Canberra's winter. With other devices, it is possible to simulate wind, frost, and cloud cover.

What it's used for

CERES will be used for experiments in plant physiology, nutrition, pathology, breeding, genetics, and introduction. Research on many different kinds of plants will be carried out.

The first experiments scheduled are concerned with wheat, beans, subterranean clover, white clover, small gum trees, phalaris, lucerne, tropical grasses and legumes, tobacco, corn, sultana vines and cotton.

In field experiments it is almost impossible to unravel the effects on plants of the individual climatic variables — day and night temperature, day length, light intensity, and wind speed, to mention only a few.

In the phytotron, it is possible to keep several of these factors constant, so that a scientist can vary one of them and quickly find out the effect of the variation.

The effects of some climatic variables on certain plants are well known.

But little is known about the influence of many climatic variables on such things as the germination, flowering, leaf expansion, stem elongation, dormancy and growth rate of many of our plants.

From their experiments in the phytotron, scientists will be able to clear up many mysteries about plant growth.

Sterile Conditions

Near-sterile conditions will be maintained in CERES when it is in operation. All equipment and plants brought into the building will be fumigated.

The air supply will be filtered to exclude dust, insects, and disease organisms. People coming into the phytotron will be required to change into sterilised outer clothing.

The plants will not usually be grown in soil. They will grow in pots filled with fragments of a mineral called perlite, moistened with solutions containing the ingredients necessary for the nourishment of the plant.

The growing medium — pots, perlite and solution — will be sterilised.

In this way, plant scientists can protect the plants from disease and insect attack, which could ruin experiments.

The Users

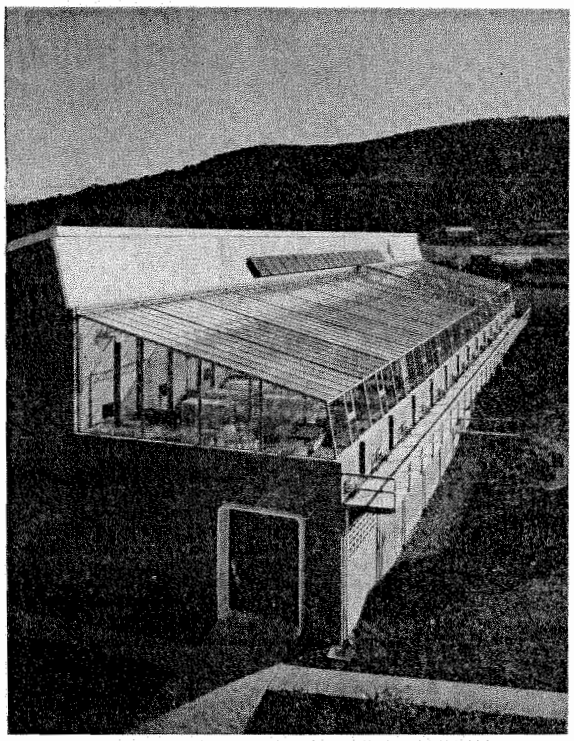
CERES is a laboratory of C.S.I.R.O.'s Division of Plant Industry, but it is intended that its facilities will be widely used by plant research workers from other laboratories.

The first users of the phytotron will include scientists from other C.S.I.R.O. establishments, universities, State Departments of Agriculture, and overseas institutions.

The initiator of the phytotron project was Dr. O. H. Frankel, Chief of the Division of Plant Industry from 1951-62.

The engineering design of the phytotron, including the development and design of the cabinets, was carried out by the Engineering Section of C.S.I.R.O. in Melbourne. The Section was also responsible for the incorporation of the "heat-pump" system.

The phytotron's cost of £600,000 has been borne by the Commonwealth Government.



Scientific Symposia

Three international scientific conferences were held in conjunction with the opening of CERES. The principal one was held in Canberra on "Environmental Control of Plant Growth".

The conference was sponsored by the Australian Academy of Science and the International Union of Biological Sciences.

Over sixty scientists came to Australia from America, England, Holland, Japan, India, and other countries.

Among the visitors was Dr. Frits Went, who designed the world's first phytotron, built for the California Institute of Technology at Pasadena in 1949.

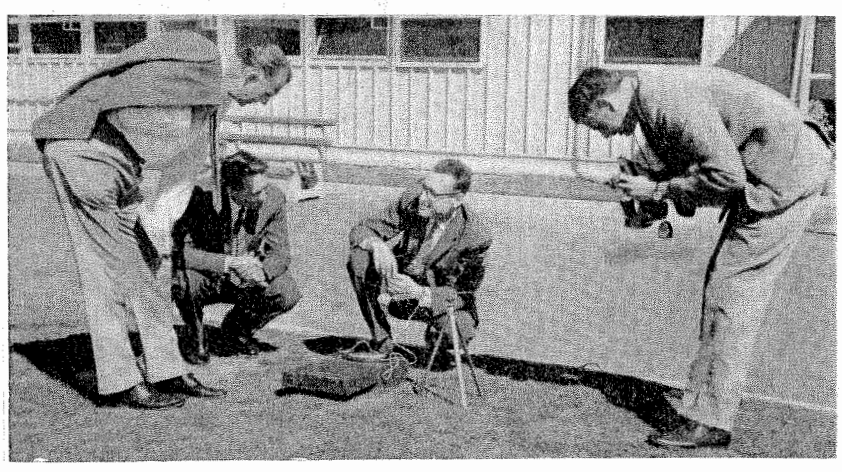
Scientists from the phytotrons at Paris and Wageningen (Holland) were also present.

After the Canberra conference, some of the visitors went on to other meetings in Melbourne.

One of these was a symposium on engineering aspects of environment control, organized by the Engineering Section and held at the Division of Forest Products on 4th-5th September. It was attended by 100 Australian and 25 overseas scientists and engineers.

Another conference, on the micro-climate above and within surface vegetation, was held at the Division of Meteorological Physics from 3rd-6th September. A dozen overseas visitors joined the Australian delegates at this meeting.

At the conference at Meteorological Physics, Dr. J. P. Funk (second from right) explains the operation of a miniaturised net radiometer to Dr. Rossiter (W.A.), Professor Milthorpe and Dr. Monteith from the United Kingdom.



The Japanese dress of the daughter of Dr. Eiichi Inoue lent a colourful note to the opening ceremony.

Dances in Canberra and Sydney

(Above) Members of the Sydney Social Club Committee and their partners.

(Below) Mr. Denis Young and Miss Joan Cater welcoming Sir Frederick and Lady White to the Canberra Ball.

The C.S.I.R.O. Divisions at Canberra held a Ball in the Embassy Room of the Hotel Rex at Canberra on Friday evening, 7th September.

The organization was handled by a committee consisting of Jim Shannon, Margo Anderson, Joan Cater, Paul Magi and Denis Young (Chairman).

Among the 250 guests were Sir Frederick and Lady White and Mr. and Mrs. C. S. Christian.

There were two floor shows, one professional and one amateur. The professional was a magician, Mr. Keith Robinson.

The amateur floor show was a male ballet. The artists were Messrs. Barry McCabe, Bob Rummery, Casper Hovingh, Otto Hilhorst, Rick Moore and Ray McGuiness.

The dancers, clad in white crepe paper, performed their ballet to the music of Tchaikowsky's Waltz of the Flowers.

Joan Cater was choreographer and ballet mistress.

In Sydney, a cabaret dance was held on 24th August by the recently formed National Standards Laboratory - Radiophysics Social Club.

The dance was held at the City of Sydney Police Boys' Club Hall, and 200 people turned up, including a party from the Division of Food Preservation.

The dance was most successful, and the Social Club hopes to run more functions in the future.

Overseas Visits

Dr. J. S. Dryden, of the Division of Applied Physics, is spending six weeks in Japan. He has attended an international conference on crystal lattice defects at Kyoto, and a symposium on mechanical aspects of lattice defects in crystals at Tokyo.

Miss Pamela Hetherington, of the Division of Textile Physics, left Australia on 5th September for the United States. She will work on the discolouration of textiles during laundering and cleaning under a teaching fellowship at the University of California, Davis.

Dr. N. P. Kefford, of the Division of Plant Industry, left last month for America where he will spend thirteen months. He has been awarded a research assistantship in the Department of Botany, Yale University, where he will work with Professor A. W. Galston, who was recently in Australia on a Fulbright Fellowship.

Mr. R. K. Keith, of the Veterinary Parasitology Laboratory, Yeerongpilly, has accepted a three months assignment with F.A.O. He is now in Kenya as an Animal Health Officer (Helminthology) on a Technical Assistance Mission.

Mr. J. J. Kowalczewski, of the Engineering Section, left last month to spend a year in Europe. For most of the time he will be at the Federal Institute of Technology, Zurich, studying heat transfer in refrigeration evaporators with Professor Grassman.

Mr. M. H. Loretto, of the Division of Tribophysics, left last month for England. He will spend a year at the Cavendish Laboratory, Cambridge, working on the application of electron transmission microscopy to crystal defects.

Dr. J. K. Mackenzie, of the Division of Tribophysics, left Australia last month to spend fifteen months in the United States. He will spend a year working on martensite transformations at the Research Institute for Advanced Study at Baltimore, and three months at the University of Illinois.

Dr. J. R. Price, Chief of the Division of Organic Chemistry, left recently to spend three months in Britain, Europe, and U.S.A. He has just attended an International Symposium on Pharmaceutical Chemistry at Florence. Next week, he will give a paper to an International Symposium on Chemical Taxonomy in Paris.

Mr. F. S. Shenstone, of the Division of Food Preservation, is spending seven weeks in the United States. He is visiting a number of scientific establishments in connection with research and industrial processes on fatty acids, cottonseed products, egg marketing and egg preservation.

Mr. G. A. Stewart, Chief of the Division of Land Research and Regional Survey left last month on a three months' trip. He will attend a symposium of the International Geographical Union in Crete, and he will be one of the directors of a UNESCO regional training course at Damascus, Syria, on the geomorphology of arid lands.

Dr. I. W. Wark, Member of the Executive, is spending six weeks in New Zealand under a New Zealand Universities Prestige Award. He is giving lectures and seminars and meeting research scientists in each of the New Zealand universities.

Mr. P. H. Walker, of the Division of Soils, Canberra, left Australia recently to spend two and a half years in America. He will undertake research in soil science and geochronology at Iowa State University.

Mr. R. F. Turnbull, of the Division of Forest Products, made a short visit to Hong Kong last month, as Australian representative at a meeting of the Asia-Pacific Forestry Commission. On his way back, Mr. Turnbull visited the Philippines Forest Products Research Institute, which has sent several people to Australia for training.

Dr. G. K. White, of the Division of Physics, left last month on a seven weeks trip to Europe and North America. He has attended a conference on low temperature physics at Queen Mary College, London, and will shortly take part in a conference on thermal conductivity standards at Ottawa.

NEW APPOINTEES

Dr. J. F. Bierhuizen has arrived in Australia to take up a one-year fellowship with the Division of Land Research and Regional Survey. He is a senior plant physiologist at the Institute of Land and Water Management at Wageningen, Holland.

Dr. J. F. BIERHUIZEN

Mr. R. L. D'Arcy, a graduate of the University of New South Wales, has joined the staff of the Division of Textile Physics. He has had varied laboratory experience, notably with Tooth's Brewery, the Defence Standards Laboratories and the Department of the Army.

Mr. R. L. D'ARCY

Mr. D. R. Lockwood, a Sydney engineering graduate, has joined the staff of the Division of Fisheries and Oceanography. He has previous experience in electronics with the P.M.G.'s Department and with the Department of Supply at Salisbury.

Mr. D. F. Merz has joined the staff of the Division of Food Preservation and will be stationed at the Citrus Wastage Research Laboratory, Gosford. An M.Sc. graduate of Wageningen, Mr. Merz came to Australia in 1951. He has been, since then, part-owner of a food processing factory.

Mr. B. J. Poppleton has joined the staff of the Division of Forest Products. Since graduating M.Sc. from Melbourne in 1960 he has been on the staff of the Aeronautical Research Laboratories at Fishermen's Bend, Vic.

Mr. D. Rigby will arrive in Sydney this week to take up an appointment with the Division of Coal Research. He recently qualified for graduate membership of the Royal Institute of Chemistry at the Liverpool College of Technology. He has had industrial experience with a firm of tar distillers in Liverpool.

Dr. T. SAEKI

Dr. T. Saeki has arrived in Australia to take up a two-year fellowship in plant physiology in the Division of Plant Industry. Dr. Saeki holds the D.Sc. degree of the University of Tokyo, of which he has been a staff member since 1954.

Mr. A. E. Stearn, who has lately arrived in Australia, has been appointed to the staff of the Division of Textile Physics. A London graduate, he was previously Technical Manager of the Semiconductor Division of the Brush Crystal Company in Southampton.

Mr. A. E. STEARN

Mr. R. K. Stringer has joined the staff of the Division of Applied Mineralogy. During the war he won a D.F.C. as a bomber pilot, and started a B.Sc. course at Melbourne in 1946. He interrupted his course to go into business for himself, and did not graduate until 1960. For the past two years he has been on the staff of the P.M.G. research laboratories.

Dr. C. C. Wood, who has joined the Soil Mechanics Section, is a graduate of the Universities of Sydney and London. He has been on the staff of the Snowy Mountains Authority, and has acted as U.N. consultant to the Mekon River and Mu River projects in Thailand, Cambodia, and Burma.

The Administrative and Clerical Officers' Association (Victorian branch) in conjunction with the Officers' Association and the Technical Association have negotiated an arrangement whereby seat belts can be purchased for fitting to private cars.

A popular brand range of matching belts, conforming to S.A.A. specifications, is available ex stock in a wide variety of colours at the following prices.

Lap only — £2/13/2.
Sash only — £2/15/8.
Combined Lap and Sash — £3/10/4.

Another brand of belt (lap type only), also conforming to the above standards, is available at a price of £2/7/8.

These prices have been made possible on a quantity basis, and you are urged to support the scheme.

Further details are available from your Association representative in your Division or Section, and all enquiries should be made through him or her.

Our thanks are due to the Safety Officer, Mr. J. M. Bray, for his assistance with this scheme.

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CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF— NUMBER 44, MELBOURNE, NOVEMBER 1962

Senators Advocate Increased Appropriation for Research

On 11th October, the Senate debated the 1962-63 Estimates of C.S.I.R.O. Six Senators rose to speak on the Estimates, and various questions arising from the debate were answered by the Minister-in-Charge of C.S.I.R.O. (Senator Gorton).

Senator Cant (W.A.) drew attention to the following paragraph from the Annual Report —

"The Organization is, however, still faced with the situation that half of its divisions and sections are housed in wholly inadequate and unsuitable quarters, but under the present Budget there can be little improvement."

"I am wondering," he said, "just how much longer they can do this type of work in sub-standard conditions. In the Estimates there is further provision for this organization under heading, "Capital Works and Services", but the amount is only small. It is approximately £1,000,000, and will not do much to relieve the present pressure on the sub-standard accommodation available."

"This organization has proved its worth in the community over a period of time and should warrant a larger appropriation," concluded Senator Cant.

"At any rate a larger sum should be spent on capital works and services in order to improve the conditions under which scientists and technologists are working and carrying out their research programmes."

Senator Sherrington (Queensland) welcomed the establishment of a Pasture Research Laboratory at Townsville, and praised the work done at the experiment station at Beerwah.

Senator Sherrington said that he noted that in the decade 1950-1960 the research staff had increased only from 750 to 880.

"When one considers," he said, "the scope of the research carried out by the organization one wonders how it has been able to achieve the results that have been achieved with the amount of money allocated to it."

Senator Tangney (W.A.) said that she wondered how C.S.I.R.O. could have achieved so much on such a limited budget.

"When I consider," she said, "the salaries paid to scientists working on the various projects which so closely affect the life of this country, and its trade and prosperity generally, I think we are getting the services of these men at bargain rates.

"Many of them, if they were in private industry, would be receiving twice the salary that they receive in this organization. I think it is due to their sense of dedication to the cause of science and research that they perform this work in the manner in which they do.

"I should like to pay a tribute to all members of the organization for their self-sacrifice. I think they must have before them at all times the great example of a former director of the organization, Sir Ian Clunies Ross, in whose memory there is to be erected a scientific institute to which people all over Australia are being invited to contribute.

"I hope that men in the business world, farmers and others in the community will be conscious of the debt they owe to the C.S.I.R.O., and that they will show their appreciation by making contributions to the memory of this great man."

Senator Murphy (N.S.W.) said that in the last year there has been a dramatic increase in the salaries of engineers. The first professional engineers' case brought about such an increase. The more recent case has brought increases to other grades of engineers not covered by the first case.

"It seems to me," he said, "that the effect of those increased salaries will be that the scientists employed by the organization will receive similar increases in their salaries. The Estimates may have been prepared before the results of the second engineers' case came to hand.

"If the Estimates were prepared after that case, it seems to me that there has been a very serious under-estimation."

Senator Murphy concluded by asking whether there was any intention to move any part of C.S.I.R.O.'s Head Office to Canberra next year.

Senator Gorton, in winding up the debate, said that he believed that, to some extent at any rate, C.S.I.R.O. staff were working under sub-standard conditions.

"Over the years," he said, "the grant made for research has increased and the organization has entered more and more fields of research. However, except in fairly recent cases such as the laboratory at Townsville and the computer, the organization did not secure more building funds to ensure that the building programme kept pace with the research programme.

"I do not propose to answer any questions which may verge on policy questions, but if the situation is as I have described it, one of two courses could be taken.

"The building vote for the C.S.I.R.O. could be increased to enable the building programme to catch up, or, from the total amount of money that is made available, more could be directed to buildings and less to research."

"I was glad to hear," said Senator Gorton, "that Senator Sherrington is pleased with the Townsville laboratory. He said that the staff of C.S.I.R.O. had not increased to a great extent. I think the increase has been 150 during the last ten years. I am now talking about scientific staff only.

"An increase of about £800,000 in the organization's vote this year should lead to another 20 scientists being employed.

"Referring to the previous question, I say that in my view, unless and until the working conditions are brought up to a higher standard, the staff position will stay as it is."

In answering Senator Murphy's questions the Minister said that in the course of time there may be a need to revise the estimates. That will depend upon the judgment of the Public Service Arbitrator.

At present the question whether the salaries of the people to whom Senator Murphy referred should or should not be raised is before the arbitrator. Until his judgment on that question is given, the salaries will stay as they are at present. The normal authorized departmental practice is not to make estimates on possible future awards of arbitrators or arbitration courts.

"There is no intention," concluded the Minister, "to move the head office of the C.S.I.R.O. to Canberra in the course of the next year."

Funds available to C.S.I.R.O. for 1962/63
(Budget Figures)

	Non-Capital £	Capital £	Total £
Treasury funds	9,382,000	1,011,000	10,393,000
Wools funds	1,892,000	516,700	2,408,700
Contributions	807,700	53,000	860,700
Total	12,081,700	1,580,700	13,662,400

Funds available to C.S.I.R.O. for 1961/62

	Non-Capital £	Capital £	Total £
Treasury funds	8,600,000	1,028,000	9,628,000
Wool funds	1,678,000	601,000	2,279,000
Contributions	601,000	85,000	686,000
Total	10,879,000	1,714,000	12,593,000

Increased funds for 1962/63 compared with 1961/62

	Non-Capital £	Capital £	Total £
Treasury funds	782,000	— 17,000	765,000
Wool funds	214,000	— 84,300	129,700
Contributions	206,700	— 32,000	174,700
Total	1,202,700	— 133,300	1,069,400

STAFF NUMBERS
(Figures at 30th June, 1962)

Research	895
Experimental	600
Technical	1,347
Clerical	750
Workshop	460
Ancillary	671
Total	4,723

VISITOR FROM JAPAN

Dr. Taro Hisada, Science Councillor of the Japanese Science and Technics Agency, arrived in Melbourne on Sunday, 14th October, to spend four weeks in Australia.

He has been invited here by C.S.I.R.O. as part of a policy of building up direct relations with similar bodies in South-East Asia.

Dr. Hisada is a graduate in science from the University of Tokyo, and has a doctorate of engineering. He has a distinguished record in both industrial and government research. His researches have covered the fields of vibration, sliding friction, rolling friction, the industrial application of radio-isotopes, and the utilization of solar energy.

During his month in Australia Dr. Hisada will have discussions with the Chairman and the Executive. He will visit various C.S.I.R.O. laboratories, universities, industrial laboratories, the Atomic Energy Commission, and other government scientific establishments. He will see Victoria's brown coal deposits in the Latrobe Valley and a steel works at Newcastle.

Dr. Hisada departs for New Zealand on 10th November.

Dr. Hisada with the Chief Librarian, Miss B. C. L. Doubleday.

Professorial Post

Dr. J. F. Turner, of the Plant Physiology Unit, Division of Food Preservation, has been appointed Professor of Agricultural Chemistry in the School of Agriculture, University of Sydney. He is the first occupant of the Chair.

Dr. J. F. TURNER

Dr. Turner joined C.S.I.R. in 1945 as an Assistant Research Officer to undertake research on the biochemistry and physiology of apples during development and storage.

He took out his M.Sc. in biochemistry at the University of Sydney in 1948, and spent from 1949-1953 at Cambridge, first on a C.S.I.R.O. Overseas Studentship, and later as Broodbank Fellow of the University of Cambridge.

At Cambridge his research led to the elucidation of the mechanism of sucrose synthesis in plants, and gained him his Ph.D.

Dr. Turner returned to the Division of Food Preservation in 1954 to continue his researches on carbohydrate metabolism in plants, and the physiology of growth and development of peas.

During 1960 and 1961 he spent one year as Visiting Professor in the Department of Biochemistry at Cornell University, Ithaca, U.S.A., and worked with Professor Gibbs.

Dr. Turner was accompanied to Ithaca by his wife, who also has a Ph.D., and both of them attended the Vth International Congress of Biochemistry in Moscow in August, 1961.

Research on Building in Papua & New Guinea

Next month, the Division of Building Research will establish an office in the Territory of Papua and New Guinea. Mr. J. R. Barned will vacate the technical secretary's chair at Highett and move up to Port Moresby, initially for a period of three years.

For several years the Department of Territories and the Administration at Port Moresby have been concerned about the difficulties and high costs of building in the Territory.

The cost of transporting building materials to the Territory is excessive, and the principles of tropical design are not always well understood.

Some years ago the Australian Government asked a committee of businessmen, headed by Sir John Allison, to suggest how the situation could be improved.

The Allison Committee strongly recommended that the Commonwealth should appoint someone to undertake research into the problems of building in the tropics.

In 1961, the Division advertised for a "Fellow in Building Research — Tropical Areas", but it was considered that none of the applicants for the job possessed the right combination of qualifications and experience..

Six months ago the Division of Building Research sent Mr. E. R. Ballantyne to the Territory to see what projects could be usefully undertaken by the Division to help the building industry there.

Mr. J. R. BARNED

Mr. Ballantyne spent four weeks in the Territory visiting Port Moresby, Wau, Bulolo, Lae, Rabaul, Kavieng, Wewak, Madang, Mount Hagen and Goroka. He was able to suggest a number of ways in which the Division of Building Research could help.

Two families occupying low cost housing at Rabaul.

The Problems

The problems facing the building industry are immense. Timber, the main structural material, is attacked by termites, borers and rot.

There is an urgent need for the establishment of a lime manufacturing industry. It may be possible to use naturally occurring pumice as an aggregate in concrete products or pozzolan.

There are roofing problems. Corrugated asbestos turns black with algae and lichens, and cracks during earth tremors. Galvanised iron deteriorates rapidly in some areas.

The economics of the use of various materials in the Highlands requires careful study. Lack of adequate roads means that building materials are taken in by air and an extreme example of the effect of this is that the cost of cement is tripled. There may be a case for the greater use of aluminium roofing and various glass fibre reinforced plastics in the Highlands.

Insect screens are a "must" in the Territory. But what does one use in Rabaul, for instance? Galvanised steel quickly deteriorates. Sulphurous fumes from volcanic activity quickly ruin copper. Rodents and grasshoppers eat through fibre glass.

Paints are attacked by fungus. Fungicides incorporated in the paint are not very effective.

Where to start?

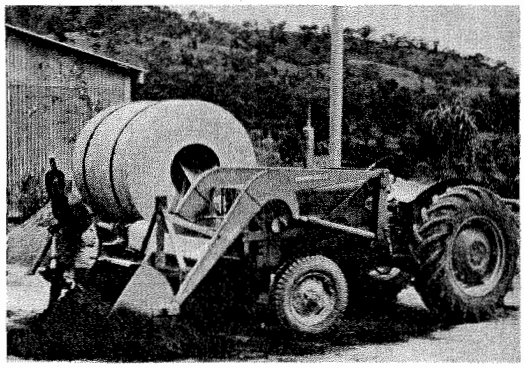
Obviously, there are more problems than the Division can tackle at once. But a start has been made with a few of them already.

Dr. J. S. Hosking will spend five weeks in the Territory from October 25 to survey its potential lime resources and assist in the setting up of a lime-burning industry, especially in the Highlands. He will also pay some attention to clay and other resources.

Pumice from the D'Entrecasteaux Islands has been sent down to Melbourne, and the Division is finding out how it can best be used as an aggregate in concrete and its potential use as a pozzolan.

The Division is already trying to discover why fungicides incorporated in paint fail to work.

Timber deterioration can be avoided by getting local sawmillers to adopt adequate preservation methods. This practice will soon be enforced in the Territory by legislation. In this development, C.S.I.R.O.'s Division of Forest Products has been closely associated with the Territory Administration.



How to use labour saving devices — this native is loading a front-end loader with a shovel!

Future Work

Mr. Barned's main task will be to collect information of many different kinds. The information gathered by measurement, experiment in situ and by other means will complement the research of his colleagues at Highett.

Obviously, the cost of maintenance is an important factor in the economy of the Territory. What sort of buildings have the lowest maintenance cost in the tropics? The collation and analysis of data at both coastal and highland stations should provide Mr. Barned with an answer to these questions.

The list of future projects is long. A great deal of meteorological data needs to be collected and tabulated. One of the first tables to be compiled will concern shadow angles of the sun, and radiation intensities of surfaces facing various directions. This sort of information is a basic requirement for designers.

A good deal of meteorological data is being accumulated but more is required. It would be desirable to have information about solar radiation intensity and directional rainfall at several sites.

Experimental exposure sites, at which various building materials are exposed to the elements, will have to be set up.

The continuing building programmes of the Works Departments in New Guinea provide an opportunity for experiments. It is hoped that the Departments will introduce experimental features into new buildings, which can be compared with controls.

With these new developments, Building Research follows the example of several other divisions, including Land Research and Regional Survey, Organic Chemistry and Forest Products, all of which have established interests in New Guinea.

Building materials have to be brought to Mount Hagen by air.

TECHNICAL ASSOCIATION NEWS

Choice of a Seat Belt

"The two major causes of injury in a motor accident are ejection through the windscreen or doors . . . and head impact with such hard objects as the steering wheel or a door handle inside the car. Clearly, anything which can restrict the body's movement when subjected to the forces of a collision will reduce the likelihood of injury."
—C.S.I.R.O. Safety Handbook.

Accidents of the low-speed suburban variety usually result in a crumpled front bumper for the car, and often minor facial injuries for the occupants. A diagonal sash belt appears preferable to a lap belt in these minor accidents as the chances of head injury are reduced, especially in small cars.

In higher speed accidents and roll-overs, the more positive retaining value of a lap belt is evident. One British manufacturer has recently ceased producing diagonal belts because accident reports and tests have revealed serious inadequacies in this type.

For instance, the retaining effect of a diagonal belt in a series of roll-overs is uncertain, as one can slide out of the belt, or even be held by the neck whilst the body gyrates around.

The ideal, of course, is to get the best of both worlds by installing combined lap and sash belts; the sash belt minimizes head injuries, while the lap belt effectively retains the person in his seat.

The price of a combination belt under the current buying scheme is only 15/- to 23/- more than the other types, and this is a small premium for the extra safety conferred.

At the same time, any approved safety belt will greatly reduce the chances of injury in an accident, and considerations of simplicity or comfort may determine the choice of a simple lap belt or a sash belt even though it gives a reduced measure of protection.

A Current Survey

Information on the current educational expenses of adult technical staff is now being collected by divisional representatives. When this information has been assessed, appropriate recommendations to the Executive may be formulated.

SKI CLUB DANCE

The C.S.I.R. Ski Club (Melbourne) will hold a Dinner Dance on 29th November at "Stardust", a room at the Palais de Danse, St. Kilda, overlooking the bay. Members, and their friends may obtain tickets from any of the following —

Elizabeth Alsop or Lorraine Frazer (C.R.L.), Rosalind Smith (Head Office), Mary Clippingdale (Protein Chemistry) and Virginia Morrison (Tribophysics).

Breakthrough at Parkes

A discovery of great importance has been made with the C.S.I.R.O. radio telescope at Parkes. The telescope has revealed a magnetic field phenomenon which astronomers have hoped to find for over a hundred years.

The find was announced in the September 15th issue of "Nature".

The new discovery will create excitement among radio astronomers, since it will give a base on which to study how galaxies and stars are formed.

The discovery was due to two scientists — Mr. Brian Cooper, of the Division of Radiophysics, and Mr. Marcus Price, who made their find in the galaxy Centaurus, twenty million light years away.

The two astronomers discovered the existence of linear polarized radiation of a magnetic field which gave a clearer picture of the behaviour of matter as galaxies and stars are formed.

The find is of tremendous consequence in the understanding of how the universe works. It could have the effect of bringing together the theories of Einstein and Newton with those of the more modern concepts of electromagnetic laws.

The discovery is expected to trigger off new studies with the radio telescope which is now at the end of its first six months of operation.

The radio astronomers plan to expand the breakthrough by close study of the Crab nebula and the galaxy which can be seen in the constellation of Orion, both of which are sources of strong radio signals in the southern sky.

Footnote

The Melbourne "Age" said that the scientists had "chartered" a magnetic field. Our poetical correspondent submitted the following lines —

"One would think Taffy Bowen
Must always have known
He may charter a taxi
But not a Galaxy!"

Overseas Visits

Dr. E. L. French, of the Division of Animal Health, leaves next week for America, where he will spend six weeks as Visiting Professor at Seton Hall Medical College in New Jersey. He will then visit virologists in America, Britain, Thailand and Japan before returning to Parkville in February.

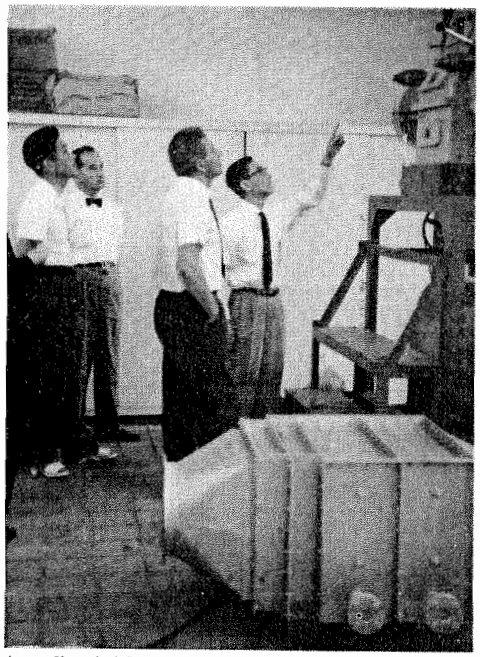
Dr. G. L. Kesteven, Assistant Chief of the Division of Fisheries and Oceanography, spent two weeks in South Korea last month. He was attending the Tenth Session of the Indo-Pacific Fisheries Council in Seoul.

Mr. A. F. A. Harper, of the Division of Physics, returned recently from a short trip around the world. He attended meetings on thermometry in Paris and London and a meeting of a specialist committee of the International Standards Organization in London.

Dr. E. G. McRae, of the Division of Chemical Physics, recently left for Canada where he will participate in the Organic Crystal Symposium, Ottawa, sponsored by the National Research Council of Canada and the U.S. Army Research Office and Office of Naval Research. Dr. McRae will also visit American university and industrial research laboratories connected with research on ultra high vacuum and molecular solids.

Dr. J. D. Morrison, of the Division of Chemical Physics, has accepted an invitation from the Institut International de Chimie Solvay to deliver one of the main addresses at the Solvay Conference, Brussels. Dr. Morrison is also making visits to university and institutional laboratories in Europe, U.S.A. and Canada.

Mr. R. J. Taylor, of the Division of Meteorological Physics, left last month to spend ten months in America. He will work with the U.S. Air Force Geophysics Research Directorate at Bedford, Mass. Mr. Taylor will attend a meeting of the International Union of Geodesy and Geophysics at Berkely, California, on his way home next August.

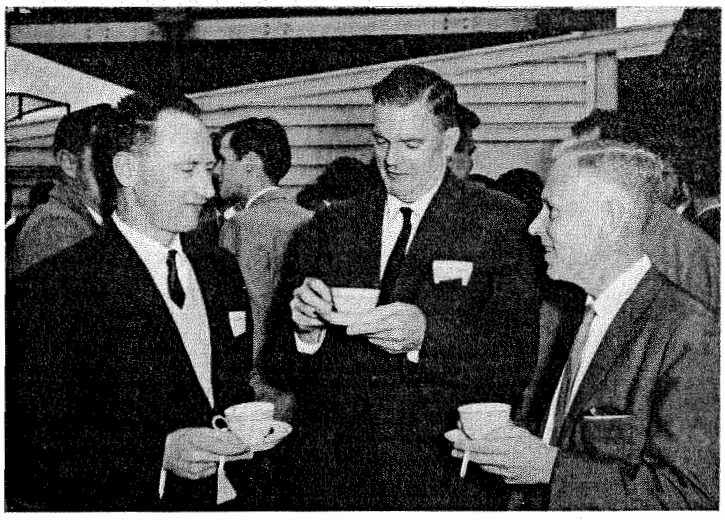


Australian developments in drying of Cheddar cheese have created interest in Japan. Mr. J. Czulak, of the Division of Dairy Research, recently inspected progress in preparing the necessary equipment at the Rokko Butter Co., Kobe. The Rokko Butter Co. now manufactures processed cheese from imported Australian Cheddar and intends to include dried cheese in its range of products.

On 26th September the Meteorological Physics Social Club held a Wine and Cheese Tasting Evening at the Cheltenham hall. The function was held in conjunction with the Wine and Brandy Producers' Association of Victoria.

Brief Announcements

- The fifth Congress of the **Pan Indian Ocean Science Association** will be held in India in November, 1963.
- Applications for **Fulbright Travel Grants** for 1963-64 have now been called for. The closing dates in different categories fall in January and February, 1963. Full details are available from Head Office.
- The Victorian Women Graduates Association invites Applications for the **Lady Leitch Scholarship** for 1963-64. The Scholarship, valued at £750, is open to members of the Australian Federation of University Women for research on any subject in any country. Details are available from the Hon. Secretary, V.W.G.A., 16 Mulgoa Street, Brighton, Vic.
- The University of New South Wales Chemical Society is appealing for donations to the **F. P. Dwyer Memorial Lecture Appeal.** The Appeal Fund will be used to support the visits of distinguished chemists who will, from time to time, be invited to Australia. The lectures will be a memorial to the late Professor F. P. Dwyer. Donations to the Hon. Treasurer of the Society at the University of N.S.W., Kensington.
- In Victoria, there is a desperate **shortage of science teachers** in independent girls' schools. Miss Westerton, Registrar of the Associated Teachers Agency, would like to contact the wives of any C.S.I.R.O. officers who have scientific qualifications and who would be interested in part-time science teaching.



Mr. J. J. Kowalczewski and Mr. R. N. Morse (Engineering Section) at morning tea with Dr. L. A. T. Ballard (Plant Industry).

"How best to programme the desired environmental changes in a Phytotron?" This was one of the questions raised by Professor Anton Lang of the California Institute of Technology, speaking at the Engineering Section's recent Symposium on engineering aspects of environment control for plant growth.

Each combination can be programmed on site, said Professor Lang, or alternatively the climates can be programmed by moving the plants between a number of standard conditions.

In his opinion as much use as possible should be made of the second method, which is the one mainly used at Pasadena. However, for special purposes it is desirable to be able to combine the two methods.

The C.S.I.R.O. Phytotron, with its numerous controlled-environment cabinets, provides the world's first large scale combination of the two systems.

The merits of this approach as well as other biological and engineering aspects of Phytotron design and environmental control were among the topics discussed by over a hundred engineers and scientists attending the Symposium.

HONOURS

Mr. H. G. Higgins, of the Division of Forest Products, has fulfilled the requirements for the degree of Doctor of Applied Science in the University of Melbourne. He will be the first recipient of this degree.

His thesis consisted of published papers collected under the general title "Studies on Cellulose and Paper, Properties of Wood, Casein Gels and Protein Reactions". These cover work carried out in the Division between 1945 and 1961.

Dr. H. G. HIGGINS

Mr. R. Milton Moore, Assistant Chief of the Division of Plant Industry, has been admitted to the degree of Doctor of Science in Agriculture by the University of Sydney.

The degree was awarded in recognition of his contributions to the understanding of vegetation changes resulting from grazing in southern Australia, to the management of vegetation for weed control purposes, and to the ecology of introduced plants with particular reference to their roles in secondary succession.

The name of **Mr. J. E. Giles,** who recently retired from the Commonwealth Research Station, Merbein, is to be commemorated by the naming of a tomato variety for him. The new tomato, which Mr. Giles bred and which shows great promise as a processing variety, is to be named "Gilestar".

Dr. J. R. PRICE

Dr. J. R. Price, Chief of the Division of Organic Chemistry, has been elected President of the Royal Australian Chemical Institute.

APPOINTMENTS VACANT

The following vacancies for professional appointments are current:—

EXPERIMENTAL OFFICER — PLANT INTRODUCTION (E.O. II/III) — Division of Plant Industry. 130/563 (November 9).

BIOPHYSICIST (E.O.) — Division of Food Preservation. 301/23 (November 11).

CHEMIST (E.O.) — Division of Mineral Chemistry. (601/15 (November 12).

GRADUATE ASSISTANT FOR WILD DUCK INVESTIGATIONS (E.O.) — Division of Wildlife Research. 560/123 (November 12).

PHYSIOLOGICAL CHEMIST (E.O.) — Division of Wildlife Research. 560/101 (November 12).

EXPERIMENTAL OFFICER (E.O. I/II) — Division of Entomology. 180/203 (November 16).

PHYSICAL CHEMIST (R.O./S.R.O.) — Division of Chemical Engineering. 608/27 (November 16).

PHYSIOLOGIST/BIOLOGIST (R.O./S.R.O.) — Division of Fisheries and Oceanography. 320/250 (November 16).

RESEARCH LIAISON OFFICER — Division of Plant Industry. 130/557 (November 16).

RESEARCH OFFICER/SENIOR RESEARCH OFFICER — Division of Animal Physiology. 246/158 (November 16).

EXPERIMENTAL OFFICER (E.O. II/III) — Division of Animal Genetics. 677/28 (November 19).

SOIL PHYSICIST/ENGINEER (R.O.) — Division of Soils. 270/215 (November 23).

AGROSTOLOGIST (R.O.) — Division of Tropical Pastures. 853/1 (November 26).

FELLOWSHIP IN PLANT PHYSIOLOGY (R.O./S.R.O.) — Division of Plant Industry. 130/543 (November 30).

VETERINARY PARASITOLOGIST (E.O.) — Division of Animal Health. 202/189 (November 30).

CHEMIST/CHEMICAL ENGINEER (E.O.) — Division of Protein Chemistry. 462/166 (December 1).

ORGANIC CHEMISTS (E.O.) — Division of Protein Chemistry. 462/164 (December 1).

FATHER VERSUS SON

The story of Marie Davis' skiing prowess (Coresearch 42) has brought a response from Canberra, where C.S.I.R.O. has another star skier.

This is George Dudzinski (left) pictured above with his son Mark.

George (a research officer in the Division of Mathematical Statistics) and Mark both put on skis for the first time in 1956, at the respective ages of 33 and 6.

Two years later George won the A.C.T. Championship. During the last four years he has won a number of other trophies, including that for runner-up in the A.C.T. downhill (1960).

Meanwhile, Mark has been steadily gaining on his father.

In 1959 he won a trophy for the most improved skier of the year. In 1960 he was placed third in the A.C.T. Alpine combined event.

In 1961, he won the N.S.W. Under 15 Boys Downhill (aged 11) and this year he was awarded two weeks training at the Australian Junior Ski School at Thredbo.

This year, George won both the downhill and slalom championships of his club, Y.M.C.A. Mark was runner-up in both events.

When Mark first beats his father in a straight fight, George has promised him a chicken and champagne dinner. Mark, George hastens to add, will eat the chicken. The champagne is for the vanquished.

Mr. J. E. Cummins Retires

Mr. J. E. Cummins retired from C.S.I.R.O. on 21st October after 35 years with the Organization.

In 1927 he was one of the first five people appointed to C.S.I.R. studentships. He and H. E. Dadswell both went to Madison, Wisconsin, to undertake post-graduate work on forest products.

On his return to Australia in 1929, Mr. Cummins took charge of timber preservation work in the Division of Forest Products.

In 1940, he left Forest Products to embark on a second career in administration.

Over the last two decades, Mr. Cummins has held a wide variety of senior administrative appointments.

From 1940-1948 he held the positions of Director of the Scientific Liaison Bureau, Member of the Commonwealth Salvage Commission and Officer-in-Charge of C.S.I.R.'s Information Service.

From 1948 until 1960 he was overseas, as C.S.I.R.O.'s senior representative in London and Washington, and finally, as Director of the Division of Scientific and Technical Information in the International Atomic Energy Agency, Vienna.

Since his return to Australia in 1961 he has been the executive officer of the Ian Clunies Ross Foundation.

Mr. Cummins was farewelled at a number of functions last month.

Mr. J. E. CUMMINS

He lunched with thirteen "veteran" colleagues at the Kelvin Club on 11th October. A quick check showed that the fourteen people present had given over four centuries of service to C.S.I.R.O.

A farewell dinner was tendered to Mr. Cummins on 16th October. Each dish and each wine was chosen to represent a part of the world in which he had lived and worked.

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

APPOINTMENTS TO STAFF

Dr. J. E. Begg has been appointed to the staff of the Division of Land Research and Regional Survey. He was, until 1958, on the staff of the Division of Plant Industry at Armidale. Since 1958, he has been working for his Ph.D. degree at Cornell University. Dr. Begg and his wife returned to Australia last month.

Dr. R. C. Foster will arrive in Australia next week to join the wood and fibre structure section of the Division of Forest Products. Dr. Foster has recently completed requirements for his Ph.D. degree under Professor R. D. Preston, F.R.S., in the Department of Botany, University of Leeds.

Mr. M. J. Lacey is now en route to Australia to join the staff of the Division of Coal Research. He has recently been engaged on research on carbonization of synthetic polymers at the University of Hull, where he has just graduated M.Sc.

Dr. F. M. Melhuish has been appointed to the staff of the Irrigation Research Station, Griffith, and will arrive in Australia in two weeks time. He has recently completed requirements for his Ph.D. degree in the Department of Botany at the University College of Swansea.

Dr. O. Myklestad, a Norwegian, is at present on his way to Australia to join the Division of Food Preservation. He served as an officer in the Norwegian and United States merchant navies during and after the war. In 1953 he graduated in chemical engineering from the Georgia Institute of Technology and in 1956 he obtained a doctorate from the Swiss Federal Institute of Technology, Zurich. Since then, he has been on the staff of the Chr. Michelsen Institute in Bergen.

Mr. A. Pompe, a graduate of Delft Technical College, has joined the bushfire research group in the Division of Physical Chemistry. Since coming

Mr. A. POMPE

to Australia in 1955 he has been on the staff of the P.M.G. Research Laboratories in Melbourne.

Mr. J. B. Ritson, a Queensland graduate in agricultural science, has joined the Division of Tropical Pastures and will be stationed at Townsville. He has previously been with the Queensland and Western Australian Departments of Agriculture, and has worked as an adviser to a pastoral company.

Mrs. Frederica Stuart, a graduate of the University of Western Australia, has joined the staff of the Division of Plant Industry. She has previously been on the staff of the Royal Perth Hospital, and has taught school biology.

Dr. H. J. Wouterlood, a graduate of the University of Utrecht, arrives in Sydney this week to take up an appointment with the Division of Coal Research. From 1956 until 1960 he was with African Explosives and Chemical Industries Ltd., a South African company associated with I.C.I.

Three Visitors from the United Kingdom

Professor Fred Hoyle, F.R.S., Plumian Professor of Astronomy at Cambridge, is now in Australia under the auspices of the Commonwealth Universities Interchange Scheme for distinguished scholars.

This month he will complete his visits to the Universities.

Courtesy Herald & Weekly Times Ltd.

Prof. F. HOYLE

He will then spend several weeks with C.S.I.R.O.'s Division of Radiophysics, before returning to England.

Dr. J. C. Fidler, O.B.E., a member of the United Kingdom Agricultural Research Council, who is a noted authority on the storage of fruit and vegetables, was in Australia last month. He was here to discuss problems associated with the physiological changes which take place on the harvesting and cool storage of fruit.

Dr. Fidler, who is from the Ditton Laboratory in England, has worked for many years in close association with Australian research workers. He visited the North Ryde laboratories of the Division of Food Preservation and gave a talk on the work of the Ditton Laboratory.

Dr. J. C. FIDLER

Dr. D. I. Williamson, on leave from Liverpool University's Marine Biological Station at Port Erin, Isle of Man, is spending one year in the Division of Fisheries and Oceanography studying the larvae of Australian decapod crustacea.

Much of his work will consist of attempts to rear different species in the laboratory, and the larvae of marine crayfishes and of hermit crabs will receive particular attention.

Dr. Williamson is accompanied by his wife and two daughters.

Our picture shows the C.S.I.R.O. (Melbourne) Australian Rules Football Club which was runner-up in the competition for the Ian Clunies Ross Memorial Shield. Best players for the season were Jim Whitelaw, Don Smith and John Glover (Head Office) and Eric French (Protein Chemistry).

CORESEARCH

FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF—NUMBER 45, MELBOURNE, DECEMBER 1962

Mr. M. G. Grace Retires

Mr. M. G. Grace, Secretary (Finance and Supplies) retires next week after serving C.S.I.R.O. for thirty-four years.

He has already been farewelled at a number of functions held in his honour, not only in Melbourne, Sydney and Canberra, but also as far away as Perth.

Dinners in his honour were held in Sydney in October and in Canberra a fortnight ago. Eighty clerical officers in Melbourne entertained him on 22nd November, and the scientific staff will hold a dinner for him on 17th December.

A member of the Executive contributes the following note about him.

"Martin Grace joined C.S.I.R.O. as Accounts Clerk in 1928 after 13 years in the Defence Department.

In 1945, after acting in the position for some years he was appointed Assistant Secretary, Finance and Supplies, in succession to Mr. H. P. Breen.

In 1952, his title was changed to Secretary, Finance and Supplies — the office from which he retires on 6th December, 1962.

Such is the bald history of forty-seven years selfless devotion to his country by a man whose name is known and respected throughout the length and breadth of the Commonwealth.

Everyone in C.S.I.R.O. knows him. Most of us at one time or another have gone to him for help and advice. He knows Treasury regulations backwards and forwards. But he uses them in the way such regulations should always be used, to get things done rather than to provide excuses why they cannot be done.

History does not record whether he was educated by the Jesuits, but many a good Jesuit could take a lesson from him in dialectics.

It is surprising how often a good regulation looked at through eyes of grace can be shown quite conclusively to mean just the opposite of what one might expect from the normal humdrum rules of logic.

Martin Grace hates injustice and by nature he is on the side of the underdog, be he a newly-wed battling for a house or a clerk put upon by an intolerant scientist.

It is characteristic of him that of all that he has done for C.S.I.R.O. he takes the greatest pride in the housing scheme that he was able to arrange with the help of the A.M.P. Society. The enduring happiness of a great many families will always be his best reward.

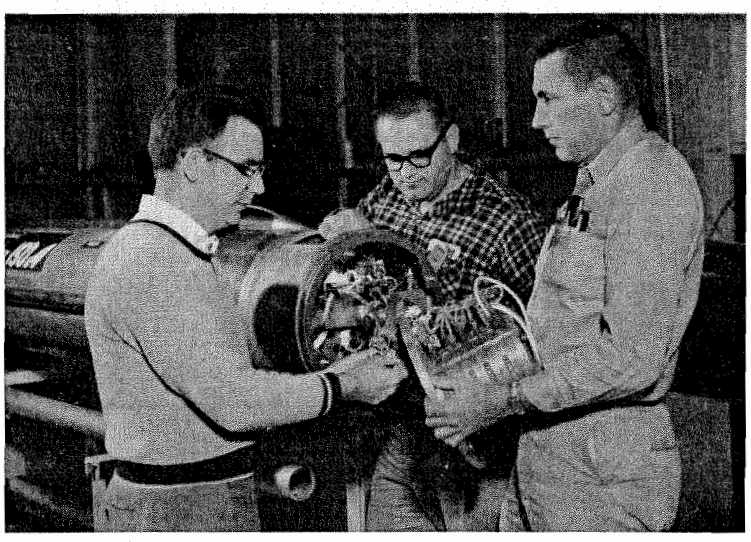
Those of us who work closely with him enjoy the many arguments and discussions we have on knotty points of financial lore or justice. Mostly we can agree to something perhaps half understood with the comfortable feeling that one can trust Martin — he knew.

And on the rare occasion when the Executive has disagreed and has been able to summon up their courage to tell him so, he has accepted their decision without a murmur and worked to it loyally. He never bore any rancour — except perhaps once to the senior scientist who spoke in his hearing of 'a mere clerk'.

To Martin Grace being a clerk in C.S.I.R.O. was a privilege — a chance to serve. He will, we all hope, look back with pleasure to his memories of those who served with him.

We on our part will be a great deal poorer when he leaves us. Something irreplaceable will have gone from C.S.I.R.O."

Mr. Ted Petersen speaking at Mr. Grace's farewell dinner in Canberra. Sitting down from left: Mr. Grace, Dr. R. M. Moore, and Mr. H. J. Frith.



Research equipment developed by the Upper Atmosphere Section was launched into space from Wallop's Island, Virginia, on 15th November. The rocket was provided by the U.S. National Aeronautics and Space Administration. Unfortunately, the rocket developed a fault thirty-eight seconds after take-off, and did not reach the desired altitude. The Australian payload, which included telemetry instrumentation and a lunar aspect sensor for determining the altitude of the rocket, was activated before take-off.

The equipment worked successfully throughout the flight. A second attempt to send the C.S.I.R.O. equipment into the "E" region (55-100 miles up) will be made next month.

Computer Research Section

Following the Government's decision last May for C.S.I.R.O. to set up a system of computers, the Executive has decided to establish a Computer Research Section.

The Section will operate the central computer, to be built on a site at Black Mountain, Canberra, and four satellite computers.

Other subsidiary units to be provided for other Commonwealth organizations and the Universities will be controlled and operated by those bodies.

At the present time a design for the laboratory in Canberra is being developed. Specifications for the central computer and the four subsidiary satellites, have now been completed and tenders have been called.

The Executive has appointed Dr. G. N. Lance as Officer-in-Charge of the Section.

Dr. Lance, who is aged 34, is a graduate of King's College, London. His first post-graduate research interests were in aerodynamics, and he worked both at Farnborough and with Hawker Aircraft Ltd.

He subsequently held short research appointments at the Universities of California and Southampton. At Southampton he was Director of the Computation Laboratory.

For the last three years he has been Head of the Computer Branch, Atomic Energy Establishment, Winfrith, Dorset.

Dr. Lance will arrive in Australia to take up his C.S.I.R.O. appointment in March, 1963.

Horticultural Research Section

The Commonwealth Research Station, Merbein, is to be renamed the Horticultural Research Section.

Part of the Section will, in future, be located at Adelaide and part at Merbein.

The Section plans to erect a small laboratory in Adelaide close to the Division of Soils and the Waite Institute.

Work will be carried out on crop physiology, growth analysis, climatic control of vine growth, root growth studies, nutrition, fruit processing, plant improvement and nematology.

U.S. SPACE MEN

Two U.S. space scientists arrived in Melbourne on 28th November to spend several weeks studying Australites.

The scientists are Dr. Dean Chapman and Dr. Harold Larson, members of one of the research teams at the National Aeronautic and Space Administration in the U.S.

They will work with Dr. G. Baker of the Mineragraphic Investigations Section.

The visitors will spend some time field collecting in the Port Campbell area.

A third scientist, Dr. E. Chao, of the U.S. Geological Survey, will join them next week.

APPOINTMENTS VACANT

The following vacancies for professional appointments are current:—

AGROSTOLOGIST (PASTURE ECOLOGIST) (R.O./S.R.O.)—Division of Tropical Pastures. 850/177 (December 7).

PLANT PHYSIOLOGISTS and/or PLANT BIOCHEMISTS (R.O./S.R.O.)—Commonwealth Research Station, Merbein. 490/116 (December 7).

EXPERIMENTAL OFFICER (E.O.I/II)—Division of Plant Industry. 130/545 (December 10).

ENTOMOLOGISTS (R.O.)—Division of Entomology. 180/188 (December 17).

EXPERIMENTAL OFFICER (E.O.I/II)—Division of Entomology. 180/198 (December 17).

RESEARCH OFFICER—Division of Wildlife Research. 560/97 (December 17).

POST-DOCTORAL FELLOWSHIPS—Division of Protein Chemistry. 462/168 (December 28).

RESEARCH LEADER (BUILDING OPERATIONS AND ECONOMICS) (P.R.O.)—Division of Building Research. 390/303 (January 2).

Changing Patterns of Power

C.S.I.R.O. was well represented at the 6th World Power Conference held in Melbourne last October. More than 1,500 delegates attended from 46 countries as varied as Iceland, Brazil, Costa Rica, and Israel.

The theme of the Conference was "The Changing Pattern of Power".

The Governor of Victoria, Sir Dallas Brookes, told delegates that they were concerned "not with political power over human beings but with physical power over material things".

The President of the Conference, Dr. Franz Holzinger of Austria, said, "The technical reports submitted to this Conference are of a very high standard and I cannot speak too highly of the standard of the papers submitted by Australian authors".

Papers delivered at the Conference by C.S.I.R.O. officers dealt with production of town gas from coal, the characteristics of Australian coal and their influence on the pattern of its utilization, solar energy as an aid to developing the tropics, and combined desalting and power plants for water deficient areas.

During the Conference, an unofficial meeting dealing with recent trends in applied solar energy was held at the Engineering Section's laboratory at Highett in collaboration with the recently formed Australian and New Zealand branch of the Association for Applied Solar Energy. More than sixty-five delegates and members attended.

Dr. J. A. Duffie, Director of the Solar Energy Laboratory at the University of Wisconsin, and Professor M. Jordan, Head of the Mechanical Engineering Department of the University of Minnesota, presented papers outlining their current work.

Officers of the Engineering Section's Solar Energy and Thermal Radiation group spoke on their activities, and an inspection was made of prototype equipment under development.

The Officer-in-Charge of the Engineering Section, Mr. R. N. Morse, said that people living in the hot and humid regions of Australia might soon have air conditioning powered by the sun.

Space cooling using solar energy was an attractive possibility and both Australia and America were working on the idea. An absorbent to trap solar energy had not yet been obtained at an attractive price, but it was not too optimistic to predict that solar units would be available within a few years.

The Executive Chairman of the Conference, Sir Vincent de Ferranti, said that Australia, with only small deposits of oil and natural gas, would have to look to nuclear power and coal as its main sources of power in the future.

Mr. H. R. Brown, Chief of the Division of Coal Research, said that oil and natural gas have the inherent advantages over coal of greater ease of handling and transport. Coal was a bulky commodity, and the cost of moving it from the point of production to the place of usage often exceeded the pithead price.

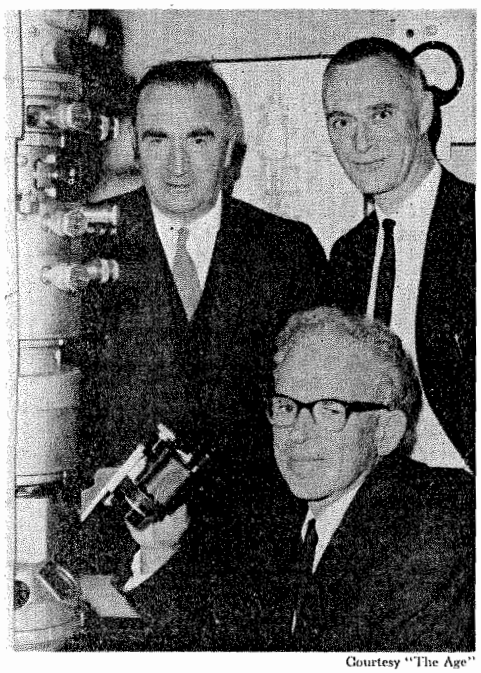
Transport costs were often a major element in the delivered price. The development of more efficient and cheaper methods of transport could, therefore, be equally as effective as the lowering of production costs by continuous mechanised mining in ensuring that coal retains present markets and develops new ones in the face of keen competition resulting from the present abundance of oil and the development of atomic energy.

Mr. Brown said that increasing attention was being given to using pipe lines to transport coal as a slurry with water. He referred to a projected scheme in West Germany for transporting 284 tons of coal per hour for a distance of 500 kilometers.

It has been demonstrated that a slurry containing sixty per cent. by weight of solids may be pumped at a low pressure drop; stored economically in tanks, with mild agitation, at the receiving terminal; and pumped directly from there to the boiler house, where it is de-watered by centrifuge or vacuum filter down to a moisture content of eighteen to twenty per cent. and delivered directly to the pulverised-coal mill.

In the more recent development, the slurry has been fed directly to slagging cyclone burners, thus proving the possibility of still further reduction in costs by plant simplification, elimination of conveyors and bunkers for handling dried coal, and elimination of dust problems.

Delegates to the World Power Conference inspecting experimental roof-type solar stills developed by the Engineering Section.



Courtesy "The Age"

Dr. O. H. Frankel, Member of the Executive, opened new wings for the Departments of zoology and botany at the University of Melbourne on 31st October. The zoology wing cost £120,000 and the botany wing £100,000. Dr. Frankel said biologists had made discoveries that were unforeseeable, but they had still to find the answer to the problem of the human race living in the world without exterminating itself and other species. Far too few biologists were being produced for future needs. Standing behind Dr. Frankel are Professor J. S. Turner (Botany) and Professor M. J. D. White (Zoology).

Meeting in India

The Chairman (Sir Frederick White) and the Secretary (Mr. G. B. Gresford) have been in India for the past two weeks attending a meeting of the British Commonwealth Scientific Committee at New Delhi.

The main function of the Committee is to ensure the fullest possible co-operation between the Commonwealth national research organizations concerned with civil service.

It can also make recommendations or give advice to governments or other bodies on any matter of common concern affecting the scientific progress of the member countries and can discuss any measures which will be of mutual benefit.

The Committee meets at approximately two-yearly intervals. Its present membership is Britain, Canada, Australia, New Zealand, India, Pakistan, Rhodesia and Nyasaland, Ceylon, Ghana, Malaya, Nigeria, Tanganyika, and Sierra Leone.

The British Commonwealth Liaison Offices in London and Washington are operated under the aegis of the Committee.

Finance Manager Appointed

Mr. R. W. Viney has been appointed Finance Manager of C.S.I.R.O. Mr. Viney, who is at present Assistant Secretary (Finance and Supplies), takes up his new duties on 7th December.

As Finance Manager, he will be responsible for financial aspects of C.S.I.R.O.'s policy, particularly in budgeting and the control of finances. He will also be responsible for internal auditing and the accounting practices and procedures used by the Organization.

Ray Viney joined C.S.I.R.O. in 1933, as a 17 year old junior clerk. Over the years, he has acquired Associate Membership of the Australian Society of Accountants and the Chartered Institute of Secretaries.

He was instrumental in forming the Finance and Estimates Sections at Head Office, and in launching internal auditing.

His main duties in recent years have been concerned with the preparation of C.S.I.R.O.'s annual budget, the management of the financial side of the works programme, and the control of finances.

Mr. R. W. VINEY

Mr. Viney is keenly interested in efficient business administration. Earlier this year he attended Melbourne University's Summer School of Business Administration. He is also a member of the Public Service Board's Organization and Methods discussion group.

Mr. Viney has been a Director of the C.S.I.R.O. Co-operative Housing Society for the past six years.

SAYINGS OF THE MONTH

"Now I know what the P.M.G.'s Department does with old telephone boxes. It sends them down to Fishermen's Bend for conversion into laboratories."

(Mr. L. W. Weickhardt, *at a meeting of the Victorian State Committee.*)

"At least no-one can say the Academy is square."

(H.R.H. Prince Philip, *after his admission to the Australian Academy of Science as a Royal Fellow.*)

TECHNICAL ASSOCIATION NEWS

Excess Travelling Time

Head Office Circular 62/39 deals with increased salary ceilings for excess travelling time. This may prompt the naive query, "What is excess travelling time?"

Briefly, and subject to certain limitations, it is payment at the ordinary rate of pay for travelling time outside normal working hours.

Excess travelling time is independent of overtime and the ordinary travelling allowance. The time normally spent travelling to and from work is deducted when excess travelling time is computed. Sleeping time is also deducted where sleeping facilities are provided on a ship or train.

Excess travelling time is, in effect, payment for travelling at week-ends and outside normal working hours during the course of duty. You can read the complete provisions in this month's Technical Association Gazette.

Formation of W.A. Branch

Our General Secretary (Mr. H. F. Heath) recently received a thick wad of membership forms which gladdened his heart.

They came from the Western Australian Regional Laboratory at Nedlands, Western Australia, where Mr. M. V. Jantz has signed up 29 new members.

A Branch is now being formed in Western Australia and it has already provided some valuable information to assist the case for reimbursement of adult study fees.

The Mallee Fowl

"What I and many more admire is, that . . . it lays an egg . . . bigger than the bird itself . . . It digs in the sand above a yard in length; after laying, it fills up the hole (and) there the eggs hatch with the heat of the sun and sand . . ."

The Dominican monk Navarrete wrote this about one of the megapode family about four centuries ago. The first half of the good father's statement was an exaggeration. The second bit, however, which describes the bird's simple, build-it-yourself incubator, is undeniably true.

Antonio Pigafetta had, in 1521, already roughly described a Philippine "incubator-bird", and other travellers did so a little later. Generally their accounts met with extreme scepticism. Birds that built incubators for their eggs seemed a little too reminiscent of the Unicorn and the Cockatrice.

Mr. H. J. Frith's recent book "The Mallee Fowl" (Angus and Robertson, 35s.) was reviewed in "Nation" last month by Professor A. J. Marshall. The review is reprinted here by permission of the Editor of "Nation".

It was not until the first few years of the reign of Victoria, when John Gould carefully described the Australian incubator birds, and gave a brief but essentially accurate account of their habits, that they were unequivocally accepted as factual.

And it was only about ten years ago that a detailed, precise, and coherent statement was made about even one member of this almost unbelievable family. The man who did the job was Harry Frith, the author of the present book.

Australia, with its egg-laying mammals (the echidnas and the platypus), its unique abundance of marsupials, its bowerbirds and incubator birds, has a remarkable indigenous fauna. Yet, despite their high scientific and general interest, relatively little is known about these creatures. If they lived in European or North American forests they would have been studied intensively many years ago.

The lack of knowledge of our own animals is a reflection of the poor enterprise and low standard of scholarship of Australian natural historians. The spate of misinformation that appears annually in bad (and often extremely expensive) local books is attributable to the same causes.

So, it is refreshing to read Frith's account of the Lowan or Mallee-fowl. This is a bird of the sandy inland, where the Eucalyptus forests are dwarf, and water generally is scarce. The last consideration is not an important one for the Lowan because, as Frith discovered, it does not need a drink, a habit that would commend it to some of my Presbyterian relatives.

With its relatively enormous feet the Mallee-fowl works for months scratching together a sandy mound about ten feet wide. In the centre of this is a central egg-chamber about three feet deep. This it fills with dead leaves and these it covers with sandy soil. The imprisoned leaves ferment, and the egg-chamber gets hot. Then, in the spring, the hen Lowan begins to lay her disproportionally big pink eggs.

Harry Frith heated their incubators artificially and came to believe that the birds use the tongue as a thermometer in order to test the temperature of the mound. Certainly they probe the mound frequently with their beaks. When the rotting leaves become hotter than is good for the eggs, the birds scratch open the mound early each morning and let the heat escape for a while.

In mid-summer's heat they pile insulating sand on the mound. This prevents the combination of fermentation and solar heat from destroying the eggs.

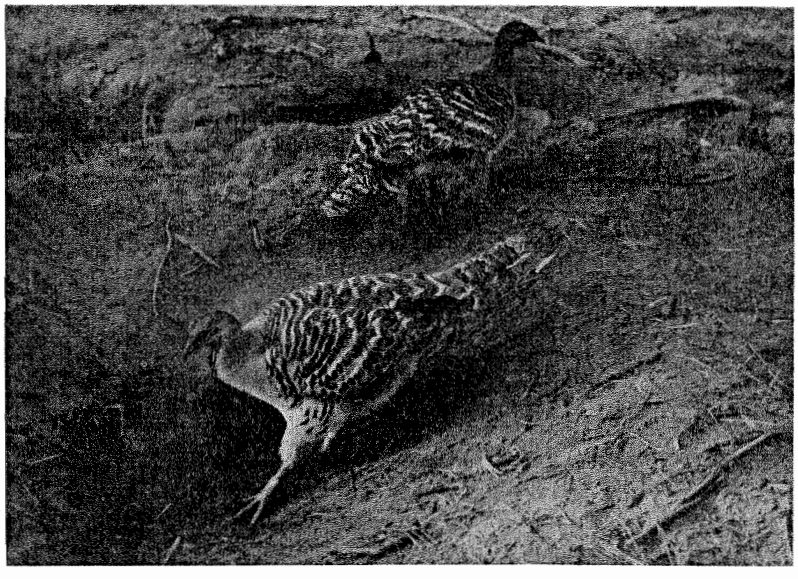
In the autumn, with the last laid eggs still in the mound, the heat generated by the ageing leaves is inadequate. Now during the hottest part of the day, the mound is opened by the birds and the heat of the sun is let in!

When the eggs hatch, the young push their way up out of the mound and stagger off into the shade to rest. Thereafter they fend for themselves.

Some have said that the Mallee-fowl, derived, like all birds, from a reptilian stock, are "lazy" birds and have retained the reptilian habit of burying their eggs and simply letting rotting vegetation and the sun's rays do the job of incubation.

This is absurd. In the first place, they have not "retained" anything of the sort: their behaviour is grotesquely specialised and is no doubt derived from an ancester that brooded its eggs on the ground like the domestic hen. As for being "lazy"! Even the most cursory glance at the facts shows that it would be far simpler to build a nest, sit on a clutch of eggs for a while, and have done with the whole business of reproduction until the next year.

This is a good book, simply and unpretentiously written. It would be an ideal present for any son or daughter who shows a bent for the study of natural history.



"GLEN LOSSIE" VISITOR'S DAY

A Visitors' Day was held at "Glen Lossie", C.S.I.R.O.'s Field Station at Kojonup, Western Australia, on Tuesday, 30th October. Bad weather failed to discourage members of the farming community from attending. Eight hundred visitors were present, some of whom had travelled over 250 miles to be there.

Visitors' Days are held every two years. This year the day was held somewhat later than usual because of emphasis on the plant introduction section of the research programme, particularly in regard to the work on perennial grasses suitable for the Kojonup area.

Mr. Eric Bailey, Plant Introduction Officer in Western Australia, led the discussion on this section of the programme. He outlined the reasons why the selection of improved pasture plants was necessarily a long-term programme.

Highlight of the plot inspection was an area under grazing of a selected strain of Tall Fescue, a perennial grass which has given promising results on the Kojonup soils.

One of the most spectacular trials visited during the day was a large scale field trial comparing "bagged nitrogen" and "clover nitrogen" at two grazing levels. Dr. R. C. Rossiter, Officer-in-Charge of the Western Australian Regional Laboratory, opened the discussion by providing background information on the development of the "Soft brome" grass used in the trial.

From this point Dr. Eric Greenwood took the story a stage further, outlining the reasons for contemplating the use of bagged nitrogen on annual pastures under Western Australian conditions.

The results of a large scale field trial involving stocking rates and lambing times provided considerable interest to the farmers present. Mr. Haydn Lloyd Davies filled in any awkward inconsistencies in the results with a brand of humour appropriate to the subject of animal breeding.

The final stop of the day centred around an experiment which has just commenced, and on which five subterranean clover strains and one strain of rose clover are being examined.

The trial is designed to determine the relationship between the "oestrogenic potency" of the clover strains as determined by chemical assay, and mouse and sheep bioassay, and the incidence of "clover infertility" under field grazing conditions.

Questions from visitors were readily forthcoming throughout the day, but at the last stop the speakers (Dr. Rossiter and Mr. Lloyd Davies) were subject to a veritable barrage of questions, indicating the keen interest in this subject of clover infertility.

A lunch hour demonstration showing the value of tagged elements in agricultural research was organized by members of the Plant Nutrition group and displayed by Mr. D. Kirton.

The Official Address for the Visitors' Day was given by Mr. N. McNeill, M.H.R. He stood in a heavy rain shower to speak to the visitors, who crammed themselves into a machinery shed from which, fortunately, some forty or more pigeons had recently been forcibly evicted.

A vote of thanks was extended at the close of the Day by Mr. G. H. Burvill, a senior officer of the Western Australian Department of Agriculture.

Organization of the Day was handled by Mr. E. R. Watson (until recently Officer-in-Charge of the Station), and was very capably managed by Mr. G. W. Anderson, the present Station Supervisor.

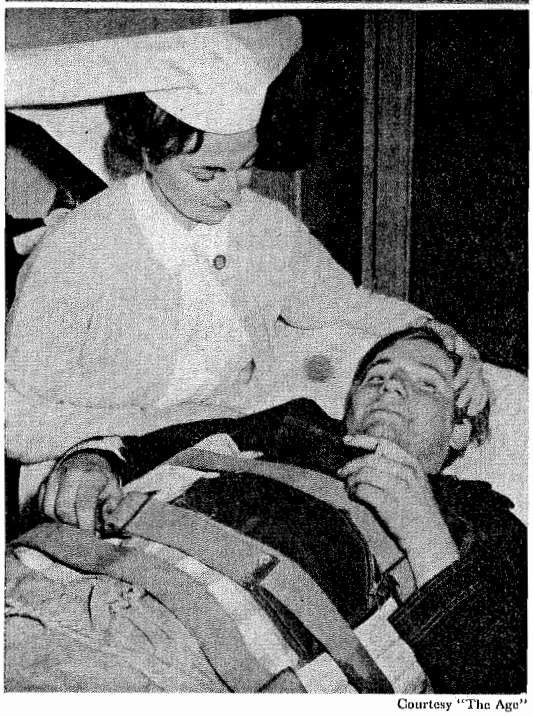
Visiting Meteorologist

Dr. P. Frenzen, a meteorologist with the Radiological Physics Division of the Argonne National Laboratory, Illinois, U.S.A., is spending approximately ten months with the Division of Meteorological Physics.

Dr. P. FRENZEN

He will be engaged on the study of turbulence and in particular in methods of determining, from their spectral characteristics, the exchanges of heat and momentum between the atmosphere and the ground.

BUSH ADVENTURE



Courtesy "The Age"

Head Office records clerk, Rodney Evans, had a narrow escape early last month when a rock rolled on his leg during a hiking trip in rugged bush country near Mt. Wellington in north Gippsland.

Three of the other four members of the party — Bill Cummins, Jim Kalpokas and Don Smith — work with Rodney in the Records Section.

"The accident happened on Sunday afternoon while we were walking by a waterfall at Lake Tarli Karng," said Rodney.

"I grabbed a rock to climb past the waterfall and felt it give way. I tried to jump out of the way but it hit me and knocked me ten feet into the water. I was pinned under the water and was almost going berserk."

The others rolled the rock off and made some rough splints for his leg.

Early next morning Bill Cummins and Jim Kalpokas set out for help. They reached the township of Licola, thirteen miles away, at 2.00 p.m., and by 7.30 p.m. that night the rescue party had arrived back at Lake Tarli Karng.

Rodney's leg had been ripped below the knee and the knee cap was shattered, but in spite of severe pain he was still cheerful.

At one stage the rescue party had to place Rodney on two tyre tubes and float him on the lake for half a mile.

"I was in pain," Rodney said, "and the water was nearly freezing. I was wet from the neck down but it did not seem to worry me."

On his arrival at Licola, Rodney was asked whether he would go back to the Lake on another walking trip. "It is a beautiful place," he said. "Next time I hope to enjoy myself."

Rodney is pictured above shortly after his arrival at the Heyfield and District Bush Nursing Hospital.

Meat Industry Needs Research

Australia's meat industry in the next few years would be in a "perilous" position if it did not get more funds for research, Dr. J. R. Vickery, Chief of the Division of Food Preservation, said last month.

He said: "Lack of research into meat will affect our competitive position in our struggle for world markets."

He was speaking at Mascot airport after his return from the first International Conference on Food Science and Technology in London.

He also attended a meat research conference in Moscow.

Dr. Vickery said Australia's research into meat was good but far too small.

He said: "It is not commensurate with the technical problems in our struggle for world markets in the coming years."

Australia had about 12 men working on meat research on a current grant of £45,000, Dr. Vickery said.

He said: "Other countries smaller than Australia and less dependent on meat as an industry spend up to 10 times as much as Australia."

Britain was building a £500,000 meat research institute in Bristol.

Russia had several big research institutes, the central one employing a staff of more than 700 people.

Dr. Vickery said the meat industry greatly needed more funds and facilities for training first-class research workers.

He said: "As soon as the Common Market becomes an established fact the problem will hit us fairly and squarely in the face."

The condition and quality of meat could be improved before it was sold overseas, Dr. Vickery said.

Dr. Vickery said Russia was far ahead of the rest of the world in meat preservation processes.

Universities for Country Areas

The need for university graduates was the most urgent problem facing Australia, Mr. E. R. Hoare, Officer-in-Charge of the Irrigation Research Station, Griffith, said last month.

He was speaking at a meeting at Albury to form a Riverina University League committee.

Mr. Hoare said the only action being taken was to refer the problem to select committees.

To double production to feed the population in 30 years' time, Australia had to start now to provide men trained in research and technology, he said.

Australia must realise her responsibility to provide graduates for her own needs and for East Asian countries.

England was spending many millions on small new universities and Australia must do likewise in the rural areas, he said.

President of the league, Dr. W. Merrylees, said the ratio of city to country students who received a university education was two and a half to one.

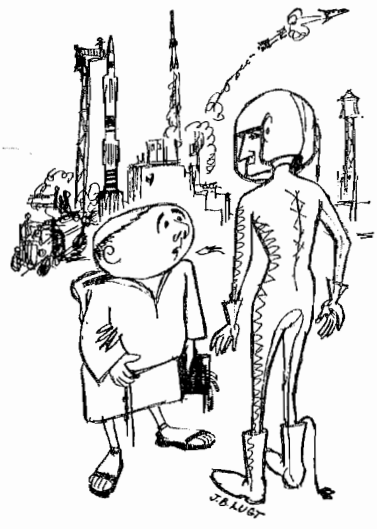
He added that there were 300,000 people in the Riverina to support a university.

OVERSEAS VISITS

Dr. D. F. Stewart, Associate Chief of the Division of Animal Health, left Australia last month for a short visit overseas. He attended an international meeting on helminth infections at the University of Maryland, U.S.A., and is returning home via England and Europe.

Dr. J. S. Turner, of the Division of Radiophysics, left Australia in October to take up a twelve months Fellowship at Woods Hole Oceanographic Institute, Massachusetts. He will study in the field of interaction of the ocean and the atmosphere.

Dr. D. F. Waterhouse, Chief of the Division of Entomology, made a short visit to Rome last month. He was a member of the Australian delegation to an F.A.O. meeting on pesticide residues.



"I'm sorry, I thought your advertisement was for a missal expert."

Courtesy "The Bulletin".

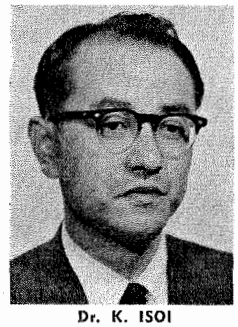
New Appointees

Dr. N. Fukuta has been appointed to a twelve months Research Fellowship with the Division of Radiophysics. A graduate of Nagoya University,

Dr. N. FUKUTA

Japan, he has just spent a year at the Department of Cloud Physics, Imperial College of Science and Technology, London. He visited laboratories in the United Nations en route to Australia.

Dr. K. Isoi has joined the staff of the Division of Forest Products on a two-year appointment. A graduate of the University of Kyoto, he has

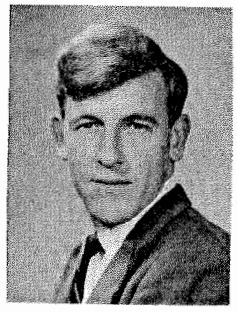


Dr. K. ISOI

been a Research Assistant in the University's Department of Pharmacy. In Australia, he will work on the chemistry of wood exudates and extractives.

Mr. A. D. Johnson, a graduate of the University of Queensland, has joined the staff of the Tobacco Research Institute at Mareeba where he will assist with studies on the nutritional requirements of the tobacco plant. Mr. Johnson was formerly with the Queensland Department of Agriculture and Stock.

Mr. E. W. Pook, an M.Sc. graduate of the University of Auckland, has been appointed to the staff of the Division of



Mr. E. W. POOK

Plant Industry. For the past two years he has been on the staff of the Forest Research Institute at Rotorua, New Zealand.

Dr. T. Sadoh has been appointed to the staff of the Division of Forest Products. A graduate of the University of Kyoto, he has been on the

Dr. T. SADOH

staff of that University since 1957, lately as Assistant Professor. He won the 1962 prize of the Japan Wood Research Society.

Miss Nora Sproston has joined the staff of the Division of Fisheries and Oceanography. A graduate of the University of London, she has spent the last sixteen years in Asia. For three years she was in India, and for the rest of the time at various hydrobiology stations in mainland China. Miss Sproston is a Fellow of the Chinese Academy of Sciences.

Dr. A. J. Wapshere, a graduate of Exeter and Leeds Universities, has been appointed to the Division of Entomology. He will investi-

Dr. A. J. WAPSHERE

gate the effect of a cerambycid beetle which is being liberated in certain areas in Queensland against the important weed Noogoora Burr.

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