## Show . 022##1961 O R E S E A R C FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF NUMBER 22, MELBOURNE, JANUARY 1961

# Dr. WARK JOINS HE EXECUTIVE

The Minister in Charge of C.S.I.R.O. (Dr. Cameron) announced on 14th December the appointment of Dr. I. W. Wark to the Executive of C.S.I.R.O. Dr. Wark fills the vacancy created by the resignation of Professor L. G. H. Huxley, who was recently appointed Vice-Chancellor of the Australian National University.

Prior to joining C.S.I.R.O. in 1939, Dr. Wark had established himself as a brilliant physical chemist.

After an outstanding aca-demic career, which won him the degrees of Ph.D. (London) and D.Sc. (Melbourne) as well as numerous other scientific distinctions, he joined the Elec-trolytic Zinc Company of Aus-tralasia Ltd.

tralasia Ltd. During his thirteen years with the company he pioneered research on the principles un-derlying froth flotation, a pro-cess which is widely used in Australia for the separation of valuable minerals.

valuable minerals. This work, which culminated in the publication of a book called "Principles of Flotation", established him as a world authority on the subject. On joining C.S.I.R.O., Dr. Wark was entrusted with the formation of the Division of Industrial Chemistry and was soon designated Chief. When the Division was re-

soon designated Chief. When the Division was re-organized into a group of Divi-sions and Sections known as the C.S.I.R.O. Chemical Research Laboratories he became the first Director. For the time being, he will continue to act in this capacity. Over the last twenty years he has guided the development and growth of these Labora-tories, which are now recog-nized as one of the world's leading centres of basic and applied chemical research. Dr. Wark is a member of

Dr. Wark is a member of numerous scientific societies and institutions, and has ren-dered outstanding service to many of them. Among the more recent dis-tingtions conferred on him

Among the more recent dis-tinctions conferred on him were the Presidency of the Royal Australian Chemical In-stitute (in 1957-58) and an Honorary Membership of the Australasian Institute of Min-ing and Metallurgy (in 1960). In April of this year he was invited to London to deliver the Sir Julius Wernher Mem-orial Lecture at an International Mineral Processing Congress organized by the Institution of Mining and Metallurgy. At the present time Dr, Wark is Treasure of the Australian Academy of Science.



# **Advisory Council Appointment** Sir John Eccles, F.R.S., retiring President of the Aus-tralian Academy of Science, has been appointed to the

Advisory Council of C.S.I.R.O.

Sir John, who is one of Aus-tralia's most distinguished tralia's most distinguished medical research scientists, occupies the Chair of Physiology in the John Curtin School of Medical Research in the Aus-tralian National University.

Following his election as Victorian Rhodes Scholar in 1925, he spent ten years at Oxford. From 1937 until 1943 he was Director of the Kane-matsu Memorial Institute of Pathology at Sydney Hospital, and from 1943-1951 he was Professor of Physiology at the University of Otago, New Zea-land.

The Challenge f the North The severity of the Northern Perritory's challenge as a developmental potential is underlined

by the Forster Committee on Agriculture in the Territory. In its 250,000 word report,

a precis of which the Minister for Territories, Mr. Hasluck, released 1 a s t Hasluck, released last month, the committee is decidedly against any im-mediate establishment of agricultural settlement schemes.

schemes. This has taken some of the bloom off the rosier pictures of the Territory's potential in other scientific assessment. At present, the report says, agriculture closely integrated with the cattle industry offers the best prospects of promot-ing agricultural settlement. But, it warns, further inves-tigations are needed into pas-tures and fodder crop produc-tion. Pilot farms to delermine the economics of farm-scale established. If further investigations con-firm some preliminary experi-

Production should be established.
If further investigations confirm some preliminary experimental findings on cattle fattening there should be pilot farms to engage in fattening cattle on improved pasture over the west season.
The Forster Committee, appointed in July last year, comprised Dr. H. C. Forster, Profreesor of Agriculture at Melbourne University, Mr. C. R. Kelly, farmer and Liberal member for the South Australian seat of Wakefield in the House of Representatives, and Dr. D. B. Williams, Officer-in-Charge of C.S.I.R.O.'s Agricultural Research Linison Section.
Mr. Hasluck described the report as the most compremate of the Territory's agricultural potential.
Its statements of principles would be of permanent value for working on the development of the Territory, he said.
Reporting on the areas best suited to agricultural elsed:
An area of some 10,000 square miles running northised in land, including the existing Humpty Doo rice area.

The Marrakai Land System d the "Bull Dust Plains" and the "Bull Dust Plains" further inland. • The "top end" of the

• The "top end" of the Territory. • The Central Australia area, especially around Alice Springs. It recommended more re-search in the potential of these areas, such as pastures, rice, fodder crops, peanuts and cot-ton, and also into the problem of diseases of tobacco grown there. there.

there. Dealing with peanuts, on which C.S.I.R.O.'s experi-mental station at Katherine has done intensive research, the committee says the gap between the present Australian produc-tion of peanuts for oil milling and the Australian needs for peanuts oil is equivalent to about 15,000 tons of peanuts in shell. shell.

shell. On present evidence, the re-port says, the cost of peanut production at Katherine ex-ceeds the present world price of 4d, or 5d, per pound. But, it adds significantly, the economic use of peanut meal could change that situation. The precis does not elaborate this point, but the obvious use for the meal would be in cattle feed.

This point, but the obvious use for the meal would be in cattle feed. If pilot farms produce rice satisfactorily a marketing authority would be needed and most probably would have to operate in South-East Asia. The committee said a land development commissioner should be appointed to pre-pare the way for the pilot farms and to administer them when established. Farmers taking them up would have to accept direction on the crops to grow, but use their own methods and would be guaranteed a price return or a minimum wage in the event of crop failures. If private enterprise wanted to begin land development the commissioner should encourage it.—from "The Australian Financial Review."

A research officer's house at the Coastal Plains Research Station, Humpty Doo.

Sir JOHN ECCLES





A new monthly magazine of science is to be published in Australia in February. Called "The Australian Scientist" it will be similar in scope to "The Scientific American".

The new publication will be edited by Dr. E. P. George, Director of the Physics Depart-ment at St. Vincent's Hospital, Sydney.

Dr. George said recently that experts in all fields of scientific activity had promised to contribute.

Facts would be presented in layman's language and ex-plained at Leaving Certificate level,

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Dr. George added that the first issue would contain articles on nuclear physics and cosmic ray research, biology, medicine, civil engineering, and zoology.

Members of the magazine's editorial board include two C.S.I.R.O. men --- Dr. R. N. Robertson of the Executive, and Dr. A. S. Fraser of the Division of Animal Genetics



# CHRISTMAS COMES BUT ONCE A YEAR

Unfortunately "Coresearch" goes to press in December before most of the Organization's Christmas parties are held, but we are at least able to report in story and pictures on three of them.

On Friday evening, 9th December, the workshop's staff at the Division of Building Research held their Christmas barbecue in the grounds of the Division.

Chief organizers were Dick Reynolds and Peter Hume, ably supported by committeemen Stan Russell, Alf Rees, Les Jean, and Albert Schaffer. It was a beautiful, fine even-ing and arms 180 members of

ing, and some 180 members of the staff, wives and friends turned up.

Music was provided by a three-piece band led by Divi-sional clerk Len Chung on the saxophone.

At the Division of Forest Pro-ducts the annual children's Christmas Party was held at the Division on Saturday, 10th December.

Despite rising temperatures, 104 children, including 24 from the Children's Aid Society Home, and about 50 parents turned up to enjoy the fun.

While Sue Austin, who cap-ably organized the whole after-noon to the last detail, and her helpers prepared the party food, Wallace Hastie showed cartoon films in the Conference Room.

Danielle Hastie was a very ex-cited guest at the Forest Pro-ducts children's party.

After the party tea had been consumed, Father Christmas (John Barnacle) brought in his bag of gifts. The party ended with magician Ron Brooker successfully deceiving the

successfully deceiving the youngsters. Clearly it is very difficult to put anything over the sons and daughters of scientists; only by sleight-of-hand was Ron able to get away with his box of tricks complete.

On the 10th December the staff of the Division of Textile Phy-sics staged their second Annual Revue, in conjunction with Revue, in conjunction their Christmas Party and Dance.

The Revenue, entitled "The the Revenue, entitled "The Hermitage Morinolympics", oc-cupied about two hours and was used to give the audience a new angle on events of the year. year.

A new angle on events of the year. A staff member demonstrated how, on a recent overseas trip, he managed to obtain a unique specimen of hair from the famous Lorelei of the Rhine. The adventures of officers in Paris, the city of love, were also portrayed. Apart from these vignettes the audience saw the rescue of the fair maid Carrion by Red Robin Hood, were given an insight into methods of ap-pointment of staff, and listened with bated breath to an im-portant press release.

portant press release.



Careful research into the alleged antecedents of a num-ber of laboratory personalities led to an illustrated lecture which showed definite continuity of behaviour from convict days to the present.

These items and some music and song were greatly apprec-iated by an audience of over one hundred members of staff, their wives and relatives, Chefs Peter Hume (left) and Jack McKissack (right) dis-pensing chops at the Building Research workshop barbecue.

At Textile Physics Revue, M. Feughelman shows how he stole a lock of hair from the Lorelei (Mrs. A. Purdy),



## Overseas Visits

Dr. C. S. Barnes, of the Chem-ical Research Laboratories, left last month for a twelve months stay in America. He will work with Professor Djerassi at Stanford University, San Fran-cisco, on aspects of steroid chemistry.

chemistry. Dr. G. F. Bornemissza, of the Division of Entomology, left Australia in October for Munich where he is spending ten months at the Institute of Applied Entomology, Univer-sity of Munich. He is the holder of a 1961 Alexander v o n. Humbolt... Foundation-scholarship. Mr. E. L. Korr. of the Divis-

Mr. F. J. Kerr, of the Divi-sion of Radiophysics, left last month for Cordoba in Argen-tina. There he will attend a meeting of one of the sub-commissions of the Inter-national Astronomical Union, on the Magellanic Clouds. Before returning to Austra-

Before returning to Austra-lia he will spend a few weeks visiting radio-astronomy centres in the U.S.A.

#### D.A.O.'S MEET IN SYDNEY

A residential conference for Divisional Administrative Officers was held at the Oceanic Hotel, Coogee, New South Wales, from 7th-9th December.

7th-9th December. Delegates to the conference were R. W. Tracy (Soils, Can-berra), J. N. Clark (Entom-ology, Canberra), L. H. Dicken-son (Dairy Research), J. M. McMahon (Animal Health), P. C. Rawlinson (L.R.R.S., Canberra), M. Walsh (Animal Health), F. W. Blanksby (Soils, Adelaide), D. Thomas (Tropical Pastures), N. Seddon (Forest Products), G. W. Williams (Fisheries and Oceanography), J. Hanna (Metrology), L. Cuvet (Veterinary Parasitology Lab-oratory, Yeerongpilly), J. A. Pattison (Regional Pastoral Laboratory, Deniliquin), K. Wenham (Soil Mechanics, Syn-dal), J. Menzies (Food Pressr-vation, Cannon Hill). Five half-day sessions were held, at which were discussed "The Role of the Divisional Administrative Officer"; "Prob-lems of Staff Classifications"; "Divisional Expenditure Con-trol"; "Divisional Estimates";

"Divisional Expenditure Con-trol": "Divisional Estimates"; and "Works Programming". On the final afternoon dele-gates discussed a variety of of problems with a Head Office panel which included Messrs. D. T. C. Gillespie, R. W. Viney, L. Peres, and G. D. McLennan

Mr. David Thomas (Tropical Pastures) addressing delegates to the Conference. Seated beto the Conference. Seated be-hind is Mr. Noel Seddon (Forest



# TECHNICAL ASSOCIATION NEWS

Members are invited to comment on the following current activities of the Association. the Technical Officer would

#### Safety

Your Council regrets that a Central Safety Officer has not been appointed, but sincerely hopes that the position is soon filed. Recent discussions at Used Office have revealed

Recent discussions at Head Office have revealed the Executive's strong sup-port of the formation of Divisional Safety Com-mitees to develop advisory and education programmes. Some of the larger Divi-sions have already taken this step which, it is hoped, will become standard Divi-sional practice. Career Ranges

Career Ranges As the duties of many technical officers bear a close relationship to the duties of Experimental Of-ficers, the Association is seeking to have their pro-gression judged in the same way as Experimental Of-ficers, that is, by personal merit rather than by re-classification of the posi-tion. tion

The main obstacles to overcome are the natural limitations of some, and the diversity of starting points in their careers. Generally it is true that

be working at the same level as an Experimental Officer on the same salary, but the Technical Officer's field is more restricted. Anomalies in Staff Recommendations The Association has been

time Association has been concerned for quite some time about the tactics and techniques used by some Divisions in getting recom-mendations for reclassifica-tions accepted by Head tions Office. We feel that such an

proaches are misguided and incorrect, and that the only people who really suffer are the individuals who genuinely warrant reclassi-fication.

The present staff training conferences in Sydney and Canberra could well see the resolution of this problem, as the people concerned be-come more familiar with the methods acceptable to Head Office.

Head Office has reaffirmed its its offer to investigate specific cases where appar-ent anomalies are brought to their notice by the Association. \*\*\*\*\*

# A New Deep Water Sea Port for Victoria

"It is my proud and happy task," said Victoria's Governor, Sir Dallas Brooks, "as the representative of Her Majesty the Queen, to formally declare open this new port."

And so, on the 19th November 1960, the 126th anniversary of Edward Henty's landing at Portland, Victoria, the townspeople's dream of a deep water harbour was at last realized.

Although Portland has been a minor port for the export of wool, meat and dairy produce for many years, it was not until 1952 that the huge Port-land Harbour Project was com-menced menced.

The project involved the con-In project involved the con-struction of two massive break-waters to contain a deep water, all-weather port to handle the export of a vast quantity of primary produce from western Victoria, the Riverina and south-eastern South Australia, a large slice of hinterland that is as rich as any area in Aus. is as rich as any area in Australia.

tralia. At the opening ceremony, the Chairman of the Portland Harbour Trust Commissioners, Mr. K. S. Anderson, referred to the work of C.S.I.R.O. in assisting with the project, which has so far cost £6,500,000. For this project, like most other big civil engineering pro-jects, had been supported by a continuing programme of re-search.

search.

search. It was in 1954, two years after work began, that Dr. George Baker and the late Dr. A. B. Edwards began their study of the drift of sand on the ocean floor in the vicinity of the new port.

It was the task of the two men from the Mineragraphic Investigations Section to assess any likely danger of the harbour silting up in the future. Earlier detailed work by the Harbour Trust engineers had been carried out in a weather-board shed on the waterfront, where a thirty-foot scale model of the new harbour was housed.

Artificial waves of varying size could be generated to pound the model breakwaters. The effects of the waves, and weaknesses in construction de-sign, could be detected and remedied.

Some experiments on the drift of sand and silt were conducted in the scale model.

When it became necessary to extend the tests to the harbour itself the Mineragraphic Inves-tigations Section was asked to help. The first task was to find out

precisely what mineral and artificial substances were al-ready in these sands.

The detailed work involved here was long and tedious, requiring many patient hours at the microscope and a keen eye for the detection of the numerour types of mineral and artificial particles constituting the sands of the district.

Several different studies were made of the sand-mechanical analyses, solubility in acids, and separation of the particles by weight.

After 133,000 grains were examined, a great deal was known about the distribution of the forty-two mineral and artificial materials present. It was no surprise to find pulverized beerbottle glass among the artificial materials!

When all this work had been done, suitable "marker" materials were selected for dumping on the beaches and on selected parts of the seafloor.

Among the "markers" chosen were rutile from the east coast of Australia, pyrite concentrate from Norseman, Western Aus-tralia, and mill tailings from the scheelite mine at King Island.

In July, 1955, large five ton to twenty ton lots of markers were dumped on five chosen sites and for the next hundred days samples were taken from two hundred sampling sites.

The samples were treated at the Mineragraphic Section's laboratory to concentrate the markers, and the samples were then examined under the microscope.

The techniques used made it possible to detect one grain of mineral marker in 33,000,000 grains of matural sand.

Plotting the results of these investigations on graphs and maps provided valuable in-formation on drift directions and the times taken to reach the sampling stations under the known weather conditions for a particular season (winter) of one year (1955).

Portland is the only harbour anywhere for which the tracing of drift relative to projected Harbour works has been con-Harbour works has been con-ducted by techniques involving the study in great detail of the mineral composition of the sands of the harbour floor, the harbour beaches, and the more exposed ocean beaches in the neighbourhood.

neighbourhood. The results of the study, added to conclusions drawn from a more superficial in-spection of the physiography and geology of the region, and the trends of drift shown by the short--time-range-marker--min-eral tests, led the Chief En-gineer of Portland Harbour Trust to comment that the "test you have conducted is a re-markable advance in the study of this type of problem, and of this type of problem, deserves to be more wi known in scientific circles" n, and widely

The long main breakwater Portland harbour was in

years.

aerial view of the new deep water harbour being con-structed at Portland, Victoria.

#### originally planned to run almost on a meridianal trend from Battery Point.

In its nearly finished state, it now curves to the north-east at its seaward end, and is thus partly in line with the southwest to north-east main drift direction of sand, which was shown by the detailed mineralogical and tracer mineral study of the area.

Thus, basic information of this nature can be of considerable value when a harbour installation is designed to be effective-not-only-as-a-buttress to the onsurge of incoming waves, but also as a means of combating siltation — a silta-tion that seems to inevitably occur along many of the more exposed parts of Victoria's south coast wherever man-made structures are erected against onslaughts by the sea.

#### READING RAPID

An interesting experiment has just concluded at the Division of Forest Products, where, for the past six weeks, a group of Research and Experimental Officers has been taking part in an intensive course designed to improve their reading efficiency.

The graph below shows the progressive increase in reading speed and the maintenance of the initially high level of comprehension

The average increase in reading speed at the end of the course was 84%, with a range of from 35% to 284%. Five members of the group increased their speed by more than 100%.

Approximately half of the five hours training each week was spent on the Reading Rate Controller, a machine which puts gentle pressure on the reader to increase his speed.

covered The remainder theoretical aspects of the art of reading, timed practice ses-sions and the screening of a series of Harvard Reading Films.

Each film shows successive pages of a short story. At any given moment only one phrase on the page is in focus — the rest cannot be read.

Phrase come into focus serially, as they would be seen when reading a book, but with each film the "in-focus" phrase includes more words.

questionnaire has been distributed to members of the group to check the extent to which the improvement shown by the course figures has been reflected in their social and official reading.

If the results of the survey satisfactory, a further are course may be conducted early in 1961.



3RD WEEK

4TH WEEK

Dr. Robert Errol Wright of the Division of Plant Industry died on 4th November, 1960, at the age of thirty-three

Death of Dr. R. E. Wright

Dr. Wright joined C.S.I.R.O. in February, 1960, to initiate work on the genetics of *Rhizo-bium*. His appointment formed part of the recent expansion of the Division's research pro-gramme into *Rhizobium*-legume relationships which was aided by a grant from the Rockefeller Foundation. The general objective of his

The general objective of his work was to increase the host range and efficiency of nitrogen fixation in the *Rhizobium*-plant symbiosis - through - mutation-and recombination of the bacteria.

undergraduate studies at the University of Adelaide in 1943, and after service with the Royal Australian Navy from 1944 to 1946 he completed his B.Sc. in 1949. Dr. Wright commenced his

He worked as a research bio-He worked as a research bio-chemist with the Melbourne and Metropolitan Board of Works until 1952 when he went to the University of Wisconsin for post-graduates studies.

He completed his M.S. in biochemistry in 1954 and his Ph.D. in microbial genetics in 1957. During this period he unfortunately received severe head injuries in an automobile accident accident.

While studying for his Ph.D. he worked under Professor J. Lederberg, Nobel Prize winner in 1958.

After leaving Wisconsin he continued his work on respira-tory deficiency in yeast, first with Professor Ephrussi in Paris, and then at the Bacteriology Department of the Uni-

ology Department of the Uni-versity of Melbourne. From there he joined C.S.I.R.O. In the short time he was with the Division of Plant Industry, Bob Wright fully demonstrated his capacity as a scientist, and his sincerity as a friend. His untimely death is a loss not only to research and knowledge but also to his many friends and colleagues. He leaves a widow and two

He leaves a widow and two young children.

# PERSONAL

Dr. G. Baker, Acting Officer-in-Charge of the Mineragraphic Investigations Section, has been elected a Fellow of the Mineragraphic Society of America

**Dr. F. G. Lemon**, Chief of the Division of Protein Chem-istry, has been appointed a member of the Australian Wool Testing Authority.

**Dr. J. R. Philip**, of the Division of Plant Industry, has been awarded a Nuffield Dominion Travelling Scholarship for 1961. He intends to work on problems of viscous and turbulent flow under Dr. G. K. Batchelor at Cambridge.

## Silver Medal

Dr. C. A. Anderson, of the Division of Textile Industry, has been awarded the Silver Modal of the Worshipful Com-pany of Woolmen, London.



COMPREHENSION

6TH WEEP

Dr. C. A. ANDERSON

The award recognizes Dr. Anderson's research carried out on lanolin when he was at Leeds University.

COURSE

1ST WEEK

2ND WEEH

## Discussion on Water

Scientists from several Divisions and Sections presented papers to a recent conference on "Water" organized by the Royal Australian Chemical Institute.

The conference was held at the Mayer Chalet, Warburton, Victoria.

toria. On the first day Dr. S. D. Hamann, Chief of the Division of Physical Chemistry, spoke on the effects of pressure on the structure and ionisation of water, Dr. J. A. Barker, of the same Division, gave a paper on the structure of water. Dr. Dw W Passner of the Dr. D. W. Posener, of the Division of Electrotechnology, presented an account of his work on the microwave spec-troscopy of water vapour.

#### Timber Seasoning

Mr. Fred Wee Chwce Seng is spending six months with the Division of Forest Products studying timber preservation

studying (initial generation and seasoning. Mr. Wee is from Kuala Lumpur in Malaya where he is employed as a timber grader with General Sawmills (Mal-aya) Ltd. of Petaling Jaya, a new industrial satellite town of Kuala Lumpur.

new industrial satellite town of Kuala Lumpur. He will be responsible for the installation and operation of preservation and seasoning plant on his return. Mr. Wee's visit is sponsored jointly by his company and Celcure (Aust.) Ltd., a firm specializing in timber preserva-tion.

In the afternoon Dr. G, F. Walker, Cement and Refrac-tories Section, spoke about the nature of water adsorbed by certain vermiculite-organic complexes.

On the second day the discussion was about water re-sources. Dr. C. H. B. Priestley, Chief of the Division of Met-eorological Physics, read a paper on water in the atmos-phere.

Mr. E. J. Smith, Radio-physics, described the Divi-sion's cloud-seeding work, and Mr. W. W. Mansfield, Physical Chemistry, discussed his work on evaporation control. Mr. L. S. Herbert, Chemical En-gineering, spoke about the de-sign of saline water distillation plants.

On the third day biological aspects of the subject came under discussion. Dr. J. R. Philip, of the Division of Plant Philip, of the Division of Plant Industry, gave a paper on physical aspects of water move-ments in porous materials, which included a discussion of the application of his work in this field to agricultural hy-drology.

Among those who acted as Chairmen of the sessions were Mr. Ian Brown and Dr. D. E. Weiss, both of the Division of Physical Chemistry.

# Timber Plant for the Philippines

In common with most other C.S.I.R.O. Divisions, the Division of Forest Products is called upon to provide specialist training under the Colombo Plan.

Recently, however, the Division's assistance under this Plan took a new turn when both the Philippines Forest Products Research Institute and the Forest Products Lab-oratory of the Department of Forests, Ceylon, indicated their need for pilot high pressure (1,000 pounds per square inch) wood preservation plants. The Commonwealth Govern-ment agreed to supply these plants through the Colombo Plan.

The Division has pioneered the treatment of timber at very high pressures, and Mr. F. A. Dale, an officer of its Preservation Section, drew up the speci-fications for these plants. The detailed design and manufacture were carried out by Vidor Engineering Pty. Ltd. of Newcastle.

of Newcastle. Acquisition of the experi-mental plants will enable both laboratories to carry out work on timber species which cannot be treated at normal pressures, and so help in the better utili-zation of their native timbers.

Operation of the Philippines plant will be under the control of Mr. J. B. Seguerra, who received training at the Division.

The photograph shows the plant installed in the Philip-pines laboratory, with Mr. David Ritchie of the Austra-lian Embassy. Manila.

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## STUDY OF EFFLORESCENCE



The Melbourne firm of Jaywoth Besser Ltd., manufacturers of concrete products, is sponsoring at the Division of Building Research an investigation of the cause and prevention of efflorescence in concrete.

This defect mars the appearance of concrete products by the formation of a white deposit.

The sponsors hope that means will be found for avoiding its occurrence in their new products.

An interesting feature of the investigation is that Mr. M. A. Hashem, a Colombo Plan Fellow from Pakistan, will participate in it. Mr. Hashem has been working in Australia for the past nine months gaining experi-ence in the testing of cement and other building materials materials.

He spent several months early this year at the Divi-sion of Building Research Ĺ

Mr. David Ritchie of the Aus-tralian Embassy, Manila, with the high-pressure treating equipment at the Forest Products Research Institute, Col-lege, Laguna. This is a Colombo Plan donation from the Australian Government F.P.R.I. to the

and he has since worked at various other laboratories, including those of the Com-monwealth Department of Works, the Metropolitan Water Sewerage and Drain-age Board, Sydney, and Southern Portland Cement Ltd., New South Wales. He is particularly inter-

Ltd., New South Wales. He is particularly inter-ested in this study of ef-florescence because of its occurrence in his own country, and consequently, arrangements were made for him to prolong his stay in Australia so that he could take part in this new re-search project. Our photo shows Mr. Hashem collecting a sample of efflorescence for analysis.

## **APPOINTMENTS** TO THE STAFF

Mr. B. K. Filshie has been appointed to the staff of the Division of Protein Chemistry. Division of Protein Chemistry. Mr. Filshie, a graduate of the University of Melbourne, will take part in a research pro-gramme investigating the structure of wool and other keratins using the electron miscrocente miscroscope.

Dr. J. B. Metchif, a graduate of the University of Leeds, has joined the staff of the Soil Mechanics Section. Before coming to Australia he worked in Canada as a National Re-search Council Post-Doctoral Fellow at Queen's University, Ontario. His work in Australia will involue the investigation of will involve the investigation of the physical mechanism of soil stabilization.

stabilization. Mr. G. C. Walker has been appointed to a position of Biochemist with the Division of Food Preservation. Upon his graduation from the Uni-versity of Nottingham, Eng-land, he gained a Ministry of Agriculture scholarship to un-dertake work in enzymology at the University of Bristol. While in Australia he will conduct investigations into the chemical and biochemical changes occurring in fruits during preparation and storage. Mrs. P. C. Zeleny has joined

during preparation and storage. Mrs. P. C. Zeleny has joined the staff of the Division of Physics for a period of six months. Mrs. Zeleny gradu-ated B.Sc. from Chulalongkorn University, Bangkok, and M.S. from Syracuse University, Syra-cuso, U.S.A. After graduating from Syracuse University she worked there as a research as-sistant for three years. Mrs. Zeleny's husband is attached to the Department of Physics at the University of Sydney.

#### RESIGNATION

Dr. J. L. Dillon, of the Agri-cultural Research Liaison Section, has resigned to take up a Senior Lectureship in Agricultural Economics at the Univer-sity of Adelaide. Dr. Dillon, who has been stationed at the Section's Canberra office, will take up his new duties on 1st February.

# **Poultry Breeding Success**

Hatching eggs of the C.S.I.R.O. "M" line of White Leghorus will be made available to State Departments of Agriculture. The Departments will be free to multiply and distribute birds to the industry, or to use them in their own breeding programmes.

Dr. J. A. Morris and his col-leagues at the Werribee Poultry Research Centre have been using both family and indi-vidual selection to breed the "M" line.

From 1947 to 1954 it was selected for absence of winter pause, in 1955 for size of clutch, and from 1956 onwards for high egg yield per hen bound housed

At the present time the flock is leading after 416 days in the third Random Sample Laying Test being conducted by the Victorian Department at Burn-bur Conductor ley Gardens.

The stage has now been reached where wider propaga-tion of the line is justified.

The "M" line has steadily increased its egg yield and this improvement has been accom-panied by a decrease in body weight and an increase in efficiency of food conversion.

The main deficiencies of the line are egg size and shell thickness. But these characters are highly heritable and if necessary can easily be im-proved, although at the ex-pense of slowing down further increases in egg production.

The Poultry Research Centre already supplies the Depart-ments of Agriculture in Vic-toria, South Australia, and Western Australia with hatching eggs from another of its lines: the randomly-bred, genetically-stable White Leghorn flock.

The three Departments use birds of this strain as controls in their annual Random Sample Laying Tests.

Year-to-year differences in the performance of this control line gives them a useful measure of the effects of en-vironment. line

Without this knowledge it is not possible to compare the results of one year's test with another, nor to compare results between different States.

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# LIBRARY 023##1961 ORESEARCI FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF --- NUMBER 23, MELBOURNE, FEBRUARY 1961

# CONSTRUCTION OF PHYTOTRON BEGINS

Construction of the main Phytotron building has begun in Canberra. The Executive has accepted a tender of £263,450 from the firm of K. D. Morris & Sons Pty. Ltd., and the building will be completed early in 1962.

The building will eventually be equipped with a hundred and forty specially designed glass cabinets in which various cabinets in which various species of pasture, crop, horti-cultural and other plants will be grown experimentally. will

In each cabinet the tempera-ture and day length can be varied. In some of them the use of artificial light enables the

varied. In some of them the use of artificial light enables the light intensity to be controlled. Without moving from Can-berra scientists will be able to find out what climatic condi-tions are essential for the growth of plants. They will also be able to study new species introduced from abroad and determine what localities in Australia will be suitable for them. And thirdly, plant breeders can attempt to breed plants suitable for the climate which prevails in any part of Aus-tralia, testing their experimental crosses in the artificially con-trolled climate cabinets. Prototype glass cabinets and the engineering equipment to control the climate factors have been under continuous test since 1958 when the Common-wealth Government announced its decision to finance the project.

wealth Government announced its decision to finance the project. Contracts for much of the equipment and the cabinets were let some time ago, and the engineering components will be ready at the time when the building is completed. Canberra, with well over a hundred plant scientists, most of whom are members of the Division of Plant Industry, is one of the largest plant re-search centres in the world. There are also many other scientists throughout Australia, in universities and in research stations, who will be anxious to use phytotron facilities. The phytotron is expected to plant research workers, not only from Australia, but also from other parts of the world.

#### **University** Jobs

University Jobs Dr. J. F. Loneragan has re-signed from the Division of Senior Lectureship in Soil Science at the Institute of Agriculture, University of Western Australia. He joined the Division in september, 1953, immediately on completion of a C.S.I.R.O. Studentship during which he worked on mineral nutrition with Professor Arnon at the University of California. Dr. J. H. Bradbury has re-signed from the Division of Senior Lectureship in physical chemistry at the Australian National University. He was awarded a C.S.I.R.O. Overseas Studentship in 1951, which took him to Birming-ham. Before joining C.S.I.R.O. in 1954 he spent a year at Harvard. Dr. Bradbury was the Rennin Medallist of the Royal Aus-

Dr. Bradbury was the Rennie Medallist of the Royal Aus-tralian Chemical Institute in 1957.

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Architect's impression of the new phytotron.

In particular, it is expected to attract post-graduate students and research workers from the Colombo Plan countries of South-East Asia.

Architects for the project are Messrs. Grounds, Romberg and Boyd of Melbourne, and W. E. Bassett and Associates, also of Melbourne, are the consult-ing applicates

The engineers, The engineering design of the equipment was carried out by the Engineering Section, Mel-bourne, in collaboration with the Division of Plant Industry.

The central theme will be sketched in a variety of ways by emphasizing either philo-s ophical, cross-cultural, economic, or technical ap-

The organizers have at-tempted to choose four sub-topics that lend themselves peculiarly to consideration from an international viewpoint.

an international viewpoint. Implicit and underlying many of the discussions will be assumptions regarding the nature of the scientific revolu-tion and the influence of rapid technological change upon nations and their international relations.

Authors and discussants will examine the reasons that lead organized societies to support research in science and to plan for the education of young men and women in the various fields of science and engineer-ion.

It is proposed to examine these problems in four separate sub-conferences, the main themes of which have been formulated as follows:

(a) Some problems of scientific and engineering education in newly developing countries.
 (b) Some problems of scientific and engineering education

(b) Some proving of curation tific and engineering education in countries with more ad-vanced technologies.

(c) Interactions of science, engineering and society.

economic, proaches.

relations.

ing. It is

Lord Casey to M.I.T.

Lord Casey, a part-time member of the Executive, has

been invited to attend an International Conference on

April as part of its centennial celebrations.

#### New Timber Preservative А

A new dry mix timber preservative, developed by the Division of Forest Products, is expected to find useful application in the New Guinea timber industry.

Much of the world's timber is preserved by a pressure im-pregnation process, whereby such toxic materials as copper, arsenic and chromium compounds are forced into the

They form insoluble sub-stances in the wood and protect the timber from rot and insect attack.

# The Division of Forest Pro-Ine Division of Forest Pro-ducts has developed a simple diffusion treatment whereby green timber is dipped into a concentrated preservative solu-tion and stacked wet to allow the preservative to diffuse into the wood.

A borofluoride - chrome -arsenic diffusion preservative was patented a few years ago by Mr. N. E. T. Tamblyn for use in New Guinea, but it has not been widely used because it needed to be compounded on the spot before using, an opera-tion rather beyond the capa-bilities of the average mill

More recently, Mr. R. Johanson and Mr. Tamblyn have further developed this preservative in a form which is stable in the dry state and more suitable for commercial manufacture. Before use it only has to be mixed with water.

The new preservative is expected to be of particular use for building lumber in New Guinea and other tropical countries where many species cannot be satisfactorily treated

by pressure impregnation but can be treated by diffusion. It is not intended for use in ground contact or where there is any considerable leaching hazard.

A patent application cover-ing the new formulation has been lodged and interested firms have been invited to enter which would allow them to manufacture and sell the preservative in Australia and New Guinea.

Three firms, Celcure (Aust.) Pty. Ltd., Hickson's Timber Impregnation Co. (Aust.) Pty. Ltd., and Borax Consolidated Ltd., have all been given licences.

As part of the agreement, the firms have undertaken to provide an adequate technical service to the industry.



Air hostesses study one of the exhibits they had to explain to visitors to the Australian Pavilion at the Lausanne Fair last September — a model of the radio telescope being built for C.S.I.R.O. at Parkes, New South Wales. From left — Elisabeth van Gurp of Sydney (Ansett-ANA), Rose Marie Winter, of Kyabram, Victoria (TAA), Helena van Pinxteren, of Sydney (Qantas), and Barbara Madeley, of Sydney (Qantas).



Scientific and Engineering Education, which is being organized by the Massachusetts Institute of Technology in (d) Implications of science and engineering for inter-national relations.

## It is in the last of these fields

# More of the Christmas Spirit

News of Christmas parties in various Divisions did not reach "Coresearch" in time for the January issue, so we publish short accounts of some of them here.

(comprising The Waite Club officers of the Division of Soils, the Wine Research Institute and the Waite Research Institute) held a Children's party on 16th December, and an adults' party on the following day.

President of the Waite Club this year is Dr. A. D. Rovira, of Soils, and Miss Dulcie Clarke is the Secretary.

The adult party was held in the ballroom of Urrbrae House, home of Dr. J. Melville, Direc-tor of the Waite Institute and part-time member of our Executive.

At the Division of Coal Re-arch a party was held on search a party was h Friday, 23rd December.

The only account we have of it is largely given over to a lyrical account of the menu, a formidable nine-course meal ending with Christmas cake and (unspecified) liquid refreshments.

Those still able to danced afterwards.

The Division is planning to hold a Children's Party as well next year.

The Division of Meteoro-logical Physics staged a num-ber of revue items at their party on 23rd December.



Singing waiters Dr. C. H. B. Priestley and Mr. N. E. Bacon performing at the Meteoro-logical Physics party.

Members of the staff were edified by an enactment of the traditional story entitled "Only a Poor Little Mill Girl" which starred Mrs. J. Foster as Sybil, Mr. Kevin Cain as Baggs the Butler, and Dr. A. F. Å. Ber-son as Murgatroyd, the villain.

Dr. Rovira's small son, Tony, seems more interested in the camera than in Father Christmas.

# amids a year with the Division of Plant Industry. His main interest is in lucerne breeding, and in addi-tion he will work on problems of biometrical genetics. Dr. Heinrichs' visit is the outcome of discussions with Dr. F. H. W. Morley during his visit to Canada in 1958. The visit has been arranged under a system of transfer known as the Canadian Gov-ernment Transfer of Duties, whereby workers are able to continue their research pro-grammes at centres other than their own headquarter labora-tories. tories. NEW YEAR HONOURS

Members of the staff noted with satisfaction that a number of people in scientific and academic life, as well as a number of friends of C.S.I.R.O., were honoured by Her Majesty the Queen in the New Year Honours.

The recipients included— Sir Henry Seymour Baker, Chancellor of the University of Tasmania (K.C.M.G.); Sir Wil-liam Gunn, Chairman of the Australian Wool Burcau (K.B.E.); Professor Sydney Sun-derland, Professor of Anatomy, University of Melbourne (C.M.G.); Emeritus Professor A. D. Trendall, Australian

**Borrowers** 

National University, a former member of the Advisory Coun-cil (C.M.G.); Mr. Philip Law, Director of the Antarctic Di-vision, Department of External Affairs (C.B.E.); and Dr. J. Vernon, General Manager of the Colonial Sugar Refining Co, and a member of the Advisory Council (O.B.E.).

Insured

substantial, and at the present

substantial, and at the present time outstanding loans exceed £50,000. Such loans will now not cause hardship to the borrower's dependents in the event of death. The premium costs will be horen by the Society until the

# VISITING SCIENTISTS Early in January, 1961, Dr. D. Heinrichs, Head of the Forage Crops Section, Research Branch of the Canadian De-partment of Agriculture, will arrive in Canberra to spend almost a year with the Gene-tics Section of the Division of Plant Industry.

Professor H. N. Barber, Pro-fessor of Botany in the Univers-ity of Tasmania and Chairman of C.S.I.R.O.'s Tasmanian State Committee, will spend his sab-batical leave with the Division of Plant Industry during 1961. He will work with the Plant Physiology and Genetics Sec-tions, continuing his investiga-tions on flowering time in peas and also will spend some time with Professor L. D. Pryor, Professor of Botany, School of General Studies, Australian National University. Colombo Plan Fellow, Mr. B. Soemitroadi of Indonesia, who is doing a master's project at

Scenitroadi of Indonesia, who is doing a master's project at the University of New South Wales, arrived at the Division of Forest Products in Novem-ber to be given approximately two months training in the test-ing of the paper-making poten-tialities of some Indonesian woode woods.

At the request of the Chief, Division of Utilization of the Department of Forests, Terri-tory of Papua and New Guinea, **Mr. G. McDonald**, a Senior Forest Ranger of that Department, is at present spending a month in the Wood and Fibre Structure Section of the Division of Forest Pro-ducts working on the identifica-tion of New Guinea species.

## Overseas Visits

Visits Mr. I. Langlands, Chief of the Division of Building Research, leaves next week for Europe and North America. Part of his tour will be on official business and he will also be taking furlough. Among his official visits Mr. Lang-lands will attend a conference of the International Union of Architects in London, a con-ference of the International Union of -Building Research Laboratories in Prague, and a meeting of Directors of Build-ing Research in Ottawa. Mr. A. L. Chapman, an officer of the Division of Land Research and Regional Survey stationed at the Kimberley Re-search Station, left last month for the United States. He will spend a year doing research at the University of California. Mr. A. J. Peck of the Divi-sion of Plant Industry arrived in England recently to take up a Divisional Studentship. He will study soil physics under Dr. E. C. Childs at the School of Agriculture, University of Cambridge.

of Agriculture, University of Cambridge. Dr. P. H. Springell, of the Division of Protein Chemistry, left last month in the "Southern Cross" for England. He will work for 12 months with Dr. A. S. McFarlane at the National Institute of Medical Research at Mill Hill in London on the use of radioactive tracers in protein chemistry. During the year Dr. Springell will attend a symposium on tritium, and an International Congress of Biochemistry at Moscow in August.



# TECHNICAL ASSOCIATION NEWS

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In December, 1955, our Association lost one of its foundation members in the Division of Radiophysics.

Our loss was insignificant compared with the loss suf-fered by his widow and three young children. During his career in C.S.I.R.O. Bill Rowe was

C.S.I.R.O. Bill Rowe was engaged in experimental work using a million volt X-ray generator from Sep-tember, 1945, until Decem-ber, 1947. He became ill in October, 1953, and his ill-ness was diagnosed as myeloid leukaemia.

myeloid leukaemia. He submitted a claim for compensation, claiming that the disease had been caused by over-exposure to X-rays in the course of his work. In June, 1954, he was in-formed that his claim had been received and that liability had been accepted by the Commonwealth. Bill Rowe died from the

Bill Rowe died from the disease in December, 1955. Our Association imme-diately became interested in diately became interested in this case as it was felt that, although his widow and children were eligible for Workers' Compensation, this was quite insufficient and that there were good grounds for bringing a case against the Commonwealth. A sub-committee of the Central Council of the

Central Council of the Association, comprising Mrs. J. Jones and Messrs. H. Flood and C. Fryer, was formed with a view to seek-ing legal advice on behalf of Mrs. Rowe. Also on this committee were Dr. W. N. Christian-sen, Messrs. K. R. McAlister and S. F. Smerd. At a lator date Mr. J. P. Wild also served on this sub-commit served on this sub-commit-

tce. Legal advice was sought rom a solicitor, who ad-vised that a writ for £20,000 damages should be served on the Common-wealth. This was duly done.

wealth. This was duly done. At this stage it was found necessary to give some assistance to Mrs. Rowe and a sum of 50 guineas was given by the Technical and Officers' Associations. Following many delays and frustrations the case has now here settled out of

been settled out of

now been settled out of court. On behalf of Mrs. Rowe we would like to express our sincere appreciation to the sub-committee, mem-bers of the Oflicers' Asso-ciation, and all others who helped to bring this case to a successful conclusion.

HIGHER DEGREES

Mr. R. C. Gifkins, of the Physical Metallurgy Section, has qualified for the award of the D.Sc. degree of the Uni-versity of Melbourne. He has also been selected by the Sydney branch of the Aus-tralian Institute of Metals as the first recipient of a medal and prize given by Major Fur-nace and Combustion Engi-neers Pty. Ltd. Two officers of the Division of Soils, both stationed at the Western Australian Regional



Mr. M. J. Mulcaby has ful-filled the requirements for the Ph.D. degree of the University of Western Australia and Mr. H. M. Churchward has qualified for the M.Sc.Agr. degree of the University of Sydney.

Mr. R. J. Taylor, of the Division of Meteorological Physics, has qualified for ad-mission to the degree of M.Sc. in the University of Melbourne.



#### when the position will be reviewed. borrower as well as the investor in the Society. This major step in the de-velopment of the Society, which is now in its fourth year of operation, is considered to be very timely. Half-yearly payments of in-terest for moneys currently held on deposit will be made at the end of February. operation, is considered to be very timely. Over the past 12 months the value of loans made has been

# On Survey in the Wilds of New Guinea

The New Guinea survey party of the Division of Land Research and Regional Survey recently returned after an interesting and varied field trip to remote mountain regions in Central New Guinea.

Heavy rain held the field party up at various points and their chartered Otter plane had to make an emergency landing at Baiyer River airstrip after spiralling up and down mist and rain-shrouded mountain gorges.

At Wapenamanda Mr. J. R. McAlpine (Transport Officer, New Guinea Survey) was anxiously waiting for the plane on the airstrip.

Dr. R. D. Hoogland, accom-Dr. R. D. Hoogland, accom-panied by Mr. R. Schodde on his first New Guinea survey, made immediate arrangements to set up a camp for the botanical collecting expedition. At the same time Mr. J, Saunders was setting up camp for his forestry investigations.

Local natives engaged to carry plant presses and camp gear for the survey team.

The main party at this stage included Messrs. H. A. Haant-jens, J. A. Mabbut (they stayed for the first three weeks only), Dr. R. G. Robbins and two new additions to New Guinea Sur-vey, Dr. G. K. Rutherford and Dr. M. J. Bik. During the later part of the survey Mr. J. N. Jennings, a geologist from the Australian National Uni-versity, joined the group as he was interested in the limestone country west of Wabag. Throughout the Western Highlands there are magnifi-cent views across rugged moun-tains, gorges and valleys, and these are recorded in the many Kodachromes brought back. In the early phases of the

In the early phases of the survey two jeeps, which were flown in by DC3 planes, trans-ported the party over the native built roads and bridges. Further west, where the topo-graphy is more rugged and the population sparser, access is by forest track. Much of this area is still restricted territory for travellers.

Only now is contact being



# Wood Anatomist from U.K.

Dr. L. Chalk, Reader in Wood Anatomy at the Forestry Department, University of Oxford, and a wood anatomist of world repute, was an honoured guest at the Division of Forest Products during December and January.

Dr. Chalk has been engaged in Dr. Chalk has been engaged in wood anatomical research for some thirty years and is co-author with Dr. C. R. Met-calfe of the two-volume text book "The Anatomy of Dico-tyledons". He is at present preparing Volume Three of this work. work.

At Forest Products he was looking at the anatomy of numerous species of New Guinea and south-west Pacific

Dr. Chalk (right) with Mr. H. D. Ingle checking wood ana-tomical features.

timbers represented in the Division's collection and which are not available to him in are not Oxford.

In addition, Dr. Chalk had discussions with various mem-bers of the staff, particularly those in the Wood and Fibre Structure Section.

All aspects of wood ana-All aspects of wood ana-tomical research are of definite interest to him as he has re-search students working under him on various aspects of the application of knowledge of wood anatomy to investigation of wood uncorreting wood anatomy to is of wood properties.





made with the natives and patrol posts being established.

Many a camp was made at altitudes of 9,000 to 10,000 feet above sea level, and dur-ing the colder nights the tem-perature dropped to freezing point.

point. Indeed, through much of the area surveyed the native popu-lation is severely limited by frosts. These kill off the sweet potato vines which provide the chief diet of the native population

Rain dogged the footsteps of the party and the last few weeks were spent literally slog-ging through the deep mud forest trails and swampy mountain basins,

The carriers engaged for this traverse finally went on strike, their feet soft and pulpy with the continual wet. They wanted to return to their villages but an offer to let them keep their issue shirts finally won the day.

At this stage Mr. Jennings, ho had not bargained for ud as well as limestone who mud escarpments, began writing long letters home.

As for the rest of the party, many a sole was seen flapping on heelless boots ravaged by

on heelless boots ravaged by stumbling over forest tree roots and sucking swamp mud. For the most part the native peoples are still isolated in their remote valleys and live a wholly primitive life. White settlement comprises Govern-ment patrol posts and a few missions in the wider populous valleys, but there are no planta-tions. tions

tions. Along the way empty cans were quickly converted into armbands and spaghetti labels adorned the bird-of-paradise headdress of many a native after the survey had passed that

way. When Kinduli village was reached far south of Laiagam a short and sharp dispute arose between three or four of the locals and the survey "boys".

A few spears were thrown into the ground near them to emphasise a point or two but the throwers immediately ran off into the bush.

That night a police boy stood watch at the party's tent and the next day the whole group moved off, keeping a wary eye out for possible am-bush.

It was not until later that it came out that the would-be at-tackers were among the locals who lined up the following day for recruitment as carriers and

for recruitment as carriers and indeed had been marching be-side the party all the time! The area shows a very com-logy and in places indicates that it had been formed under climatic processes different to those existing to-day.

At one point the natives spoke of a place where the

ground "cooked" and the party set off hopeful of discovering an incipient volcano. Sure enough they came on a 30 feet high grey mud cone in a field, but it was merely a vent for the escape of methane gas.

At least that was what Dr. Bik said it was, and for weeks after he could prove it. His eyebrows were singed off when he applied a match to the vent!

Very uniform soils have developed over most of the area, due to a large extent to the thick mantle of ash from ancient volcanic activity.

#### By Dr. R. G. Robbins

Pure stands of southern Nothofagus beech occur throughout the mixed montane forests and at 10,000 feet the true mossy mountain forest prevails. Higher still are the uninhabited alpine grasslands, many of which were visited. In the more remote valleys the whole process of degrada-tion into grassland following clearing of the forest for native. gardens could be demonstrated. Large areas are now covered

Large areas are now covered with tall Miscanthus sword-grass regrowth. Following the 1957 survey of the Wahgi Valley it was postulated that the area was once covered with oak forest, long since removed. It was interacting thereform

It was interesting, therefore, to find in the Sau Valley natives who were actively clear-ing a dense oak forest zone at 3,000 to 4,000 feet.

Dr. Robbins pressing plant specimens at the base camp while natives show a keen in-Robbins terest and co-operate by giving the native names.

A unique type of forest re-corded for the first time were podocarp pine belts occurring around the edge of mountain valleys.

These pine belts appear to have developed because of the damaging effects of severe frosts on the other forest species.

In one mountain valley the party came across a forest where all the crown branches

where all the crown branches of the frost-sensitive species were blackened and dead. The natives spoke of a "time belong cold too much" which caused this damage two years ago. Apparently in this way the "frost-sensitive species are killed off and replaced by the frost-hardy podocarpus pine. pine.

The survey culminated in a The survey cultimated in a three-hour survey flight by Cessna. In a few minutes the plane flew over mountain trails which had represented weeks of head foot elegand

which had represented weeks of hard foot-slogging. Messrs. Schodde and Rob-bins finished the survey by at-tending the UNESCO sympo-sium at Goroka, while the others returned by various routes to Canberra. As a result of all these labours there are now some 2,000 plant specimens, boxes of soil and rock samples and some 800 photos awaiting sorting, labelling and study in Canberra.

## **Society for Visiting Scientists**

The Society for Visiting Scientists, well known to many C.S.I.R.O. officers who have visited the United Kingdom, has just been honoured with the patronage of His Royal Highness, the Duke of Edinburgh.

Established in the spring of 1944, when Britain had the honour of welcoming many scientists from Allied countries, the Society for Visiting Scientists seeks to be a focus for all scientists visiting the United Kingdom, and to put them in touch with British scientists and with one another.

The Society aims to provide and encourage an active ex-change of scientific thought and discussion between scientists of the United Kingdom and scientists from overseas.

At the House of the Society, a lounge and library provide a place for meeting, reading, or writing, and there are in addi-tion a restaurant, a bar, and some residential accommoda-tion tion.

An information service is provided which is open to all visiting scientists, so that any scientist scientist arriving in this country can, if he wishes, pro-ceed at once to the House and be given such advice and in-formation as is available, and details of how he may apply for membership.

From time to time, discussion meetings are held on subjects of general interest to scientists.

Membership is open to scien-Memoership is open to screatists and others who have an interest in and a contribution to make to relations with scientists overseas.

Scientists from overseas are admitted to membership imme-diately on application after arriving in Great Britain.

# **Food Science Conference**

The new laboratorics for the Division of Food Preservation will be opened at North Ryde on September 18th. 1961. To mark the occasion a food science conference will be held there from 19th to 22nd September.

The conference will take the form of three symposia, each introduced by a distinguished food scientist and two general discussions led by panels of scientists. Topics for discussion will

include — "Chemical aspects of food processing"; "Factors affecting meat quality"; "Public health aspects of handling and pro-cessing of foods"; "Pood preservation and the organiza-tion of plant and animal tissues"; and "Trends in food research". A memorial to the late Mr

A memorial to the late Mr. E. W. Hicks, former leader of the Division's Physics Section, will be unveiled. the

The Conference is open to scientists, technologists and managerial staff from the food industry, and food re-scarch laboratories.

A number of twenty-minute papers are being delivered in each symposium.

Research papers on the chemical aspects of food would be welcome and titles should reach the Division of Food Preservation by April 1st. Persons proposing to attend the Conference are invited to write Conference are invited to write for registration forms and further information to The Chief of the Division of Food Preservation.

Dr. J. M. Bassett arrived this week on the "Orsova" to take week on the "Orsova" to take up an appointment with the Division of Animal Physi-ology. He recently completed his Ph.D. degree at the Uni-versity of Reading where his work was supported by an Agricultural Research Scholar-ship given by the firm of Huntley and Palmer Ltd.

Huntley and Palmer Ltd. Mr. G. H. Brown, a mathe-matician, has been appointed to the staff of the Division of Animal Genetics. Since gain-ing his B.Sc. degree and Diploma of Education from the University of Sydney he has been a High School teacher with the N.S.W. Department of Education. Education.

Mr. J. G. Bolton, who was a member of the Division of Radiophysics staff from 1946 until 1955, has re-joined the Division.

APPOINTMENTS TO STAFF

In 1955 he went to the Cali-fornia Institute of Technology, Professor of where he became Professor of Radio Astronomy and Director of the Radio Observatory. He has returned to Australia to take a leading part in the pro-gramme of research centred on the new 210 foot radio tele-scope at Parkes.



Dr. S. SUZUKI

Dr. S. Suzuki has been ap-pointed to a two-year Fellow-ship in the Division of Radiophysics. He is Head of electronics section of the r the electronics section of the radio astronomy group at the Tokyo Astronomical Observatory, University of Tokyo.



Mrs. G. E. Urbach has been appointed to the staff of the Division of Building Research. This will be the third Division of C.S.I.R.O. in which she has worked, as she has previously been with the Division of Food Preservation (1949-54) and the Division of Forest Products (1957-59).

Mr. D. L. Cotterell, who came to Australia from England six years ago, has been appointed to the Division of Metrology, From 1955 until early in 1960 he worked as engineer to the Yarrabah Mis-

sion in North Queensland, and more recently he has been on the staff of Austral Standard Cables Pty. Ltd. in Sydney.

Dr. B. R. Davidson, who has been appointed to a position of Agricultural Assessment Officer with the Division of Land Research and Regional Survey, graduated M.Agr.Sc. (Mel-bourne) in 1954 and Ph.D. (London) in 1957. Since 1958 he has been Lecturer in Agri-cultural Economics at Egerton Agricultural College in Njoro, Kenya.

Miss E. E. Dickason has joined the staff of the Library at the National Standards Laboratory. Since graduating B.Sc., Dip.Ed., from Melbourne she has been teaching science at the Emily McPherson School of Domestic Economy in Melbourne.



Dr. D. WILLIS

Dr. D. Willis has joined the staff of the Division of Physical Chemistry. After taking his M.Sc. at Sydney in 1954 he was awarded a C.S.I.R.O. Overseas Studentship and proceeded to the Dyson Perrins Laboratory at Oxford, where he worked for his doctorate. For the last two years he has been a research chemist with I.C.I.A.N.Z. Ltd.

Mr. M. T. Dupree, a graduate member of the Institute of Chemical Engineers, will shortly arrive in Australia to take up a position with the Chemical Engineering Section. He has been, since 1951, on the staff of the Explosives Research Development Establishand ment in England.

T. E. Treffry, who recently graduated in agricul-tural science at the University of Sydney, has joined the staff of the Division of Plant In-dustry. He will study the up-take of specific mineral elements by plants.

# SELENIUM DEFICIENCY

Farmers in some parts of New Zealand were having trouble with "white muscle disease" and general unthriftiness in sheep, according to Mr. M. L. Learny, a research officer with the New Zealand Soil Bureau. The disease only occurred on heavily depleted soils.

Mr. Leanny arrived in Tas-mania last month to do soil survey work with C.S.LR.O. as part of an exchange pro-gramme of soil scientists be-tween Australia and New Zea-bard. land.

Before leaving New Zealand he was working in an area where white muscle disease was prevalent.

valent. The disease was found to be caused by a deficiency in the soil of the element selenium. The deficiency was in turn caused by a depletion of the

caused by a depletion of the soil by heavy crop-cultivation, and the disease occurred in-tensely on farms where cropping had been carried out for upwards of sixty years.

for upwards of sixty years. About eleven years ago im-proved pastures had been intro-duced and stocking rates of about three sheep to the acre were common

about three sheep to the acre were common. Mr. Leamy said that in 1957 the first signs of the disease were noticed. The worst hit farmers almost went bankrupt, said Mr. Leamy. Lambing percentages were as low as 25 per cent. Control of the disease was tricky, he added, because an application of an excess amount of selenium on the soil could cause sterility problems. Drenching of each individual animal was being practised.

However, the control However, the control of white muscle disease was still only in the experimental stage, said Mr. Learny. A great deal of work was being done on the problem, especially by the New Zealand Department of Agri-culture culture.

Mr. Learny will be stationed in Hobart for part of the nine to twelve months he expects to be in Australia. He will also be in Australia. He work in Queensland,

Dr. L. M. Fitzgerald arrived recently in the "Oriana" (on her maiden voyage) to take up a position with the Division of Physical Chemistry. An M.Sc. graduate of Melbourne he has been for the last three years in Oxford, working for his D.Phil. whilst on a Shell Postgraduate Scholarship. whilst on a Scholarship. Second Housing Society

Dr. L. M. FITZGERALD

The Commonwealth Savings Bank will provide immediately £100,000 of housing finance for C.S.I.R.O. employees in Melbourne. This was announced last month by Mr. Stewart Irwin, the Bank's Manager for Victoria.

The money is being made avail-able through the C.S.I.R.O. No. 2 Co-operative Housing Society Limited.

For some years the Directors of the C.S.I.R.O. No. 1 Co-operative Housing Society (which is now fully subscribed) have been trying to obtain finance for a second Society.

The recent announcement by the Commonwealth Savings Bank is particularly pleasing as it has come at a time when housing finance is more difficult to obtain from other lending institutions. The Directors of the C.S.I.R.O. Co-operative Hous-ing Society are:

Mr. G. W. Lanigan, Fodder Conservation (Chairman).
 Mr. R. C. McVilly, Head Office.
 Mr. R. W. Viney, Head Office.

Mr. R. S. Products. R. S. T. Kingston, Forest Mr. K. Hirst, Forest Products.



Following the visit by senior members of the Division of Electrotechnology to the Russian survey schooner "Zarja", a group of Russian scientists were shown some of the facilities for magnetic research in the Division and in several of the Sydney University Departments. The "Zarja" is a three-masted schooner specifically designed for geo-magnetic survey work. The pholograph shows some of the visitors in discussion with Divisional officers. The Chief Scientist of the expedition (B. M. Matveev) is in the front row, second from left.

From the Cook Pot

A wandering bird, a hungry native with a bow and arrow, and an observant missionary combined to cause a stir of excitement a few weeks ago in the Wildlife Survey Section.

The bird, a white ibis, was shot by a hungry native with his bow and arrow in the swamps of the New Guinea delta, north of the Fly River.

The observant missionary was Mrs. Eva Standen, from Bamu River Mission, which calls itself the Mission in the Mud.

An aluminium hand was fixed to the bird's leg and the native, fearing evil spirits at work, brought the banded leg to the Mission in the Mud to reassure himself about what he had eaten.

Mrs. Standen saw that the band had printed on it a number and a request to write to Wildlife, C.S.I.R.O., Canberra.

She did this, thereby giving ornithologists their first proof that the white Australian ibis travels outside Australia,

The ibis which ended in a New Guinea cooking pot had been banded in December, 1958, in Kerang, Victoria, by Mr. David Dent, a local farmer and amateur ornithologist.

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

# **Cattle Turn-Off From North May Be Doubled**

Sixty-five delegates from all over Australia attended a Northern Territory Scientific Liaison Conference from 2nd - 8th February. The Conference, which was convened jointly by C.S.I.R.O. and the Northern Territory Administration, was held at the Fanny Bay Hotel in Darwin.

Sixty papers were read at the Conference, and dele-gates had the opportunity of taking part in excursions, by land and by air, to Humpty Doo, the Adelaide River, and to some of the Welfare Settlements in the Territory.

Territory. The conference was opened by the Hon. Paul Hasluck, M.P., Minister for Territories. C.S.I.R.O. was represented by the Chairman, Dr. White, by Mr. C. S. Christian, of the Executive, and by officers of the Divisions of Land Research and Regional Survey, Plant In-dustry, Tropical P as tures, Animal Genetics, Soils, Bio-chemistry and General Nutri-tion, Animal Physiology, Ento-mology, and the Wildlife Survey and Agricultural Re-search Liaison Sections. Mr. J. H. Whittem, Director

search Liaison Sections. Mr. J. H. Whitten, Director of Animal Husbandry in the Northern Territory Administra-tion, told delegates that the exattle turn-off from the Northern-Territory-4s-likely-to-double within the next ten-years if a sound policy of development is pursued and adequate resources in men, materials und research are nonadequate resources in men, materials, and research are provided.

No significant increase in the cattle population in the Alice Springs district is expected in the near future, he said.

But, over the next ten years, planned research and develop-ment could lead to a doubling in the turn-off.

Better transport, more water-ing points and the holding of . . . . . . . . . . . . . . . . . . .

country in reserve for drought periods are some of the require-ments if this increase is to be achieved.

More of the cattle turned off would be yearlings and/or weaner stores for fattening on improved pastures in the south. Cattle production in the arkly Tableland region is

Barkly Tableland region Is likely to increase considerably, according to Mr. Whittem.

He listed better husbandry, control of pleuropneumonia and other diseases, and strategic control of cattle tick as some of the main barriers to be over-come. Provision of shade is also an important need.

"The cattle industry in the Darwin/Katherine region offers the greatest problems to scien-tists and the greatest hope of increased productivity" Mr. Whittem said at the Conference.

At the present time, the great majority of the turn-off from these areas would be described in southern States as being in "backward store" condition.

For the industry to succeed here, cattle fattening must be established on a firm footing. In this regard, Dr. M. J. T. Norman of the Division of Land Research and Regional Survey, showed that much scientific information is already available. available.

He reported on experiments at Katherine which showed that locally bred cattle lost over 20 per cent of their live weight during the dry season.

In the wet season they gained weight rapidly but the overall annual increase in weight was

only a little over 100 lbs. On the other hand, cattle grazed on the native pastures and a protein concentrate gained weight during the dry season.

This pointed to the need for locally grown in proved pastures and crops which could overcome the nutritional de-ficiencies of the native pastures during each dry season.

Dr. Norman showed how improved pastures of Birdwood grass and Townsville lucerne could be used to fatten cattle during the dry season.

Silage from bulrush millet and sorghum grain could also be used, but less effectively.

Reports of the experiments by C.S.I.R.O. and the Northern Territory Administration showed that peanuts could be grown very well over a large area of land near Katherine.

C.S.I.R.O. is planning to make a survey of some 8,000 square miles of this country next June.

next June. Discussing the coastal plains enst of Darwin, Mr. W. Cur-teis, Director of Agriculture in the Northern Territory, told the conference that a more suitable tract of land for mechanical rice growing would be difficult to find anywhere in the world, especially as it is so close to a deep water port.

Mr. Curteis admitted that the Mr. Curters admitted that the rice industry, which is in its infancy at present, faced economic problems. However, more efficient production methods and high yields of better quality grain offered more hopeful prospects for the future. future.

1 Partie An aerial view of the Division of Land Research and Regional Survey's Research Station at Katherine.

During the course of the con-ference, scientists visited the coastal plains and inspected re-search plots at the C.S.I.R.O. C o a stal Plains Experiment

They saw small areas of new varieties of rice, some of which will do well under the condi-tions found on the coastal plains.

Station.

According to Mr. E. C. B. Langfield, Plant Breeder at the Station, sufficient quantities of the new varieties should be available for commercial pro-duction in two years time.

In suggesting that agricul-ture in this area could develop as a combination of rice and beef cattle, Mr. Curteis said that cattle might be grazed on the heavy clays of the rice country during the dry season.

As the wet season began, they would have to be moved to the adjacent higher land, and, after the rice had been harvested, they could be moved

back early in the following dry season.

An attempt is being made to find pasture plants which will improve the carrying capacity of this land, although the volunteer forage growing in the rice bays has been found to suit cattle.

The Northern Territory Administration has shown that Para grass will grow well in the rice country.

It may grow too well and become a weed in subsequent rice-crops-and-it-is-not-yet possible to recommend that both be used on the same land. Sorghum almum or Columbus grass is also showing promise.

Scientists at the conference were surprised at the rapid spread of Townsville lucerne through the higher rainfall areas of the Territory.

areas of the Terrilory. Optimism was expressed by Mr. G. A. Stewart, Chief of the Division of Land Research and Regional Survey, who said "We have been looking for years for an equivalent to subler-ranean clover for the Northern Terrilory. Now we have it in Townsville lucerne. It grows well on the higher ground near the coastal plains."

# **COUNCIL APPOINTMENTS**

The Minister-in-Charge of C.S.I.R.O. (Dr. Cameron) has approved the co-option of three new members to the Advisory Council. They are Messrs. W. W. Killough, J. W. Foots, and V. G. Burley.

Mr. Walter Killough, an American, is Chairman and Managing Director of the In-ternational Harvester Company of Australia.

Apart from his business interests he has taken a keen

interests he has taken a keen interest in technical education. He has been a Director of the U.S. Educational Founda-tion in Australia since 1954, and was a member of the Interim Council which took the first steps in establishing Monash University. He was President of the Aus-tralian Institute of Management in 1958.

Mr. Killough was awarded the O.B.E. in the recent New

Year Honours, Mr. Foots is the General Manager of Mt. Isa Mines Ltd. He is a graduate in mining

engineering from the University of Melbourne.

He is a member of the In-stitution of Engineers, Aus-tralia, and a Council member of the Australasian Institute of Mining and Metallurgy.

Mr. Foots also belongs to mining engineering institutes in the United Kingdom, U.S.A., and Canada.

Mr. Victor Burley is a Director of Cadbury-Fry-Pascall Pty. Ltd., in Tasmania.

He has wide interests in en-gineering and food technology, particularly dairy technology.

As a member of the Joint Research Committee of the world-wide Cadbury group he has travelled extensively during the last twelve years in England, Europe, America, and New Zealand.

Professor Samuel G. Wildman (right), Professor of Botany in the University of California, has arrived in Australia under a U.S. Government grant to spend nine months at the Division of Plant Industry. Professor Wildman, who has brought his wife and daughter with him, will study virus reproduction in plant cells with Dr. L. A. T. Ballard (left).





# Studentship Awards

The C.S.I.R.O. studentship selection committee announced last month the award of some 70 post-graduate studentships for 1961.

From 124 applications for Junior Studentships (for the honours year) twenty-four suc-cessful candidates were chosen. Thirty-three Senior Student-ship holders were chosen from 135 applicants, and from 36 135 applicants, and from 36 applications, 10 Overseas Studentships were awarded. In addition, three experi-mental officers in C.S.I.R.O. were judged to be of Overseas Studentship standard, and will go overseas this year.

He will assist the Executive in the formulation of policy with particular regard to irrigation

Mr. Penman, one of the Or-ganization's most experienced workers on irrigation problems, has been stationed in the Murray Valley for eleven years as Officer-in-Charge of the Commonwealth R esearch Station at Merbein.

He was the Senior Officer-in-Charge of C.S.I.R.O.'s Irriga-tion Research Stations.

research.

They are Messrs. S. J. J. Davies (Wildlife Survey), D. J. McLean (Radiophysics), and D. C. Shaw (Textile Industry). Mr. Davies is an Australian who graduated with honours in zoology from Cambridge in 1955.

Since joining the Wildlife Survey Section in 1956 he has studied the magpie goose in the Northern Territory, and more recently has been working on the emu and the black cockatoo

the war, when he was engaged on scientific work of national

He became Superintending Officer of the Munitions Supply Laboratories in 1944.

After the war he returned to

Transfer from Merbein

The Chairman, Dr. White, announced last week the transfer of Mr. Frank Pennan to Head Office.

importance.

in the hinterland of Western Australia. Mr. Davies will return to Cambridge in August to work with Dr. W. H. Thorpe at the Madingley Ornithological Field Station of the Department of Zoology

Station of the Department or Zoology. Mr. McLean, an honours graduate in physics from Syd-ney, joined the Division of Radiophysics last year. He has been working with Mr. J. P. Wild in the field of solar radio astronomy. Mr. McLean plans to carry out re-vearch on solar radio astronomy for two or three years at the Paris Observatory under Dr. J. F. Denisse.

Paris Observatory under Dr. J. F. Denisse. Mr. Shaw is at present on leave from the Division of Textile Industry. He is at the Department of Biochemistry, University of Cambridge, where he is work-ing with Dr. F. Sanger, F.R.S. During 1959 and 1960 Mr. Shaw has held a Hackett Scholarship from the Uni-versity of Western Australia. The present award will per-mit him to extend his research bridge to extend his research

#### his agricultural interests, hold-ing the position of Deputy Chief Chemist in the Department of Agriculture joining C.S.I.R.O. before for a further year.

#### £3,000 PRIZE John Russell, a member of the staff of the Division of

Building Research, won the big prize in the television programme, "Coles £3,000 Question" on HSV-7 last month.

He chose as his category classical mythology, a subject in which he has been interested since boyhood. After successfully negotiating

After successfully negotiating several preliminary rounds, he was asked the £3,000 question on 25th January. There were eight parts to the question, which required a de-tailed knowledge of the Labours of Hercules. Although only six of the parts had to be correctly answered, John unhesitatingly gave the correct answers to them all.

them all. John's professional work is involved with the application of automatic computing to struc-tural design, but lately his

hobby has been more re-munerative than his job. Last year he won £400 on a n o the r television quiz "Noughts and Crosses". He was followed on that programme by divisional photo-grapher, Eric Smith, who won a smaller but nevertheless sub-stantial, prize.

A stantier but nevertheless sub-stantial, prize. And, we understand, Eric is not going to be left out of "Coles £3,000 Question". He is due to appear shortly on the programme, taking as his cate-gory "The History of Film".

John Russell (right) being congratulated by Malcolm Searle, the compere

Dr. Wouters received the Gertrude Kumm Award from the Governor-General shortly before Viscount Dunrossil's death.

at the Lille and Sorbonne Uni-versities. He holds doctorates in philosophy and literature. Apart from English, he speaks fluently in Dutch, French, German, Italian, Spanish and Portuguese, and has a good knowledge of Hungarian, Scandinavian and Slavic languages. While touring Europe last year, Dr. Wouters gave a num-ber of lectures and radio talks in the Netherlands and Belgium to encourage migration to Aus-tralia.

tralia.

TV INTERVIEW

Convenor of cultural and national group functions for the Good Neighbour Council of New South Wales.

Honorary life member of the Federation of Hungarian Associations, the Slovakian Association and Polish Asso-ciption

Dr. Wouters was born in the Netherlands, and was educated

outstanding citizenship.

Association.

Dr. D. F. Martyn, Officer-in-Charge of the Upper Atmosphere Section, recently recorded a television interview with Mr. Michael Charlton and Dr. John

gramme was "Space Research"

The programme has already been shown in New South Wales, and is scheduled for 9th

#### Pan-Pacific

Miss Nancy Burbidge, of the Division of Plant Industry, has been elected Secretary and a member of the international executive of the Pan-Pacific and South-East Asia Women's Association.

Miss Burbidge, a West Aus-tralian, joined C.S.I.R.O. in 1946 when she was appointed to take charge of the herbarium at Canberra.

In 1952 she was sent to England for two years as the Aus-tralian Liaison Officer at the Royal Botanic Gardens, Kew.

She is president of the Can-berra Association of University Women and president of the A.C.T. Branch of the C.S.I.R.O. Officers' Association,

Dr. C. W. A. Wouters, an officer of the Translation Sec-tion, has won the 1961 Gertrude Kumm award for outstanding citizenship.
The award recognizes Dr.
Wouters' long and highly effective voluntary work to assist the happy seltlement of other newcomers to Australia.
Dr. Wouters is:
Past president of the Netherlands Society of Sydney.
Senior vice-president of the Netward Association. at the Lille and Sorbonne Uni-

The Gertrude Kumm Award The Gertrude Kumm Award is made each year through the generosity of Mrs. F. Gertrude Kumm, O.B.E., of Melbourne, to recognize outstanding citizen-ship by post-war migrants.

## NEW BUILDING

A contract has been let for the. the construction of a major new building for the Division of Textile Industry at Geelong, Victoria.

Victoria. A tender for £206,532 has been accepted from the build-ing firm of J. C. Taylor & Sons Pty. Ltd. The new building has been designed by the architectural firm of Buchan, Laird and Buchan Pty. Ltd. The cost is being met from Wool Research Funds. The contractor expects to

The contractor expects to complete the job within nine months.

#### INDONESIAN SCIENCE CHIEF

Professor Sarwono Prawiro-hardjo, President of the In-donesian Council for Sciences, will make a visit to Australia this month.

this mouth. He is expected to arrive on 23rd March, and will stay for about four weeks. Professor Sarwono will visit several C.S.I.R.O. Divisions and Sections as part of a busy programme which will take him to Melbourne, Sydney, Can-berra, Adelaide, and Perth. He also bopes to visit other government departments and laboratories, some university departments, and the Australian Academy of Science.

The Italian Embassy has an-nounced that the Italian Gov-ermment is offering a certain number of scholarships to Australian etitzeus who wish to study in Italy during the Academic Year 1961-62.

At least half of the scholar-ships will be reserved for study in scientific and technical subiects

Each scholarship amounts to f43 monthly, which is con-sidered sufficient to cover the cost of boarding and univer-sity fees.

Special facilities for travel by special factories for traver of sea will also be arre ged with the support and kind co-operation of the ttalian ship-ping lines Lloyd Triestino and Flotta Lauro.

Applications close on 31st March, 1961, Further informa-tion may be obtained from Head Office.



## **Cloud Physics Conference**

An International Cloud Physics Conference will be held in Australia from September 11th - 20th, 1961, under the joint sponsorship of the Australian Academy of Science and C.S.I.R.O. The Conference will be divided into two Sessions.

The first session will be held in Canberra, and will be a scientific one, devoted to the presentation and review of papers concerned with the physical processes which enter into the

ties for critical discussion on the methods, instruments and techniques used in cloud physics

It will also include flight and laboratory demonstrations of the techniques used in cloud physics and cloud seeding in-vestigations in Australia.

The Conference is open to all who are interested in funda-mental studies in the field of cloud physics.

024-1961

Simons. The subject of the pro-

and it is one of the series called "Horizons".

March in Victoria.

**OUTSTANDING CITIZEN** 



#### Mr. F. PENMAN

He will relinquish these positions and take up his new appointment at the beginning of April.

of April. Before joining C.S.I.R.O. in 1950, Mr. Penman had estab-lished himself as a research chemist of great ability. After taking the M.Sc. degree at the University of Melbourne under Sir David Rivett, he joined the Victorian Depart-ment of Agriculture. For research work carried

For research work carried out in the Department he won the Rennie Memorial Medal of the Royal Australian Chemical Institute in 1935.

He was seconded to the Ministry of Munitions during

# ITALIAN

# SCHOLARSHIPS

research.

formation of cloud and preci-pitation in its various forms.

The second session will be held in Sydney and will consist of a series of informal seminars, which will provide opportuni-

# Can a Hospital be Built on a Landslide?

To the average Australian, the term "landslide" doesn't suggest an event of any particular significance -- certainly of no personal significance. Disastrous landslides occur throughout the world; in alpine regions where rock slides can overwhelm men and buildings at speeds approaching 100 miles per hour; or in flatter country of glacial origin where millions of cubic yards of material can liquefy instantaneously and engulf human beings. But, in Australia?

The study of landslips ---- or more correctly the scientific study of the stability of natural slopes - has invariably coincided with the development of a mature outlook on soil mechanics.

In some countries — as, for example, in Norway — the pace of development has been forced by catastrophic landforced by catastrophic land-slips. In other countries, such as Australia, soil mechanics sups. In other continues, such as Australia, soil mechanics has developed on a broad front until sufficient knowledge has been gained to permit an awareness of landslip problems.

Over the past few years the Mechanics Section has Soil Mechanics Section has taken an interest in a number of Jandslip problems in Southern Australia. We now know that landslips are a fairly common feature of landscape development in many of the more humid areas of Victoria, New South Wales, and Tas-mania mania.

#### Two Questions

I wo Questions The investigation of the stability of any natural slope requires consideration of two main points. Firstly, there is the question of whether or not the slope is permanently stable. Secondly, if the slope is un-stable, what is the probable rate of failure of the slope? Given suitable facilities, an

rate of failure of the stoper Given suitable facilities, an exact answer can usually be given to the first question, al-though the required investiga-tion may be very expensive. The answer to the second ques-tion is much more difficult and, bethe more of the second ques-tion to more the second ques-tion to the more the second ques-tion to the second question to the second ques-tion to the second question to the second ques the moment, can only be yen in a qualitative sense. given

It is fortunate that Austra-It is fortunate that Austra-lian landslips seem to occur at rates of movement which are not dangerous to human life. The rate of movement varies over a period in any one slip but average rates are of the order of one inch to ten feet per year

There is usually no tendency There is usually no tendency for the rate of movement to accelerate after the onset of slipping. This fact, which is in sharp contrast to Canadian and Norwegian experience, provides Norwegian experience, howness an important safety factor. Movements at such rates should not endanger life and limb, but their effect on property may be quite disastrous.

#### Tasmanian Survey

The Soil Mechanics Section has recently undertaken a series of slope stability studies in the Launceston basin in Tasmania. Lawnreeston basin in Tasmania. The investigation began when a large number of houses in the Lawrence Vale area suf-fered actual or threatened destruction by a series of land-than the opposet buses house slips. Ten or more houses have been totally destroyed by land movements of the order of three feet (horizontally and vertically) while several hun-

red more houses seem to face the same fate.

As the investigation has pro-ceeded, it has become more apparent that the houses in the immediate vicinity are not the only buildings affected. Build-ings founded on sedimentary materials throughout the whole region may be in danger. So the investigation has been widened to embrace the whole of the Launceston basin.

#### **Hospital Site**

The concern felt by Launces ton people about landslir problems has come to a focus problems has come to a locus over the proposed construction of the new £1 million Queen Victoria maternity hospital. Because of this, the Soil Mechanics Section made an especially detailed study of the site proposed for the hospital.

#### By Dr. G. D. AITCHISON

Before any detailed soil mechanics work is undertaken in respect to any slope stability study, it is essential that the whole of the geological struc-ture of the site should be understood

understood. In the preliminary study of the hospital site the staff of the Soil Mechanics Section col-laborated with leading geolo-gists (Mr. E. D. Gill of the National Museum of Victoria and Professor S. W. Carey of the University of Tasmania) and with the geophysical branch of the Bureau of Mineral Resources. An extensive drilling pro-gramme was undertaken involv-ing almost 10.000 feet of bor-

ing almost 10,000 feet of bor-ing to define the geological ing to define the geological strata and almost 1,000 feet of undisturbed sampling for soil mechanics studies.

Much of this work was un-Much of this work was un-dertaken under extreme diffi-culties associated with the manoeuvring of a large drift rig in steeply sloping lances and backyards, and in attempting to make seismic measurements in competition with the rumble of boow. troffic heavy traffic.

heavy traffic. The hospital site, which is reasonably characteristic of much of the adjacent suburban area, revealed an interesting situation. About 200 feet of weathered sedimentary rocks — including layers of heavy slippery clays— overlies the basement dolerite. The whole succession of layers is tilted

Disaster for a home owner. This house in the Lawrence Valley area of Launceston has been damaged by a landslip to the point at which it is no longer habitable. Dozens of homes in adjacent areas are threatened with a similar fate.



downnill towards the river. The whole of the evidence, both from the geological and soil mechanics investigation, has suggested that movements are in fact occurring at the present time. Many of these slopes, including some fully populated suburban areas in-volving millions of pounds worth of property, appear to be on the verge of instability. Such a conclusion, if it re-

Such a conclusion, if it re-presented the final stage of an investigation, could give\_rise to considerable disquiet among people who live in the affected area and would certainly proarea, and would certainly pro-vide good reasons for rejection of any proposals for further development on any part of the area. Therefore — no hos-pital.

#### **Calculating Risks**

**Calculating Risks** But if reason could be made to prevail over alarm, a dif-ferent approach appears pos-sible. The first point to be realized is that, in defining the areas as currently unstable, the geological time scale must be involved. Thus the present time may mean the year 1961 or some time hundreds or possibly thousands of years hence. Any attempt to set the exact date for the onset of slipping (particularly for deep seated slips) may involve such a margin of uncertainty. -The second point to be ap-

The second point to be ap-preciated is that, as far as can be determined, the rate of movements have been and are quite low — perhaps of the order of inches per year. Many structures founded at some distance from the origin of such movements may there-fore tolerate the consequent deformations with little or no discernible signs of distress.

discernible signs of distress. The probability of damage to any particular structure, even in areas classed as cur-rently unstable, therefore rests on a dual chance. Firstly, the movement might occur during the lifetime of the building and secondly the building might be founded in a zone of accentuated movement(generaccentuated movement( gener-ally at a boundary of the the slipping mass).

The new technical problems posed by this dual uncertainty, though complex and apparently intractable, seem to be less important than the human problems which have been created.

created. Such problems as — who is to say what chance should be taken about the stability of foundations for a maternity hospital? Is it necessary to guarantee freedom from de-formation in the building for a thousand years or is the as-surance of comfort and safety for the patients sufficiently surance of comfort and safety for the patients sufficiently important? Is it necessary to abandon or devalue property because of a 1 in 10,000 chance of creeping destruction; or should such risks be calmby accepted by the population?

Answers are not yet avail-able to these human problems, nor to all of the technical problems of rate of movement and the location of boundaries of moving zones.

In the meantime a decision on the hospital site has been deferred; waiting partly on the accumulation of sufficient in-formation to define more closely the probability of



stability or instability of the site and waiting partly on a decision, at the level of pro-fessional responsibility, as to stability for such a building. As to a desirable probability of stability for such a building. A rational conclusion should be possible in the verv near future.

#### Other Places

The agonies of uncertainty about the ultimate stability of the hospital site in Launceston may not be unique in Aus-tralia. Other areas, affecting roads, bridges, railways and dams and, of course, a good deal of countryside, are be-lieved to be equally suspect and near require investigation. The knowledge-of-techniques and principles gained in the studies of the Launceston Basin may well be applicable to such areas. But even so

Drilling for landslip investiga-tions in Launceston. Approxi-mately 10,000 feet of drilling was undertaken with this equip

there is little chance of any quantitative study of a land-slip being undertaken without a major expenditure of time

a major expenditure of time and money. As a first.step towards the definition and study of these problem areas a Colloquium on the stability of natural slopes is being planned by the Section for the latter part of this year. Discussions should cover a broad field to reveal as much as possible of the known ex-tent-of-landstip problems in Australia, together with the techniques for their study and control. Contributions will be invited from all sources. control. Contributions will be invited from all sources.

# TECHNICAL ASSOCIATION NEWS

When our Constitution was amended late last year, a new clause was inserted which reads-

"Rule 3 (viii)-To protect the interests of exmembers of the Association who are no longer eligible for membership in respect to matters arising out of their employment with C.S.I.R.O. during their membership of the Association."

This action was fully vindi-cated when, on the 27th January, Ted Refoy, of the Division of Coal Research, died suddenly.

At a meeting of members at Coal Research a sub-committee of Central Council was formed to investigate ways and means of assisting his widow.

This committee decided that, as he was a returned serviceman, Legacy could prove of great assistance to his widow.

As she is partially crippled, a member of the committee took her to committee took her to Legacy Headquarters, where she has been registered. All benefits deriving from employment in the Com-

employment in the Com-monwealth Service are being fully investigated by this sub-committee.

## Motor Vehicle Accident

Motor Vehicle Accident Inquiry Committees Following representations made to the Department of Supply, which followed dis-cussions between this Asso-ciation and the Executive, permission has now been granted for an Association representative to attend as an observer in cases where

C.S.I.R.O. personnel are involved in accidents when driving vehicles belonging to the Department of Supply.

This representative will have the opportunity of questioning witnesses and, if necessary, may discuss with the Committee any matters arising out of the evidence tendered at the Inquiry. representative

This should be of great value to any of our members who are unfortunate enough to become involved in an accident when driving a De-partment of Supply vehicle. Divisional Safety

Committees Council is pleased to note the formation of a number of Divisional Safety Com-

of Divisional Safety Com-mittees on which members of our Association have been asked to act. This is in accord with the Association's policy and we look forward to the time when every Division will have its Safety Committee. As educational and ad-visory bodies, these Com-mittees will be most useful in minimizing the risk of accidents from a wide range of sources.

of sources.







Dr. M. C. Franklin, who is the William Mellrath Fellow in Animal Husbandry of the Division of Animal Physiology, transferred last month from the Sydney University farm at Camden to the Cunningham Laboratory in Brisbane.

Over fifty scientific and lay workers in beef cattle and sheep research farewelled Dr. Franklin at the Wentworth Hotel, Sydney, on 24th January, in appreciation of his world-acknowledged. 22 years research work in Australia.

Chairman Victor Cole (president, Australian Veterinary Association), toast proposers David A. Pratten (councillor, Royal Agricultural Society of New South Wales), Hugh McL. Gordon (McMaster Laboratory), and Sir Earle Page (former Prime Minister and Federal Treasurer, who was instrumental in the establishment the Council of Scientific Industrial Research) all and paid tribute to Dr. Franklin's expansive work.

They retold his arrival from New Zealand where he gradu-

Sir Earle Page making the pre-sentation to Dr. Franklin. Mr. Gordon is on the right.

ated, and Cambridge University, where he got his doctorate, his C.S.I.R. appointment at the McMaster Laboratory; his work in parasitology and other lab-oratory undertakings, his field work in drought feeding of sheep; and among other things his years of monumental work in beef cattle nutrition, especially in stud stock feeding.

Sir Earle Page, on making the presentation, told of the establishment of C.S.I.R. and good-naturedly lamented the reconstitution of what was in-tended to be a kind of university institution without the appendage of the "organiza-tion" with its annual budgetry and implied financial restric-

Dr. Franklin accepted the invitation to move to Queensland because of the wider field there for vital beef cattle research work.

He hopes to be joined soon by his former assistant, Dr. B. A. Panaretto.

# Irrigation Research Station. Griffith. He holds the M.A. 36

Mr. M. G. Brooker, a B.Sc.-Agr. graduate of the University of Sydney, has been appointed to the staff of the Division of Animal Genetics at "Gilruth Plains". Before taking up his appointment, Mr. Brooker worked on his parents' beef cattle property in N.S.W.

Dr. K. W. Clark, a Canadian

citizen, arrived recently to take up an appointment with the Division of Plant Industry. Be-

fore coming to Australia, Dr. fore coming to Australia, Dr. Clark, a Ph.D. graduate from Purdue University, was respon-sible for research related to evaluation of forage crops for pasture and hay use.

Mr. E. T. Linacre recently arrived from England to take

up an appointment with the Irrigation Research Station.

Mr. E. T. LINACRE

degree of Edinburgh University degree of Edinologin University and the M.Sc. degree of the University of London. From 1952-58 Mr. Linacre was em-ployed by the Safety in Mines Research Establishment of the Ministry of Power.

Ministry of Power. Mr. A. D. Donald has been appointed to the staff of the McMaster Laboratory, Division of Animal Health. Mr. Donald, who was born in Fiji, graduated B. V. Sc. from Sydney University in 1956. Be-fore joining the Division of Animal Health he was em-ployed as a Veterinary Officer with the Department of Agri-culture, Fiji. culture, Fiji.

Dr. R. B. Ellwood recently arrived in Australia to take up an appointment with the Soil Mechanics Section, Dr. Ell-wood graduated B.Sc. from the University of Manchester and recently obtained his Ph.D. from the University of Illinois. Before coming to Australia be Before coming to Australia he held the position of Lecturer in the Department of Geology at the University of Illinois.

Dr. A. R. G. Lang has been appointed to the staff of the trrigation Research Station, Griffith. Dr. Lang was for-merly on the staff of Austra-lian Paper Manufacturers Ltd. He graduated B.Sc. from Mel-bourne in 1953, and in 1956 went to McGill University in Canada, where he took his Dr. A. R. G. Lang has been Ph.D. degree.

The film illustrates the scope or agricultural development in The film illustrates the scope for agricultural development in Northern Australia and, in particular, the Tipperary Land System. It is designed for screening to the general public, rather than to a scientific rudiance

"Challenge of the North" be-

gins with a description of the country as the explorer John McDouall Stuart found it a

Stuart described the country as potentially "one of the finest colonies under the Crown", but

hundred years ago.

rather thaudience,

Film About the Territory

A new film entitled "Challenge of the North" has been

completed by the Film Unit and released for distribution.

Ingham, a Miss Susan <sup>f</sup>Miss Susan Ingham, a zoologist, has joined the staff of the Wildlife Survey Section. Miss Ingham, who obtained her BA, at Cambridge University, was previously employed as Biological Secretary of the An-tarctic Division of the Depart-ment of External Affairs.

APPOINTMENTS TO STAFF

Miss Nola G. Sharpe has taken up an appointment with the Division of Tribophysics. Miss Sharpe, who has just com-



Miss NOLA SHARPE

pleted her B.Sc. degree at the University of Melbourne, will work with Dr. Head on the calculation of the energy asso-ciated with different arrays of dislocations.

Dr. T. B. Post has taken up appointment at the Rockhamp-ton laboratory of the Division of Animal Genetics. Dr. Post is an American who completed his Ph.D. at Rutgers Univer-sity, New Jersey. His special interest has been in thyroid secretion in cattle.

Dr. N. Street recently arrived from America to join the Com-monwealth Research Station, Merbein. Dr. Street, who is a Ph.D. graduate of Melbourne University, has been Professor of Petroleum Engineering at the University of Illinois, U.S.A., since 1957. Dr. N. Street recently arrived

Mr. A. Saracz has taken up an appointent with the Divi-sion of Building Research. Mr. Saracz, who is an Associate of the Royal Australian Chemical the Royal Australian Chemical Institute, received his Diploma of Engineering in Chemical Technology at the Leningrad Institute of Chemical Tech-nology, U.S.S.R. Before join-ing C.S.I.R.O. he was employed by Dimet Pty. Ltd as .a re-search chemist.

Mr. M. K. Shaw has been Mr. M. K. Shaw has been appointed to the Brisbane Lab-oratory of the Division of Food Preservation. A B.Sc. graduate from the University of Queensland, he was working as a research assistant in the University's Department of Bacteriology before taking up his present position his present position.

## Swimming Sports

An Inter-Divisional Swimming Sports Carnival will be staged at the Melbourne City Baths on Wednesday night, 29th on We March,

Arrangements are in the hands of the Division of Forest Products, which was just beaten for first place by the Chemical Research Laboratories last vear.

The programme will consist of 25 events with a liberal sprinkling of novelty races.

Nobody really cares who wins as long as a good time is had by competitors and spec-tators alike.

Admission is by programme, which costs 2/-. For this small sum overworked scientists can be freed of all their worries and really get in the swim.

Members of the staff of Mel-bourne Divisions and Sections should see their social repre-sentatives for details.

## Overseas Visits

**Dr. L. M. Clarebrough**, of the Division of Tribophysics, left last month on an official mis-sion involving an absence from Australia of about five months. He has been invited to take part in a Gordon Conference in New Hampshire and will also visit the U.K., Sweden, Holland, France, and Germany.

Dr. D. P. Clark, of the Division of Entomology. left recently to spend three months overseas. The main purpose of his trip is to visit the Anti-Locust Research Centre in London, and he will also visit America, Europe, South Africa, and India and India.

Dr. A. J. Dver. of the Division of Meteorological Physics, left last month to spend six

#### **Return of Mr. J. E. Cummins** Mr. Jack Cummins returned to Melbourne last month after being overseas for twelve years. He will be

attached to the Secretariat at Head Office. Mr, Cummins has been on the staff of C.S.I.R. and C.S.I.R.O. continuously since 1929, and for two years before that he held a C.S.I.R.O. studentship.

He was on the research staff the Division of Forest Products for many years, but dur-ing the war he entered the administrative field.

administrative field. In 1948 he was appointed Chief Scientific Liaison Officer at London, and immediately after his arrival there led the Australian delegation at the Royal Society Conference on Scientific Information at which he was Chairman of a Section.

Subsequently he served on the two committees set up by the Council of the Royal Society to carry out the recom-mendations of the Conference.

During this period of six years in London he was asso-ciated with the active developciated with the active develop-ment of overseas recruitment of scientists in the U.K. and Europe, with the rapid growth of the C.S.I.R.O. post-war students programme, and with the post-war development of the Commonwealth Agricul-turel Dureaux. tural Bureaux.

He also represented C.S.I.R.O. and Australia at meetings of U.N.E.S.C.O., I.C.S.U., I.S.O. and other bodies.

After six years service in London he returned to Mel-bourne, but after a period of only a few months was posted to Washington as Chief Scien-

tific Liaison Officer and re-mained there until February, 1958.

In America he was associated with the extended development of Australian interchange of information with the various



United States Government

United States Government Agencies, such as the Depart-ment of Commerce and the National Science Foundation. Early in 1958 Mr. Cummins was seconded by C.S.L.R.O. to the newly created International Atomic Energy Agency where he was appointed as the first Director of the Division of Scientific and Technical In-formation.

During his three years with the Agency in Vienna Mr. Cummins established a Division of approximately 50 persons, coming from 22 different countries.

It is in colour, with sound, and | of 22 minutes duration. he did not envisage the setbacks that settlers would encounter from pleuropneumonia, cattle tick, and pasture problems.

The film shows how, in 1946, C.S.I.R.O. men (predecessors of the Division of Land Research and Regional Survey) went into the country to classify and describe it. The concept of "Land Systems" is clearly shown.

shown. Then comes the establishment of the Katherine Research Station, and the film shows in a series of natural and animated sequences some of the im-portant results which have been achieved there.

months at the University of California. He will work with the "Evapotron", an instru-ment invented in the Division and installed at California.

Dr. J. Ferguson, of the Divi-sion of Chemical Physics, leaves this month for the U.S.A. Dr. Ferguson will be away for twelve months, during which time he will work at the Bell Telephone Laboratories in the group concerned with the the group concerned with the chemical physics of coordina-tion compounds,

Dr. T. S. Gregory, Chief of the Division of Animal Health, made a short visit to New Zealand last month. He ad-dressed the Annual Conference of the New Zealand Veterin-ary Association, and visited a number of animal research laboratories. laboratories.

Mr. L. J. Lambourne, of the Division of Animal Physiology, attended a meeting of the New Zealand Animal Production Society last month. The meeting took place on the 14th, 15th and 16th February at Ruakura Animal Research Ruakura Animal Station, Hamilton.

Dr. J. R. Philip, of the Division of Plant Industry, left last month to take up a visiting Professorship at the University of Illinois. After leaving the U.S.A. he will take up a Nuffield Foundation Dominion Fellowship in the Department of Applied Mathematics and Theoretical Physics at Cambridge.

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



# F.R.S. FOR DR. R. N. ROBERTSON

Dr. R. N. Robertson, a member of the Executive, has been elected to a Fellowship of the Royal Society.

His election is in recognition of his outstanding contributions to the science of plant physiology.

For fourteen years, until he joined the Executive in 1959, Dr. Robertson was leader of the Plant Physiology Unit of the Division of Food Preser-

He and his colleagues made substantial contributions to our knowledge of three important processes — the absorption of minerals by plants, the respira-tion of plants, and the ripening and development process in such plants as apples, peas, tomatoes, and pawpaw.

Dr. Robertson will leave C.S.I.R.O. at the beginning of 1962 to take up the Chair of



Botany in the University of Adelaide.

He will then resume his re-search career in the field he left two years ago.

# **Changes at Fishermen's Bend**

The Executive has decided not to a ppoint a successor to Dr. I. W. Wark as Director of the Chemical Research Laboratories. Instead, the overall management of the Laboratories will be the responsibility of a committee of the Chiefs and Officers-in-Charge of the Divisions and Sections at Fishermen's Bend.

The new arrangement will follow the pattern operating in the Wool Research Laboratories and the Animal Research Laboratories.

First Chairman of the Chemical Research Laboratories is Dr. A. L. G. Rees, Chief of the Division of Chemical Physics.

Dr. A. Walsh has been de-signated Assistant Chief of the Division of Chemical Physics.

The Organic Chemistry Sec-tion of the Laboratories has been accorded the status of a Division. First Chief of the Division of Organic Chemistry is Dr. J. R. Price, who became Officer-in-Charge of the Section last year. last year,



Dr. A. L. G. REES

The organic chemists at Fishermen's Bend have covered a wide field since the former Division of Industrial Chemis-try was established in 1940. One main aim has been to find uses for materials which occur abundantly as virtual waste products in Australia, matterials such as sugar cane wax and wool wax. One of the most fascinating lines of work, carried out under Dr. Price's direction, has been the search for new drugs and alkaloids occurring in Aus-tralia's unique flora.

Many interesting alkaloids have been isolated and sent to pharmacologists for testing. Some of these alkaloids have proved to be poisonous to stock, a circumstance which has led to collaboration with the Division of Animal Health.



Dr. J. R. PRICE

The facilities of the Division

The facilities of the Division of Organic Chemistry include a Microanalytical Laboratory, which is situated at the Univer-sity of Melbourne. This laboratory carries out several thousands of analyses each year for research workers in C.S.I.R.O., the universities, and industry. and industry.



Mr. R. D. Cutkosky (right), a member of the Electricity Divi-sion of the U.S. Bureau of Standards, is spending three months with the Division of Electrotechnology.

with the Division of Electrotechnology. He is visiting the Division to see the work in progress on calculable capacitors and to discuss measurement techniques developed for an absolute determination of the olum. He has recently completed a similar determination at the Bureau of Standards in which much of the equipment was developed with the assistance of Mr. M. C. McGregor, an officer of the Division who spent six months with the Bureau for this purpose. We followed the set of the the Bureau for this purpose. The photograph shows Mr. Cutkosky and Mr. W. K. Clothier working with some of the Division's calculable capacitor equipment.

1948 as a member of a scien-tific goodwill mission. He re-turned with a reputation as an ambassador, with a new series to his already rich fund of stories, and being an inveterate collector, with a comprehensive set of Indian headgear.

set of Indian headgear. To his research men he al-ways transmitted enthusiasm, and also encouragement when they needed it. Being a man of understanding he was able to share their successes and failures alike, and to do battle for them when he thought it necessary.

It is the sincere wish of his many friends in C.S.I.R.O. that he will keep in touch with them and will enjoy the days which lie ahead. and will a lie ahead.

#### **Evening with Vice**

Dr. J. A. L. Matheson, Vice-Chancellor of Monash University, will address members of the Victorian Branch of the Officers' Association at their Annual Meeting this year.

Annual Meeting this year. The meeting will be held on 10th May at 7.45 p.m. in the Division of Forest Products. Dr. Matheson will outline his views on the relation of Uni-versity research to the work of C.S.I.R.O. and is looking for-ward to a lively discussion of these views. these views.

The Victorian Branch Com-mittee hopes that as many members as possible will come along.

# **Retirement of Mr. R. G. Thomas**

Mr. R. Grenfell Thomas, Chief of the Division of Mineral Chemistry, retired from the service of the Organization last week.

He joined C.S.I.R. in its early days as an officer of the Divi-sion of Animal Nutrision-Twelve years later in 1940 he became the leader of the Minerals Utilization group in the Division of Industrial Chemistry.

He has continued to lead the group, which attained Division-al status in 1959, ever since.

The following apprecia-tion of Mr. Thomas is con-tributed by his colleague, Dr. Allan Walkley.

Dr. Allan Walkley. Despite requests from all sides to carry on for a further five years, Thomas has been firm in his resolve to retire at the age of sixty. He leaves a Division well established and engaged on promising lines of work, many of which stem dir-ectly or indirectly from those he initiated on joining the Divi-sion of Industrial Chemistry late in 1940<sup>#</sup>

The developments which fol-lowed are well known and it is not the intention to refer to them here, but to reflect more on the nature of the man who has played such a large part in those developments.

So much of a man's career depends on the ideas and ideals of his formative years that we must turn back if we are to see how he came to acquire the remarkable fund of knowledge and the multiplicity of interests which characterize him.

which characterize him. When he entered the Univer-sity of Adelaide in 1919 to study Chemistry and Geology the science faculty was small, and those students who con-tinued for three or four years were thrown into close contact with one another and with the staff. It was here that Thomas got to know A. R. Alderman, H. R. Marston, and J. G. Wood.

All much of an age they became lifelong friends with in-terests both common and di-vergent in science and the arts. During these years he joined a

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party of anthropologists under Herbert Basedow who gave him the difficult task of caring for the horses on a long trek which took them as far as Birdsville and Innamincka.

This early introduction to the This early introduction to the outback was soon followed by geological excursions all over South Australia with Mawson and Madigan, who had them-selves lately returned from An-tarctica with all the fresh and first-hand knowledge of the southern lands.



Mr. R. G. THOMAS

In these impressionable years, at a time before specialization was as fashionable as it is to-day, such experience and such friendships could only have developed breadth of knowledge in one who had a thirst for knowledge.

Later his field work on mine-Later his field work on mine-ral nutrition took him to the south east of South Australia and to New South Wales, and still later in Victoria it was a regular thing for him to make weekend walking trips with his family into the country, par-ticularly into the old goldmin-ing areas. ing areas.

After graduating he joined the Radium and Rare Earth Extraction Company treating Radium Hill ores, and it was in the plant at Dry Creek just

north of Adelaide that he be-gan his first large scale experi-ments-on-the chemical-process-sing of concentrates containing uranium and the rare earths.

Fifteen or so years later when Dr. Wark singled him out to lead the Minerals Utilization Section he was to see similar work taken up again at Fisher-men's Bend.

men's Bend. It was also at Dry Creek that the advantages to Australia of completely processing its own minerals was forcibly brought to his notice, for after a pre-liminary separation the products were shipped to Germany, since the Germans were supposed to be the only ones who under-stood the complex process of complete separation.

While as a chemist he was always most anxious to see Australian minerals and mineral products developed, he would say he was pulled both ways, for as a geologist he did not like to see the deposits de-spoiled, particularly those that were unique were unique.

Joining the Division of Ani-mal Nutrition in Adelaide in 1928 he saw the early develop-ment of minor element nutri-tion with its great significance for this country.

In a predominantly biochemi-cal group he used his know-ledge of mineral chemistry and geochemistry to help decide which elements were likely to be rare or abundant in vege-tation grown on soils of differ-ent geological origin. Later it was always his ambition to see some of his own Division em-bark on a study of geochemis-try. try.

It is hardly surprising that with this background Thomas always encouraged his men to paint on a broad canvas. Nor is it surprising that his opinion was widely sought on many problems both in his Division and outside it.

For this very reason he was invited to India and Pakistan in

# Retirement of Mr. W. A. Empey

Mr. W. A. Empey, Principal Research Officer in the Division of Food Preservation, retired on March 28th, after over 32 years in C.S.I.R.O.

Mr. Empey, a graduate in Veterinary Science of the University of Melbourne, com-menced his career with the Victorian Department of Agriculture. He began his long culture. He began his long association with food technol-ogy in 1926, when he worked with the late Professor Young at Melbourne University on the problem of drip from frozen muscle on thawing,

It was there that he carried out his classic work on the effect of pH of muscle on drip. This research laid a firm basis for subsequent investigations of the problem.

the problem. Mr. Empey was one of the foundation members of the Sec-tion of Food Preservation which was set up at the Queensland M e at Industry Board's Abattoir at Cannon Hill in 1932, and he took an active part in bacteriological investigations which made prac-ticable the export of chilled beef from Australia to the United Kingdom.

During the war of 1939-45 Mr. Empey worked on food technological investigations concerned with the supply of food to the South West Pacific area.

In the post-war years he led a small group on the handling and processing of fish. Under his guidance, satisfactory can-ning processes were developed for some Australian species, notably the Australian salmon and tuna.

Football Club

The C.S.I.R.O. Football Club is seeking the services of Aus-tralian Rules players from the Melbourne Divisions and Sections. The club has once more entered a team in the Sunday Social Football Competition.

Matches are played at least once a month, and the teams play off for the Sir Ian Clunics Ross Memorial Shield, which is held by the premier side for one year.

Intending players will be cordially welcomed. They should contact the President, Alan Cross, or the Treasurer, Les Graham, at Head Office.



Mr. Empey was the first editor of the Division's chief extension organ "C.S.I.R.O. Food Preservation Quarterly", and was responsible for its

initial development. He fre-quently contributed articles to the Quarterly, and was a mem-ber of its Editorial Committee until his retirement.

Mr. Empey's colleagues in the Division, and representa-tives of the C.S.I.R.O. Execu-tive, farewelled him at a buffet tea at the Homebush labora-tories on March 28th.

## Research on Fiji Timbers

About eighteen months ago the Division of Forest Products was asked to help with the investigation of Fiji timbers. The request for assistance came from the Fijian Department of Forests through the Prime Minister's Department.

each

words.

Office.

In the indigenous forests of Fiji there are a number of species which have not been favoured, for various reasons, by the local market. When a better knowledge of their prop-erties is available, increased uses for them will probably be found. found.

This would require investi-gations into seasoning practice, preservative treatment, mech-anical properties and general possibilities for utilization.



As the Department of For-ests in Fiji is not equipped for this type of investigation, it was felt that C.S.I.R.O. would

provide assistance. Just recently approval has come from the Colonial Office to a co-operative scheme which will be carried out over a will be carried out over a period of three years, whereby the Department of Forests, Fiji and the Division of For-est Products, C.S.I.R.O., will co-operate in a programme of research into the properties of Fijian timbers.

## **TECHNICAL ASSOCIATION NEWS**

Members of our Association have expressed much satisfaction that news of the activities of the Organization is now being made available to all C.S.I.R.O. staff through the medium of this journal. "Coresearch" has now completed two years of publication and we are pleased to see that a high standard has been consistently maintained.

The great enemy of progress in research is boredom. To keep up our enthusiasm for the work we need to have a sense of urgency, and to feel that we are an essential part in a big undertaking.

part in a big undertaking. This was the feeling which enabled many people during the last war to carry out tasks which, under less com-pelling circumstances, would have been beyond their powers. How can this feel-ing be engendered under peace-time conditions? Some members of our As

Some members of our As-sociation feel that, apart from the general news of C.S.I.R.O. which we get from reading "Coresearch",

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it would be a good thing if staff of all grades were told by their Divisional Chiefs a little more about the ob-jectives of the research pro-jects in which they are tak-ion part ing part.

It is so easy, but such bad psychology, to regard those who are doing the labora-tory work as if they were almost a part of the in-struments they are operating.

struments they are operating. Our Association is, of course, much concerned with salaries and other financial matters; but it realizes that moncy is not everything. To be doing a job that we like and are personally interested in, is just as important.

Financial support for the Division's share of the work has been arranged through the Colonial Office.

Colonial Office. In order to discuss details of the programme of work and to see at first hand some of the practical difficulties, Mr. C. S. Elliot, Assistant Chief of the Division, recently spent a week in Fiji. He will organize the Division's part in the research programme.

Essay Competition

search and/or original thinking.

Asian Visitors at **Forest Products** 

This year will see a record

Inis year will see a record number of overseas trainees or research fellows at the Division of Forest Products. In addition to Dr. M. Hasegawa (Japan) and Mr. Fred Wee (Malaya) who have already been men-tioned in "Coresearch", the Division recently welcomed

bivision recently welcomed four new visitors who will each stay for a year. Mr. F. M. Lauricio, who is

a senior officer in the Forest Products Research Institute of the Philippines is to study developments in the field of

the Philippines is to study developments in the field of timber engineering and testing of timber structures.
Miss L. C. Paler, a chemist with the National Institute of Science and Technology of the Philippines, will study the testing of adhesives.
Mr. H. P. Rupasinghe, an inspector with the Directorate of Rural Development in Ceylon, and Mr. Mohammed Ali, an Inspector of Industries in East Pakistan, are both undergoing training in the field of timber seasoning, with a view to improving the standard of timber utilization in their respective countries.

# CHRISTENING PARTY

On Saturday, 18th March, the Division of Plant Industry christened its new wool shed at Ginninderra Experiment Station. Some 200 representatives of all Canberra Divisions and Sections of all age groups and occupations, let their hair down in one of the most informal and enjoyable parties C.S.I.R.O. has seen in years.

Nincly pounds of steak (well; butchered bovine), fifteen pounds of chops (full-mouthed but unbroken), and fifteen pounds of sausages (impossible to make them tough) went the way of all flesh over the five roaring fires in the yards.

Each pound of steak was ac-companied by half a gallon of foaming ale in an attempt to restore the energy balance of the crowd, which from the out-set was determined to enjoy itself and the magnificent au-tumn night.

The party was well con-ducted, but hardly decorous, and we are happy to report only one breach of the peace. This ended in the most satis-fying of draws when a noted microbiologist failed to force his opponent down a chute; the was unable to eject him in she was unable to eject him in like manner.

Conga lines wound their way eyed and dreaming dancers and vied with the rock 'n roll fiends for the clearer corners and with others for the darker.

Our casual cameraman roam-Our casual cameraman roam-ed through blood and fire to record the occasion. Some of his pictures have fallen to the censor's axe. "Coresearch" has reproduced one which evades the law of libel. Perhaps others have been reserved as illustra-tive material for Christmas cards.

cards. The Division is indebted to a small group of slaves (offi-cially known as a committee), whipped to work in a most competent fashion by all and sundry. Everyone is indebted to the field staff of the Station who, by unstinting work and generous help, ensured the suc-cess of the most bizarre of all parties, where the steak was tough, the facilities rough, and no-one complained. And all for half a suinea.

And all for half a guinea.

A group of guests around the barbecue.



# SYMPOSIA ABROAD

Dr. F. A. Blakey, of the Divi-sion of Building Research, leaves next month on a seven months' overseas visit. Dr. months' overseas visit. Dr. Blakey will attend a Symposium on Durability of Concrete in Prague, and will also visit the U.S.S.R., U.S.A., U.K., Hol-land, Germany, Denmark, and Sweden land, G Sweden.

Dr. R. G. Giovanelli, Chief of the Division of Physics, left for Europe last month. He is during which time he will at-tend the International Symposium on Solar Seeing in Rome.

Dr. B. Griffing, Dr. F. H. W. Morley, and Dr. B. D. H. Latter, all of the Division of Plant Industry, leave this month to spend a few weeks in the U.S.A. They will visit several States and will attend a Sym-

posium on Statistical Genetics and Plant Breeding to be held at the North Carolina State College, Raleigh, North Caro-lina. Dr Morley will return to Australia via Israel, where he will visit the Neveh Yaar Ex-periment Station periment Station.

Mr. A. F. A. Harper, of the Division of Physics, leaves this month for the U.S.A. While overseas he will attend a Sym-posium on Temperature, its Measurement and Control in Science and Industry to be held at Columbus, Ohio, and will act as Chairman of one of the main sessions.

Dr. A. C. Hurley, of the Division of Chemical Physics, will visit the United Kingdom for three weeks in April. He will attend a Quantum Chem-istry Conference to be held at Oxford.

# **KEEPING COOL IN HOT WEATHER**

The Engineering Section has developed a new method for keeping us comfortably cool in uncomfortably hot weather. It serves the same ultimate purpose as air-conditioning, but operates in fact without conditioning the air. In that sense it is new.

And if the method proves economical it may well revolutionize the entire business of cooling for human comfort.

Presenting their work to the Institution of Engineers, which held its annual conference in Mr. Melbourne last month, Mr. R. N. Morse and Mrs. Esther R, N, Morse and Mrs. Estuer Kaletzky first described and compared the various mech-anisms used by the human body to get rid of its surplus heat.

The two processes which are normally important for any object in air when it is hotter than its surroundings are con-vection and radiation. In the case of convection, air adjacent to the object becomes heated making it less dense.

The air rises, cold air flows in to take its place, and so a circulation is set up which carries heat away from the object. Obviously this can only work if the air is cooler than the blief the object.

Radiation is a fundamentally Radiation is a fundamientarily different process. A surface at any temperature loses energy in the form of electromagnetic radiation, exactly the same in character as the light from an electric lamp.

electric lamp. Everything and everyone is, in a sense, a little candle in this dark world, effusing a halo of light which unhappily is in the far infra-red part of the spectrum so no one else sees it. But the process is real enough and bodies cool down because-of-radiation-of-energy-as well as losing heat by con-vection. vection.

Unlike convection, radiation does not depend on the pre-sence of air. It would go on just the same if all the air were pumped out of a room.

Like convection, however, it does depend for its effective-ness on the temperature of the surroundings, not the tempera-ture of the air but that of the walls of a room, for instance, because they too must radiate in the same way.

For a body to be cooled by For a body to be cooled by radiation it must experience a net loss. It must lose more heat to the surroundings than it picks up from them due to their radiations, and this can only happen if the surround-ings are cooler.

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So far as convection and radiation are concerned, there-fore, we can say that a man in a room whose walls and air are at the same temperature as himself cannot get rid of the energy being produced within him by metabolism. His temperature would have to rise, and nature tolerates

to rise, and nature tolerates little fiddling with the temperature of organisms — particu-larly at the upper limit. Normal human (mouth) temperature, is about 98.5 deg. Fahrenheit, but at 106 deg. life ebbs away quickly. Well below that ex-treme the human is a very sick organism treme the organism.

Adapted from an article by K. Mather in the Melbourne "Age". 

However, this is not the en-tire story. Unlike inanimate objects, many species of ani-mals have sweat glands that enable them to bring moisture to the skin surface, and this provides the third important mechanism for getting rid of heat heat.

Sweat is evaporated. Evap-oration requires a definite quantity of energy. The body supplies the energy and is thereby cooled.

thereby cooled. All of us, when the days are warm, become fairly effi-cient steam generators. Just how efficient depends a good deal on the humidity of the air—which is why humidity plays such a big role in how "comfortable" we feel in hot weather weather.

weather. In dry heat, the cooling-by-sweating-principle works well-But when the air is laden with moisture (typical of the tropics, for instance) perspiration forms beads and rivulets down the body, evaporating only slowly, and we feel wretched.

The quantities can be con-siderable. On a hot day a man may produce more than a quart of sweat per hour—a point worth remembering; it justifies a respectable thirs!

If we now comprehend how the human body can lose heat the human body can lose heat by convection, radiation and evaporation, we can also devise ways of helping it. A fan blowing air through the room speeds up convection and evap-oration, but becomes useless in extreme conditions. Cooling the air by altering its humidity (air conditioning) hastens the heat loss by con-

vection and (because the walls become cooled, too), by radia-tion. Both are standard and well-known techniques widely

well-known techniques widely used for summer comfort. Mr. Morse and Mrs. Kalet-zky have followed a new ap-proach which emphasizes the radiation process. Called "radiant cooling" it envisages refrigerated panels set on the walls or ceiling of the room, sufficiently low temperature to greatly increase the normal loss of heat by radiation. The panels act essentially as "heat sinks" — something for persons to radiate to without radiating appreciable h e at themselves.

themselves. The aim is to remove be-tween 60 and 90 watts from a person under tropical condi-tions. (In round numbers, the rate of heat production by a person at rest is 100 watts, more for a person at work.) While the idea of using radiant cooling itself is certainly not new, C.S.I.R.O. has developed a practical engineering design. The neales themselves nosed

a practical engineering design. The panels themselves posed the major problems. Their sur-faces cannot be cooled below the dewpoint of air in the room, or condensation would occur. In the past, this meant there could be only a small difference in temperature be-tween the panels and the room (none at all under extreme tropical humidity), hence the area of panels required for comfortable conditions became inordinately large. The C.S.I.R.O. design com-

The C.S.I.R.O. design com-pletely avoids these troubles. Briefly, the scheme is to cover, the cold plate (typically 6 fts) by 4 ft.) with several layers of polythene which is transparent to the infra-red radiations but insulates the plate form air in insulates the plate from air in the room.

Panels are cooled by standard Panels are cooled by standard refrigeration equipment. The radiant cooling plant has been extensively tested in an experi-mental room at Highett using an "artificial man" in the form of a heated copper cylinder with the same area and heat output as protoplasmic man.

Economically also it seems promising. Three panels, each 24 square feet in area, installed in a room 19 $\frac{1}{2}$  ft. by 12 ft. by 8 $\frac{1}{2}$  ft. would use about 600 watts of power — roughly a third of the power to air-con-dition a room of this size by standard means.

It must be emphasized, of course, that radiant cooling is not air conditioning.

A radiant cooling panel, or "heat sink", built in the work-shops of the Engineering Sec-

One of its most attractive features for tropical architec-ture is that the rooms do not have to be sealed up. Ventila-tion is not restricted in any way, so houses with louvre walls to encourage air move-ment lend themselves to rad-iant coolers. iant coolers.

tion

One big question remains. Will human beings like it? Will they find comfort in a radiant-cooled room, or sleeping with a cooling panel on the ceiling over their beds?

Comfort is an elusive quality, and the "copper man" was necessarily silent on the big question.

C.S.I.R.O., is now co-operat-ing with the School of Public Health and Tropical Hygiene in the final stage of the experi-ments, using real people pro-ducing comment as well as heat

#### **Higher Education**

Recent exam. results provide ample evidence that the Sydney Administrative Office staff con-sider the need for higher edu-cation is paramount.

Twenty-one members of the clerical staff of seventy were actively engaged last year in obtaining higher educational qualifications. Of these 12 were attending University, 6 were matriculating and 3 were doing secretarial or accountancy courses.

These people sat for 71 sub-jects and obtained 3 distinc-tions, 6 credits and 52 passes.

**Dr. D. F. Stewart,** Associate Chief of the Division of Ani-mal Health, has been elected President of Section L (Veterin-ary Science) for the fortheor President of Section L (Veterin-ary Science) for the forthcom-ing meeting of A.N.Z.A.A.S. in Brisbane. Dr. C. Barnard, of the Division of Plant In-dustry, is President of Section M (Botany).

A.N.Z.A.A.S.

## Sabbatical Leave

Professor E. C. Crittenden, Jnr., Professor of Physics at the U.S. Naval Postgraduate School in Monterey, California, is spend-ing a period of sabbatical leave with the Division of Physics from January to May, 1961.



Prof. E. C. CRITTENDEN

He is working on an inter-mediate textbook concerned with the background physics of masers and related devices, con-ferring with Dr. G. S. Bogle, Mr. H. F. Symmons and others during his stay.

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# MOLECULAR MODELS

in C.S.I.R.O.



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and in *'*Punch''



# HERE ARE THE SIROS



A C.S.I.R.O. basketball team, named the "Siros", has been formed by girls at the Division of Textile Industry, Geelong, and is competing in the Geelong Unity night basketball competition.

The team has a keen, one-eyed, following from the staff, many of whom gave up their spare time to make a practice court, which is one of the reasons why the team now holds third place out of thirteen competitors.

Naturally, the girls are wearing uniforms which are made from Sironized light wool fabric with Si-ro-set pleats in pale green with gold trim. These have been given an extremely hard wearing test, including being worn in the rain, and still have that "just pressed" look.

# **Overseas** Visits

Mr. R. A. Duncan, of the Up-per Atmosphere Section, leaves this month for the U.S.A. He will be away for twelve months, during which time he will be working at the High Altitude Observatory, University of Col-orado orado.

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Dr. D. L. H. Gibbings, of the Division of Electrotech-nology, leaves this month to spend five months overseas. The main purpose of his trip, which will take him to North America, England, Europe, and

## **Double Honour for** Mr. C. S. Christian

On 14th March the Australian Institute of Agricultural Science conferred its two highest honours on Mr. S. Christian, formerly Chief of the Division of Land Research and Regional Survey, and now a member of the Executive.

Mr. Christian was awarded the medal of the Institute, and was elected to the Presidency for 1961.

The award of the medal re-cognized his outstanding work in assisting to develop the Nor-thern Territory.

"Mr. Christian," said the cita-tion, "took as his goal the agri-cultural exploitation of northern Australia. It is claimed that he has done more than any other man to help in the development now taking place there.

"In 1946 he was faced with the problem of devising survey techniques to cope with large areas of country quickly and cheaply. His answer was a system of land classification which has been widely recog-nized and is now being used overseas.

"His crusading work led to the establishment of research stations at Katherine, the Ord River, Alice Springs and Dar-win. These provided, under his under his information general direction, information on the possibilities of Northern Territory soils that has stimu-lated commercial development, including the huge Ord River irrigation scheme."

Japan, is to study new develop-ments in electrical measuring techniques and instrumentation. techniques and instrumentation. Dr. M. J. Mulcahy, of the Division of Soils, left last month to spend nine months in England. He has an appoint-ment as Honorary Research Follow at the University of Birmingham where he will undertake a field study of soils and geomorphology. Dr. J. R. Vickerv, Chief of

and geomorphology. Dr. J. R. Vickery, Chief of the Division of Food Preserva-tion, leaves this month to spend a week in New Zealand. The main purpose of his visit is to attend the official opening of the Meat Industry Research Institute of New Zealand's new hearsteries at Hervillon. Ho

Institute of New Zealand's new laboratories at Hamilton. He will also visit some research institutions, including the D.S.I.R. Fats Research Labora-tory at Wellington. Dr. R. F. Williams, of the Division of Plant Industry, leaves this month to spend five months overseas, during which time he will visit India, Burope, U.K. North America and Japan. The purpose of his trip is to make contact with research workers in the fields of plant growth, nutrition, and of plant growth, nutrition, and morphogenesis.

#### **U.K. VISITOR**

Dr. P. C. Spensley, Assistant Director of the D.S.I.R.'s Director of the D.S.I.R.'s Tropical Products Institute in London, visited a number of C.S.I.R.O. laboratories last month.

The Tropical Products In-stitute, which is situated in London, is concerned with the renewable resources of the tropics. Apart from a strong advisory branch, it carries out research in several fields, in-cluding food preservation, vege-table fibres, and solar energy.

Dr. Spensley, whose own scientific interests are chiefly concerned with solar energy utilization, visited the Engin-eering Section to discuss Aus-tralian work in this field.

He also visited the Chemical Research Laboratories and the Divisions of Food Preservation, Tropical Pastures, Plant Indus-try, Land Research and Re-gional Survey, Forest Products and Textile Physics.

# APPOINTMENTS TO STAFF

Mr. N. V. Ayres, who recently graduated from the University of Adelaide, has joined the staff of the Division of Soils. He will take part in chemical aspects of the new programme of research into the nutrition of pine trees. of pine trees.

Mr. P. G. Carruthers, a B.Sc. graduate from the Uni-versity of Sydney, has been appointed to the Division of Plant Industry. He will par-ticipate in field and laboratory studies on nutritional problems concerned with the use of curarrhogenbata superphosphate.

Mr. P. M. Fleming has taken Mr. P. M. Fleming has taken up a position with the Irriga-tion Research Station, Griffith. A B.E. graduate from the Uni-versity of Queensland, Mr. Fleming has been with the Ir-rigation and Water Supply Commission, Clare, Queens-land. He will participate in work on problems affecting dis-persal of water from storage systems to final application in the field. the field.

Dr. G. Geisler has been appointed to the staff of the Division of Plant Industry. Dr. Geisler, who was born in Melbourne. From 1953-57 he was on the staff of the Uni-versity of Liverpool.

Miss Lesley Justins, a grad-uate of the University of Queensland, has been appointed to the staff of the Tobacco Re-search Institute at Marceba. She will take part in investiga-tions into leaf quality in tobacco plants in the Burde-kin area.

Mr. J. M. BRAY

Mr. J. M. Bray, a graduate of the University of Adel-aide, has been appointed to the position of Safety Of-

Before joining C.S.I.R.O. he had extensive experience in the chemical industry, and was a safety officer with I.C.I.A.N.Z. for five years. I.C.I.A.N.Z. for five years. Mr. Bray will help and advise Divisions and Sec-tions with their safety prob-lems. He will shortly com-mence a regular round of visits to laboratories in order to exchange views, and information a bo  $u^{\rm TR}$ safety with interested mem-bers of the staff.

Dr. D. R. Lamond has been appointed to do investigations of reproductive physiology in ruminants with the Division of Animal Physiology, Armi<sup>2</sup> dale. Dr. Lamond received his balc. Dr. Lamond received his B.V.Sc. and Ph.D. degrees from the University of Sydney and his M.Agr.Sc. from the Univer-sity of New Zealand. Last year he held a lectureship at the University of New England.

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Miss Diana Mann, formerly a Technical Assistant in the McMaster Laboratory, Division

After Fifteen Years

Dr. Ian Mackerras, Director of the Queensland Medical

Research Institute, is to take up a Senior Fellowship with



Soon after the beginning of the war, both Mackerrases join-ed the Army. Dr. Ian Macker-ras went abroad to the Middle East and later to the Far East with the Army Medical Corps, and Dr. Josephine Mackerras, also a medical graduate, joined the Army and served in North Queensland.

Dr. Mackerras' pre-war in-terests were chiefly concerned with the blowfly and the buffalo fly. After the war he went to Queensland to become the Offi-cer-in-Charge of the Veterinary Parasitology Laboratory at Yee-rongpilly, where he became in-volved in the control of the catle tick.

In 1946 he resigned to take up his present job, and now returns to his old Division after an absence of fifteen years.

of Animal Health, has rejoined the Division after completing her degree. She will study biochemical aspects of patho-logical conditions, particularly of the liver and central nervous system.

Mr. Z. Mazanec has taken Mr. Z. Mazanec has taken up a position in the Division of Entomology. Mr. Mazanec was born in Czechosłovakia and before joining C.S.I.R.O. was with the Woods and For-ests Department, South Aus-tralia. His work with the Divi-sion of Entomology will in-volve studies on the numerical regulation of phasmatids, and the influence of past and pre-sent forest management and sent forest management and fire on phasmatid abundance.

Mr. T. C. Morton has joined the staff of the Division of the staff of the Division of Protein Chemistry for one year. He will work on the prepara-tion of organic chemical inter-mediates and the identification of products after wool has been subject to U.V. irradia-tion tion.

Mr. I. J. Poulter, a B.Sc. graduate from the University of New England, has joined the staff of the Division of Textile Industry. He will assist with experimental work connected with the refining and com-mercial utilization of lanolin.

Miss Judith Radom has Miss Judith Radom has joined the staff of the Division of Animal Genetics. Miss Radom, who was born in Shanghai, graduated B.Sc. from the University of Sydney in 1959. Her work with the Divi-sion will entail biochemical and microbiological studies and microbiological studies, and the development of tech-niques in the heterosis programme.

Mr. R. A. Schulz, who graduated B.Sc. from the Uni-versity of Queensland last year, has joined the Division of Coal Research. He will carry out investigations into the differen-tial thermal analysis of inor-ganic constituents of brown coal and boiler deposits associated with the S.E.C. project.

Mr. K. B. W. Utech, who arrived in Australia in 1958, has joined the staff of the Veterinary Parasitology Lab-oratory in Brisbane where he will study in bitsballe where he cattle tick. Mr. Utech is a graduate in veterinary science from Humboldt University in Berlin.

Mr. C. W. Wrigley, a M.Sc. graduate of the University of Sydney, has joined the staff of the Wheat Research Unit. Mr. Wrigley will do research on the effect of the presence of solid surfaces and other inter-faces on the kinetics and course of enzyme regetione with perof enzyme reactions with par-ticular reference to wheat flour doughs.



Mr. J. Walker, a graduate in agricultural science from Read-ing, England, has joined the Division of Plant Industry and will be stationed in Perth. He has previously worked as an agronomist in Somaliland and Jamaica.

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





instance, next August.

Dr. Mackerras is returning to a laboratory he knows very well. He joined the Division in 1928,

#### Dr. I. M. MACKERRAS

in the very early days of C.S.I.R. He and his wife, Dr. Josephine Mackerras, were both prominent members of the research staff until the outbreak

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SIR DAVID RIV

Sir David Rivett, formerly Chairman of the Council for Scientific and Industrial Research, died on 1st April, 1961, after a long illness. The Prime Minister, Mr. Menzies, on hearing of his death said "David Rivett was one of the great Australians of our time. He combined an absolute first-class mind and great scientific attainments with a generous outlook and a quiet but pervading enthusiasm. Scientific research in Australia owes a great deal to him."

Sir David was born on 4th December, 1885, at Port Esperance, Tasmania, and was educated at Wesley College, Melbourne and at the University of Mel-bourne. He was Victorian Rhodes Scholar for 1907.

In 1911 he returned to the University of Melbourne as Lecturer in Chemistry, was appointed Associate Professor in 1921, and held the Chair from 1924 to 1927.

C.S.I.R., the predecessor of C.S.I.R.O., was formed in 1926 by the re-organization of the Institute of Science and Indus-try which had been established by the Commonwealth Govern-ment six years previously.

Sir David Orme Masson had been very interested and active in this early organization and no doubt Rivett, who was so closely associated with him, was influenced by him and enwas influenced by him and en-couraged to accept appoint-ment as Chief Executive Officer and Deputy Chaltman of C.S.I.R. in 1927. He was the only full-time officer of the Executive Committee of three, but he had the valuable assis-tance of the Secretary, Gerald Lightfoot, who was a very able administrator.

administrator. Rivett entered into the new field of work with great en-thusiasm and energy. He had a forceful and charming per-sonality, but little background experience of applying scientific knowledge to industry, especi-ally the primary industries, on the wide scale called for.

It was indeed a very difficult job, but he made a great suc-cess of it because of his bril-liant intelligence and sound principles principles.

principles. It was expected at the begin-ning that the call for help would have come from the sec-ondary industries, but the im-mediate call came from the primary industries. During the first ten years attention was given almost exclusively to the problems of the primary in-dustries. dustries

dustries. By this time a total of five Divisions with two or three Sections had been established. Thus, the number of research officers was relatively small, and this enabled Rivett to know each officer. He took a great personal interest in the officers and in their families. If anyone was sick or in

personal interest in the officers and in their families. If anyone was sick or in distress, he would write a letter of sympathy and encourage-ment by hand if he could not pay a personal visit; he had that old-fashioned courtesy which rejected the dictated typewritten letter as gauche in these instances. In the early years of C.S.I.R. the great majority of the prob-lems accepted for investigation were of immediate practical importance. However, the ap-plication of science in most instances was seriously ham-pered by lack of an adequate background of basic knowledge.

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Sir DAYID RIVETT, K.C.M.G., M.A., D.Sc., F.R.S. (from the painting by Max Meldrum). secondary industries in Aus-tralia was a national contribu-tion that has probably been unapproached by any other

man.

Those who knew him and

worked with him continue to be inspired by his example.

Rivett was most insistent always that the search for new knowledge by scientific methods was the essential goal. Investi-gation of the practical prob-lems revealed so many gaps in knowledge; there was never any danger that the work would become superficial, cer-tainly not when Rivett was there to guide and encourage. So much of this earlier work

So much of this earlier work was in the broad field of biol-ogy which was outside Rivett's special interests, but he quickly gained an understanding of the problems and became a good exponent. Later he was to be more in his element when in-vestigations into problems of secondary industry grew apace.

Rivett was not an orthodox administrator. He refused to allow the fear of creating a precedent to deter him from doing what he believed to be right.

right. His chief work was the creation of the nucleus of a strong and effective research in-stitution which, with the co-operation of existing institu-tions, would be capable of solv-ing the more pressing of the national industrial problems.

Extensive investigations in any particular field were not undertaken until the right man found and a capable team built around him. Rivett knew the requirements for good scientific research. His decisions were made accordingly, without re-gard to rules and regulations.

His contribution to the planning of scientific research for the assistance of primary and

Mr. H. J. Frith to lead Wildlife Survey Section

Mr. H. J. Frith has been appointed Officer-in-Charge of the Wildlife Survey Section. He succeeds Mr. F. N. Ratcliffe, who resigned last year to become Assistant Chief of the Division of Entomology.

Mr. Frith, who is aged 39, Mr. Frith, who is aged 39, graduated in agricultural science from Sydney in 1941, and im-mediately afterwards joined the A.I.F. He served in the Middle East and New Guinea, and won a commission.

Won a commission. He joined C.S.I.R.O. after his demobilization in 1946, as an Assistant Research Officer at the Irrigation Research Station, Griffith. He remained at Griffith for five years, en-gaged on horticultural research on citrue acoblemes

at Grinth for five years, eff gaged on horticultural research on citrus problems. A keen naturalist from boy-hood, Mr. Frith welcomed the opportunity to transfer to the Wildlife Survey Section ten years ago, in July 1951. He was originally seconded to the Section to take part in the rabbit surveys associated with the release of the first myxomatosis-infected animals. From 1952 onwards he was able to develop his special interests in ornithology. He has worked on a number of Australian species, including parrots, pigeons, and finches, but his chief subjects have been wild ducks and mallee fowl.

fowl

fowl. His work on the mallee fowl, with its complex behavioural pattern for controlling the tem-perature of its nesting mound, has been acclaimed as a re-search classic. His work on wild ducks has shown that they were not, as suspected, important predators of rice crops in inland Austra-lia. His work on conservation of ducks now forms the basis of ame conservation in most game conservation in most stat

ntes. Mr. Frith has always been active in the Australian Bird Banding Scheme, and became Officer-in-Charge of the Scheme



Mr. H. J. FRITH

He has added Bat last vear. Banding to the activities of the Scheme.

His most recent work is concerned with the ecology of the red kangaroo, a study com-menced in 1959.

# U-2's AGAIN

The American U-2 aircraft which recently visited Australia will return this month to Sale in Victoria.

The high-flying U-2's will once again collect samples of air from the upper atmosphere and make the samples avail-able to the Division of Radiophysics.

physics. As a result Dr. E. G. Bowen will have additional data on which to base his theory that a major part of the world's rainfall is triggered off by meteorite dust particles that catch in the top of the atmos-phere and seed clouds as they fall slowly earthwards.



A recent photograph of the new laboratory being constructed for the Division of Food Preservation at Ryde, N.S.W. This month the Division will vacate the laboratory it has occupied at Homebush since 1938. From 15th May the address of the Division will be at P.O. Box 43, Ryde, N.S.W.

## REACTION BEAM FOR STRUCTURAL TESTING

A very large test reaction beam has recently been constructed in the Division of Forest Products to facilitate research on timber structures.

It is of reinforced concrete, 120 feet long, 4 feet square in cross-section, weighs 130 tons, and has been set in the ground and has been set in the ground with its upper surface at floor level. It will support timber structures under test and will provide the reaction for the hydraulic jacks used for apply-ing the test loads.

The new testing beam being installed at Forest Products.

The hydraulic jacks will be The hydraulic jacks will be attached to the exposed upper flange of a heavy steel girder embedded in the concrete for the full length of the beam. The method of attachment will enable the jacks to be located at any position along the beam.

Normally the jacks will be used in tension, but if required they will be capable of apply-ing compressive loads. They will have a capacity of 5 tons and a stroke of 16 inches to

## TECHNICAL ASSOCIATION NEWS

#### Annual General Meeting

On Monday, 22nd May, at 7 p.m. in the Cafeteria of the Standards Laboratory, Sydney, the Annual General Meetings of Central Council and the New South Wales branch will be held. All members should attend to give support to the committee members who have been working untiringly on their behalf.

untiringly on their behalf. A special campaign is being launched to ensure a large attendance and representa-tives will organize motor transport for those who find the high cost of living pre-cludes them from owner-ship of a "jalopy". This will be the last meet-ing of Central Council in New South Wales for some time, as the Victorian mem-bers have indicated their willingness to accept the responsibility of staffing Central Council for two years. years.

Special mention should be made of the fine job done by the Victorian Branch Secretary, Harry Heath, and his committee and the active interest they have shown. Field Stations

The publicity given to our Association through the pages of "Coresearch" is strongly evidenced by the interest being taken by those working on outlying Field Stations. Our most recent

acquisitions have been an estimated 17 members at the Deniliquin Laboratory and Field Station.

Field Station. This follows the enrol-ment of 14 members at the Armidale Laboratory and "Chiswick" Field Station, and one at Katherine. A hearty welcome is extended to all these and other new members. We look forward to the day when we can boast of one hundred per cent membership cent membership

#### Safety Officer

We note with pleasure the We note with pleasure the recent appointment of a a highly qualified Safety Of-ficer. It is hoped that each Divisional Safety Committee will have the opportunity of meeting and discussing with him all aspects of safety in the Organization.

Our full and active sup-port will at all times be given to ensure a high de-gree of safe working con-ditions in C.S.I.R.O.

cope with the large deformations which some structures show at failure.

show at failure. The beam has been designed to permit a total distributed load of 100 tons to be applied 100 feet. Head room available in the laboratory will permit the structures to be 20 feet high. Few, if any, other lab-oratories in Australia have facilities for the indoors test-ing of structures of these dimensions.

It is planned to test a 95 It is planned to test a 95 feet span timber portal frame as soon as the auxiliary testing gear has been fabricated. This frame will be a prototype for those intended for a series of buildings which may eventually cover several acres.

The reaction beam will re-The reaction beam will re-move the limitations imposed by the present facilities of the Division on the length of structures which may be studied and on the loads which may be applied. Not only will it be useful for long structures but also for short ones designed for beau loads which as which heavy loads such as bridge girders.

Furthermore, it will enable Furthermore, it will enable several relatively short span structures to be in the test rig at the same time and tested independently. This will allow some structures to be readily subjected to loads of moderate duration in the lebertary duration in the laboratory without interfering with other duration testing.

It will also save the waste of time and labour involved if a structure being subjected to a prolonged investigation has to



Mr. E. W. B. Da Costa, of the Division of Forest Products, left last month on a six months trip which will take him to New Zealand, North America, Eur-ope and Japan, His longest stay will be at the Imperial College of Science and Technology in London, where he will under-take some research on the tox-icity of preservatives to wood-inhabiting fungi.

**Dr. G. F. Humphrey,** Chief of the Division of Fisheries and Oceanography, made a short trip around the world last month. His main purpose was to attend a meeting in

Paris of the U.N. Special Com-mittee on Oceanic Research, of which he is President. He also visited the Marine Laboratory at Woods Hole, near Boston, and took part in a conference aboard H.M.A.S. "Gascoyne" at Hawaii. Dr. J. R. McPhee, of the Division of Textile Industry, left last month to spend twelve months overseas. During his months overseas. During his absence Dr. McPhee will visit the U.K. and the U.S.A., and

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development.

be removed from the test rig. and subsequently re-erected to allow more urgent tests on other structures to be done.

Structural engineers, archi-Structural engineers, archi-tects and builders must be sure that their structures will be-have in service as they expect them to do. Consequently, if they are to have confidence in the safety and adequacy of timber structures, it is neces-sary that there should be avail-able considerable information or the hebritiour of the atrue on the behaviour of the structures under load.

This can only be gained by testing full size structures; tests on components and models provide useful, information but cannot give a complete picture. Theories of structural be-haviour have to be checked against experimental results.

Even structural steel, a material made to a definite specification and obeying a simple stress-strain relation, is still being extensively investi-gated in many laboratories to improve the way it is used and to determine how it behaves under various circumstances.

Timber, with its inherent variability and the complex

effect on its properties of time, temperature and humidity, will not be universally regarded as a structural material of proved reliability until it. too. has been thoroughly investigated in structural forms.

will assist in the technical work associated with wool research

Much has been done in this Much has been done in this regard in recent years, particu-larly in the U.S.A. and Europe, and timber has been used for structures which previously were considered outside its scope. To take only one ex-ample, a sports arena in the U.S.A. has a roof supported by timber arches 340 feet long.

In Australia also there has been an increasing interest in modern types of timber structures, and a growing demand for information on the structural use of timber and its related products, plywood and hardboard.

The new reaction beam will play its part as a major piece of research equipment in the Division's programme to satisfy this demand and to assist in the development of this field of utilization of one of Australia's most important primary products.



"Yes; very interesting, Smithers, but the development of superfine, superstrong man-made fibres was not the purpose of your research project, was it?"

Courtesy "Technology"

## **Poultry Congress**

The Twelfth World's Poultry Congress will be held in Syd-ney from 10-18th August, 1962. The Congress, which is largely a scientific one, will be attended by poultry scientists from all over the world. It is the first World's Poultry Con-gress to be held south of the Equator.

Equator. C.S.I.R.O. people are in-volved in the organization of the Congress. Mr. P. F. Butler, from Head Office, is a member of the Executive Committee and Dr. J. A. Morris, Officer-in-Charge of the Poultry Re-search Centre of the Division of Animal Genetics, is on the Scientific Programme Com-mittee. mittee.

# ROAD SAFETY

Since Safety Officer John Bray arrived at Head Office in March, the staff has started to become safety conscious.

When the Victoria Police conwhen the victoria Police con-ducted a series of tests for licensed drivers in conjunction with Road Safety Week, John persuaded the Secretary, Guy Gresford, to join him in taking

Our Secretary acquitted himself quite well.

Apart from the fact that his gear changing was too hurried, his stop signals were lax, he exceeded the speed limit, and failed to give right of way, he earned the commendation of "a good safe driver" from Sergeant A, F. Mason, Chief Instructor of the Police Driv-ing School.

As one might expect, the Safety Officer didn't do so well. His series of misdemean-ours was longer than the Sec-retary's, and he exceeded the speed limit eight times. He did NOT earn Sergeant Mason's favourable endorsement.

Mr. Bray is hoping to insti-tute some driver training in C.S.I.R.O. later this year, that in Casherry starting in Canberra.

The Organization's Safety Handbook, to be published in a few months' time, will include a chapter on Vehicle Safety.

Sergeant Mason checking Mr. Gresford's driving test result.



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# Insect Population Explosion

Until quite recently, the Phasmids or stick insects of south-eastern Australia were regarded as more or less harmless freaks of the insect world, remarkable for their camouflage in the way of colour and form.

So closely do their slender elongated legs and bodies resemble the twigs of the trees on which they feed that they are usually detected only when they move.

Of late years, however the brown Phasmids have increased to numbers estimated at up to half a million per acre in some forests, notably the Kiewa (Victoria) catchment areas, causing serious damage to the trees by eating the young foliage.

In October, 1959, when the problem had reached alarming proportions, a conference of interested parties was held at the Division of Entomology in Canberra.

The Forestry Commissions of Victoria and New South Wales were represented, as were the Snowy Mountains Authority, the River Murray Commission, the State Electricity Commis-sion of Victoria, and several other bodies.

It was pointed out that chemical control, by aerial probably the only immediate useful course. In this last sum-mer of 1960-61, the State Electricity Commission did, in fact, undertake aerial spraying.

Results so far have been very promising, and the forest floor has been covered with dead insects.

There was unanimous agreenere was unanimous agree-ment at the conference that long-term ecological studies offered the only hope for pro-viding a basis of economic control.

Only the ecologist, who studies the habits and life cycles of living things, can

hope to explain why sudden increases in population occur. In this case, the increase is of a "population explosion".

A population explosion is usually associated with the introduction of a species into an environment where it has no natural enemies to control it, as happened when rabbits were being given by the Snowy Mountains Authority and the River Murray Commission.

The Division has assigned a small team of men to make a first reconnaissance and a definition of the problem.

Pending the appointment of a senior entomologist to lead the team, Mr. K. L. Taylor,



let loose in Australia. But in the case of the Phasmids in areas such as Kiewa, there seems to be only one explanation

Some species of bird, or a Some species of bird, or a predatory or parasiting insect, used to keep their numbers controlled, but this creature is not found there now, or its numbers have been reduced from some cause.

As a result, a quaint insect which was formerly not num-erous enough to do any great harm was able to "explode" to such numbers that it became a priour particular that it became a serious pest.

C.S.I.R.O.'s Division of Entomology was asked to under-take an ecological study of the Phasmids as a matter of urgency.

A special vote of funds from the Treasury was obtained this year, and financial support is

A phasmid, or stick insect.

Technical Secretary of the Division, is initiating the inves-tigation.

Mr. Taylor, Mr. Z. Mazanec, and Mr. P. D. Phelan have already made a visit to the infested areas.

They have set up a base for their operations at Albury, N.S.W., on the edge of the infested forests.

## Japanese at Tribophysics

Mr. Shigeru Matsuo, a metallurgist from Japan, has arrived at the Division of Tribophysics to take up an Australian International Award Fellowship.

A graduate in engineering om Kyushu University, he ill participate in the Divifrom will participate in the Divi-sion's programme of work on the temperature changes which occur when metals are re-crystallized.



CE C

Pat Moulin (left) and Anne Hammond of Head Office are the ticket secretaries for the C.S.J.R.O. Ball this year. A.R.L.S. artist Bob Ingpen willingly designed a poster for Arcticas, arrow hole ingreat winningly designed a poster to them. The Ball this year will be held on Saturday night, 20th May, at the Royale Ballroom in Melbourne. Sherry will be served at 6.30 and dinner at 7.15 p.m.



Mr. S. MATSUO

He is particularly interested in the measurement of stored energy in aluminium alloys containing zirconium and calcium.

Mr. Matsuo recently spent a period of a few weeks in Sydney, familiarizing himself with spoken English.

When in Sydney, he was taken to the Japanese restaur-ants in that city. His com-ments may be of interest to gourmets gourmets.

"Very good," he said. "Very expensive. But the food is not Japanese!"



Ken Harley and Sergio Penna at the Division of Entomology's Field Station at Ingham, Queensland.

# Troubled Waters

According to a recent copy of the Navy newspaper, C.S.I.R.O. officers are capable of making a good showing in a field in which the Navy itself is held to be pre-eminent.

We quote from "Navy News": 1 During one of our "drift" We quote from "Navy News": During one of our "drift" stations, a situation arose which one doesn't witness every day. A "drift" station involves attaching several s am ple bottles at pre-set depths on a piece of wire and suspending them from a small set of pon-toous

them from a small set of pon-toons. —The pontoons are then at-tached to a marker buoy and the whole caboosh is then heaved over the side to drift around at will. However, once everything is floating gaily in the water, the bottles must be "triggered off", and this is usually achieved by a small hook attached to a length of fishing line.

hook attached to a length of fishing line. During this particular station, everything went splendidly un-til we reached the stage of giving a sharp tug on the fish-ing line to start the triggering off process. Guess what? Yes, the fishing line parted and nothing else happened. Needless to say, this caused quite a stir, and the person most impressed was Mr. Harry Jitts, a very keen and enthus-iastic C.S.I.R.O. scientist, who

is in charge of these particular experiments. Mr. Jitts ran is in charge of these particular experiments. Mr. Jitts ran around in circles, bounced up and down, and made several quotations, using certain lan-guage which most people would be surprised to know existed in scientific jargon. However were we dismayed?

However, were we dismayed? Never!

Never! The whaler was promptly lowered with A.B. Weller as coxswain, Mr. Jitts (still per-forming quite creditably!) and five stalwart seamen. This heroic crew pulled through mountainous seas to the marker buoy whereupon Mr. Litts

mountainous seas to the marker buoy, whereupon Mr. Jitts stripped to bare essentials and dived overboard. "Don't lose the bottles, Mr. Jitts!" cried A.B. Weller. "Never!" cried Mr. Jitts, struggling bravely with the pon-toons—"I would rather drown than lose the bottles!" (This bottle incident ended quite happily and the station was completely successful. The only slight touch of unpleasantness occurred when Mr. Jitts was politely asked to repeat the performance for the benefit of the Duty Watch.)

## EXECUTIVE IN W.A.

The full Executive held their monthly meeting in Perth last month on 11th April. Members of the Executive remained in Western Australia for the whole week.

The object of their visit was | primarily to obtain a first-hand and up-to-date impression of economic conditions in Western Australia in relation to both primary and secondary ducts industry.

Members of the Executive took the opportunity to visit the C.S.I.R.O. laboratories at the University of Western Aus-tralia and the Field Station, "Glen Lossie", near Kojonup. They also visited the labora-tories of the University Insti-tute of Agriculture and the Western Australian State De-partment of Agriculture. After the meeting, the Chair-man, Dr. White, told the "West Australian" that more exten-sive investigations into the natural resources of W.A. should be carried out as a guide to future industrial and economic development. Members of the Executive

The future of industrial de-velopment in Western Austra-lia depended largely on know-ing the timber, mineral and water resources of the State and the agricultural by-pro-ducts

It was important to build up scientific research programmes to find out the extent of these natural resources. The State Chemical Laboratories and the Agriculture Department had attempted to do this but more

tempted to do this but more extensive research was needed. The Executive met Mr. Charles Court, the Minister for Industrial Development in Western Australia. Mr. Court outlined future Government plans for industrial develop-ment in steel works, a lubricat-ing oil plant and a paper industry. The Government in-tended to develop the smaller and moderate sized industries in the State. in the State.

#### APPOINTMENTS STAFF THE T ()

Mr. J. Duruz has been Mr. J. Duruz has been ap-pointed to the staff of the Divi-sion of Electrotechnology. A B.Sc. graduate from the Uni-versity of Sydney, he will be working on the development of equipment and measuring tech-niques for precise measure-ments in the microwave range.

Mr. R. B. Conrow has joined the staff of the Division of Coal Research. Mr. Conrow. who was born in the U.S.A., graduated B.Sc. from the Uni-versity of Sydney and later re-ceived his M.Sc, at the Western



Mr. R. B. CONROW

Reserve University, Cleveland, U.S.A. Before joining the Or-ganization he was with Union Carbide Chemicals Company, South Charleston, U.S.A.

Mr. H. S. Hawkins has been appointed to the Agricultural esearch Liaison Section for the special purpose of organizing technical conferences. A



Mr. H. S. HAWKINS

graduate of the University of Adelaide, he has just spent two years in Argentina, taking part in an agronomic survey of the **Boyril** estates

Dr. Patricia Elliott has joined Dr. Patricia Elliott has joined the staff of the Division of Entomology. Dr. Elliott, whose work with the Organization will be concerned with investigations on the field ecology and behaviour of the Queens-land fruit fly, was formerly a teaching fellow in the Depart-ment of Zoology at the Univer-

sity of Sydney. Mr. H. A. Nix, an agricultural science graduate from the



Mr. H. A. NIX University of Queensland, has joined the Agricultural Re

Liaison Section. search Mr. writing staff of the Section.

writing stalt of the section. Mr. J. R. Fiander, a graduate of the University of Sydney, has been appointed to the staff of the Division of Electrotech-nology. He will work on the development of new measuring equipment for use at power and audio frequencies. and audio frequencies.

Mr. G. P. Findlay, an honours graduate from the University of Tasmania has joined the Plant Physiology Unit of the Division of Food Preservation. For the last three years he has been working for his Ph.D. in biophysics at Tasmania.



Mr. G. P. FINDLAY

Mr. R. Reti, an organic chemist, has joined the staff of the Division of Coal Research. He was educated in Hungary the Budapest Polytechnic, at and after 1956 at the University of the Dominican Repub-Since his arrival in Auslic tralia in 1959 he has been employed as a chemist with Unilever and Reichhold Chemicals Inc.

Mr. P. J. Ross, a recent graduate in physics from Queensland, has joined the staff of the Division of Soils and will be located at the Cunning-ham Laboratory, Brisbane. He will take part in soil fertility studies which are being jointly carried out by the Divisions of Soils and Tropical Pastures.

Mr. R. Pearcy, a B.Sc. graduate from the University of London, has been appointed to the staff of the Division of Textile Industry. Before leav-Textile Industry. Before leav-ing for Australia Mr. Pearcy was with British Nylon Spin-ners Ltd. where he was en-gaged on investigational work and process development in the Research Department.

Summunnumnumnumnumnumnum The third inter-laboratory conference of the Wool Re conference of the Wool Re-search Laboratories was held at Warburton, Victoria, from 17th-19th April. These con-ferences, which are held at intervals of eighteen months, allow members of the three haboratories to meet socially and to discuss each others and to discuss each others work

work. Some seventy members of the scientific staff of the laboratories were at War-burton. After an opening address by the Chairman,

Dr. White, twenty scientific

Dr. White, twenty scientific papers were presented to the conference. Time was provided for discussion of each paper. On Tuesday night, 18th April, members of the con-ference, after suitably lub-ricating their vocal chords, presented a number of songs presented a number of songs

presented a number of songs and sketches for the edifica-tion of their colleagues. These were strictly of professional interest, refer-ring as they did to such burning questions as the

# Nurses Were Told the Woollen Blanket Story

Two and a half thousand nurses from forty-four countries attended a congress of the International Council of Nurses in Melbourne last month.

At the Exhibition Building, where the Congress was held, a large number of displays were on show for the delegates.

were on show for the delegates. Among these displays was a stand set up by the Wool Re-search Laboratories, showing the results of their research on woollen hospital blankets. Large photographs depicted the shrink-proofing of blankets, and the development of a deter-gent which can be used to wash blankets in boiling water with-

Mrs. T. A. Pressley, wife of an officer of the Division of Pro-tein Chemistry, telling the woollen blanke' story to visit-ing nurse Dorothy Addison, of Ghana.

out spoilage or discolouration. The work by the Division of Protein Chemistry and the Royal Melbourne Hospital, showing that woollen blankets were not responsible for cross-infection, was also presented.

Theatre in Melbourne. She played Mrs. Holly in "Suddenly Last Summer" and

attitude of medical men to woollen blankets in hoswoollen Diamsen pitals. The conference concluded on the Wednesday with a general discussion of the research programme of the Wool Research Laboratories.

tories. From left to right in the picture – Dr. A. J. Farn-worth, Dr. R. D. B. Fraser, Dr. J. R. McPhee, Mr. T. P. MacRae, Dr. F. W. G. White, Mr. N. F. Roberts and Miss June Griffiths.

## HONOURS

Mr. W. H. Taylor, of the Division of Building Research, has been elected Chairman of the Civil Engineering Branch of the Melbourne Division of the Institution of Engineers, Aus-

Mr. J. F. Kefford, of the Division of Food Preservation, has won the Australian Award given by the two Australian branches of the Institute of Food Technology.

# **Repertory** Actress

Miss Alice O'Donnell, of the Film Unit, is a keen actress and cinematographer in her spare time, apart from her professional interests in film editing and script writing.

Cornelia Scott in "Something Unspoken". Last month she played leading roles in two plays by Tennessee Williams at the Arts

Unspoken". She is also a producer for the Repertory Group at Heidel-berg (Victoria) and has acted in a number of the Group's plays. Later this year she is to produce an Oscar Wilde play for the Group. Alice is also a member of an amateur film-making group called the School of Cine-Re-search, which aims to explore

search, which aims to explore the practical side of film mak-

ing. Each member of this group of twelve people scripts, directs, shoots, and edits short films.



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# 027##1961 O R E S E A R C FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF - NUMBER 27 MELBOURNE, JUNE 1961

# 1 **A MONTH OF HONOURS AND DISTINCTIONS** Two More Fellows of the Academy

This month no fewer than thirteen members of the staff have won major distinctions, higher degrees, fellowships, and awards. Heading the list are Dr. J. M. Cowley and Dr. J. E. Falk, who have been elected Fellows of the Australian Academy of Science.

Dr. Cowley was elected to the Academy for his pioneer work in experimental elec-tron diffraction and the theory of electron scattering.

theory of electron scattering. He joined the Chemical Physics Section of the Division of Industrial Chemistry in May, 1945, as an Assistant Research Officer, was a warded a C.S.I.R.O. Senior Studentship at the Massachusetts Institute of Technology between 1947 and 1949, and is now Senior Principal Research Officer and Leader of the Crystallography Section of the Division of Chemical Physics. He holds the Ph.D. degree of the University of Adelaide. Dr. Cowley gained a con-siderable international reputa-tion for his development of the experimental and theoretical methods required for the appli-cation of electron diffraction to the structure analysis of sub-microscopic single crystals. Since 1955 he has, with Mr. A. F. Moodie, initiated and developed a new approach to hysical optics which has found-extensive application in the theory of electron scattering and of image formation in electron microscopes. Th is latter work is at present being co-ordinated in a book to be published by the Oxford Uni-versity Press under the title "Electron Wave Optics". Since 1954 scientists from America, Japan, India, Norway and Spain have come to work in Dr. Cowley's laboratory for periods of a year or more ach. He joined the Chemical Phy-

each.

Dr. Falk's election recognizes his contributions to several as-pects of the chemistry and bio-

chemistry of porphyrins and their metal complexes. He graduated from the University of Sydney in 1942, and took a Ph.D. at London in 1951.

Ph.D. at London in 1951. After holding various ap-pointments in Sydney after the war he went to London in 1949 where he worked with Pro-fessor C. Rimington at Uni-versity College Hospital Medi-cal School on pyrrole pigment metabolism. He held a Nuffield Fellowship, and later, the Foul-erton Research Fellowship of the Royal Society.



Dr. F. J. BERGERSEN, D.Sc. Dr. Falk's publications in-clude studies of the physical and co-ordination chemistry of porphyrins, with particular reference, in recent years, to the contributions which know-ledge of these properties may make to understanding of the natural haemoproteins. He has made a number of contribu-tions to the knowledge of the biosynthesis of porphyrins. He has, in addition, contri-

He has, in addition, contri-buted a number of chromato-graphic and other analytical techniques which are now widely used.

With his associates in Can-berra he is currently studying the enzymic step leading to the formation of the vinyl side-chains of protoporphyrin, and is busy writing books on the physical chemistry of porphy-rins and metalloporphyrins, on porphyrin biosynthesis and on experimental techniques for these compounds. Four people have been

Four people have been awarded D.Sc. degrees this month.

Misc. with that class holitotis in Microbiology in 1953. He was on the staff of the Bacteriology Department of the same university, where he worked on bacterial cytology, before joining the Division of Plant Industry in 1954. He visited the University of Wis-consin in 1958-59 and is now working with, isotopic, nitrogen in nitrogen fixation studies. **Miss Nancy T. Burbidge** has been awarded a D.Sc, degree by the University of Western Aus-tralia's leading herbarium tax-onomists.

onomists



Dr. NANCY BURBIDGE, D.Sc

Miss Burbidge published last year a notable monograph on the phytogeography of the Aus-tralian flora, with special refer-ence to distribution patterns and affinities with other world

Dr. J. L. Pawsey, F.R.S., Assistant Chief of the Division of Radiophysics, had the degree of Doctor of Science degree of Doctor of Science (honoris causa) conferred on him by the Australian National University on 12th May. The award was "in recogni-tion of his distinguished emin-ence in research in the field of radio astronomy." **Dr. R. N. Robertson**, F.R.S., has been awarded the dearee of

Dr. R. N. Robertson, F.R.S., has been awarded the degree of Doctor of Science by the Uni-versity of Sydney, in recogni-tion of his distinguished con-tributions to plant physiology. Dr. George Baker, of the Mineragraphic Investigations Section, has been named the first recipient of the research medal of the Royal Society of Victoria. The award is in



recognition of his outstanding

recognition of his outstanding work on australites. Mr. R. N. Morse, Officer-in-Charge of the Engineering Section, has been made a Mem-ber of the Institution of En-gineers (Australia). The de-signation "Member" is given to engineers who have made a noteworthy contribution to the science or practice of engineer-ing, or who have eaquired an exceptional degree of eminence in the profession. Mr. T. L. Lewis, of the Division of Plant Industry, has been awarded a Ph.D. degree by Purdue University, U.S.A., for a thesis entilled "Physi-ological Studies of Chilling Injury in Tomato Fruits". Dr. Lewis has been at Purdue on a Fellowship for nearly three





Dr. J. E. FALK, F.A.A.

years, on leave from his post at the Tasmanian Regional

At the Tasmanian Regional Laboratory. Mr. D. E. Kurth, of the Division of Fisheries and Oceanography, has been awarded a Ph.D. degree by the University of Tasmania, for a thesis entitled "An Investiga-tion of the Greenbacked Flounder". Mr. I. J. Ludwig, of the

Inesis entrue. In the Greenbacked Flounder".
Mr. L. J. Ludwig, of the Division of Plant Industry, has been awarded the degree of Master of Agricultural Science by the University of New Zealand. His thesis was entitled "The Effect of Environment on the Physiology of 'Creeping Rooted' Lucerne".
Dr. J. N. Phillips, of the Division of Plant Industry, has been awarded a Royal Society and Nuffield Foundation Commonwealth Bursary. He will proceed later this year to Imporial College, University of London, where he will work on the chenistry of porphyrins with Professor Sir Eric Rideal, F.R.S.
Mr. L. G. Peres, of Head Office, has won a Science and Public Policy Fellowship which will take him to the Harvard Graduate School of Public Administration in September. He will take a one year seminar on contemporary problems in the financing and administration of scientific research in government, busines, universities, and other institutions. government, business, univ sities, and other institutions.

# AN F.A.O. FELLOW FROM RHODE

Mr. J. B. Condy, M.R.C.V.S., D.T.V.M., a veterinary research worker from Rhodesia, is visiting the Division of Animal Health for a period of six months.

He will spend about half his time at the McMaster Labora-tory and will divide the re-mainder between the Veterinary Parasitology Laboratory, Yeer-ongpilly and the Pastoral Re-search Laboratory, Armidale.

Mr. Condy was born in Southern Rhodesia and quali-fied from the Royal Dick School of Veterinary Studies, University of Edinburgh, in 1950. He took his Diploma in Tropical Veterinary Medicine in 1956.

After a short period in private practice he served with Her Majesty's Overseas Civil Service for six years as a field officer in the Bechuanaland Protectorate. In 1957 he was appointed as a Veterinary Re-search Officer by the Govern-ment of the Federation of Rhodesia and Nyasaland.

His main interests lie in parasitology, and he has been particularly interested in the

incidence and economic im-portance of Bovine Schistoso-miasis in Southern Rhodesia.

The main purpose of his visit is to familiarize himself visit is to familiarize himseir with the techniques in use in Australia and the programme of research in parasitological conditions of sheep and cattle,



Mr. J. B. CONDY

**Spaniard Here on** Selby Fellowship

Dr. Francisco Aragon de la Cruz, from the Department of Inorganic Chemistry, Consejo Superior de Investigaciones Científicas (C.S.I.C.), Madrid, has been working with Dr. J. M. Cowley in the Division of Chemical Physics since February this year.

Dr. Aragon is the first holder of the Selby Fellowship of the Australian Academy of Science. He took his Ph.D. degree in chemistry at the University of



Dr. F. ARAGON

CELOTASCED & CERM

Madrid, and during the period of study for this degree he worked for two years under Dr. M. M. C. MacEwan at Dundee, Scotland, on X-ray work on clay minerals and on graphite oxide phases. While with the Division of Chemical Physics he will be working on the structure of graphitic acid and inter-lamellar compounds with organic mole-cules, using the structural analytical methods developed by the electron diffraction group during the past few years. years. Dr.

Dr. Aragon is single and aged 27, and has lived in Granada, Spain, for most of

Granada, Spain, for most of his life. He obtained his "Licenciado en Ciencias" at the University of Granada prior to undertak-ing his Ph.D. degree at Madrid.

# ADVISORY COUNCIL MEETING IN CANBERRA

The twenty-third meeting of the C.S.I.R.O. Advisory Council was held at Black Mountain, Canberra, on Tuesday and Wednesday, 9th and 10th May.

On the first day of the meeting the Council dis-cussed several current topics with the Executive, including the part which research can play in building up Australia's export trade; C.S.I.R.O.'s beef research programme; and the effect on C.S.I.R.O. of current problems in the wool industry.

Later in the day Mr. Stewart and Mr. Haantjens gave an ac-count of the Division of Land Research and Regional Survey's work in New Guinea.

work in New Guinea. On the second day the Coun-cil heard a talk on "Industrial Standards" by Mr. A. F. A. Harper, of the Division of Physics. There followed a series of talks and demonstra-tions by members of the Biochemistry Group of the Division of Plant Industry on some of the exciting new work on anti-fungal substances of both plant and chemical origin. The extension of this work

both plant and chemical origin. The extension of this work is to be supported by a grant of £55,000 over the next three years by two chemical firms, Fison's Pest Control Ltd., of England, and J. R. Geigy, S.A., of Switzerland. Dr. O. H. Frankel spoke to the Council on "Genetics and Plant Improvement", and there was a series of short talks on "Nitrogen in Soil Fertility". Members of the Council visited the phytotron site, some glasshouse experiments at Black Mountain, and the Dick-son Experiment Station.

#### Exports

In the Council's discussion on exports, it was pointed out that to capture the markets for manufactured goods Australia must do one of two things.

must do one of two things. Either it must launch novel products for which there is as yet no competition, or it must battle with and defeat other nations with respect to the goods they have invented and introduced already to world markets. In either case the maximum assistance from re-search will be needed. There are various ways in which the Australian firm could enjoy advantages. These might devolve on — (1) Better, or cheaper raw

- (1) Better or cheaper raw materials, for example, teel.
- (2) Improved production techniques, possibly arising from local research.

niques, possibly arising from local research.
(3) Lower labour costs. These could be due to greater mechanization, better performance of the individual, or lower wages (for example, compared with U.S.A.).
(4) Production of goods of higher quality. This last point — high quality — may be the key to Australia's ability to export. Quality again is dependent on research, as well as on testing and inspection properly organized on a scientific basis. In the case of the industries

In the case of the industries based on mining and minerals, much more can be done. A primary objective must be to ensure that we locate economic mineral deposits.

economic mineral deposits. We could employ more modern methods of geophysical and geochemical prospecting. We could carry raw material deposits further towards the consumer goods stage before we export them. For instance, titanium pig-ment might be exported rather than rutile, and zinc alloys

rather than zinc. We have the best resources of zirconium in the world and the C.S.I.R.O. effort on zirconium chemistry is surely not sufficient to ensure profitable markets in the future.

profitable markets in the future. Some items contribute to the cost of every manufactured article. Power, fuel, water, and transportation all fall within this category. We are not doing enough to cheapen the cost of coal mining, or converting coal to power. to power.

coal mining, or converting coal to power. Transportation costs cripple many industries in Australia, especially as competitors for export markets. We are not devoting enough effort to re-search on road construction and maintenance. We might devise methods of utilizing our cheap coal for transport, rather than turning to the more con-venient but expensive oil. To hold its position, and to advance its place among ex-porting nations, Australia must spend more money on research. A recent estimate by the C.S.I.R.O. Secretariat suggests that we spend about one-third as much as a highly indus-

as much as a highly indus-trialized country should spend. And until our own industrial

companies expand considerably in size the main burden of research must continue to fall on government.

#### New Guinea

The work of the Division of Land Research and Regional Survey in New Guinea is an important but very little-known facet of Australia's stewardship of her dependent island territory.

ritory. At the present time New Guinea is not producing enough food for its own requirements. If the country is to achieve a greater measure of independ-ence, self-sufficiency of food supply must be the first goal in its agricultura in New Guinea

supply must be the first goal in its agricultural development. Agriculture in New Guinea is not a stable thing. Normally the natives are continually on the move, burning clearings in the forest, planting and harvest-ing crop gardens, and then moving on again to do the same thing elsewhere. If stable agriculture is to be established, the first step is to find out which areas of land have the best agricultural potential, so that permanent farming communities can be established. Only after this has been done can roads and markets be logically planned. After the war, C.S.L.R.O. de-veloped unique methods of land survey which have been successfully used for rapidly taking stock of her own land resources. Since 1953 these methods have been applied in New Guinea, and six large tracts of New Guinea land have already been investigated. The work done so far has produced results of great value and interest. Some first-class agricultural land has been

The work doile so far has produced results of great value and interest. Some first-class agricultural land has been found, as well as much more land which is capable of im-provement. It has also been found that some of the areas of best agricultural land carry little or no population. Australia is pioneering this field of land survey in the tropics. Although F.A.O. is now using a similar approach with one scientific specialist in Central America, and more specialized agricultural surveys are being made in a number of countries, Australia's work in New Guinea is virtually unique.

#### Wool Problems

The Chairman, Dr. White, introduced the subject of cur-rent problems in the wool



Mr. N. E. Rider (Plant Industry) showing a net radiometer to Dr. J. Melville of the Executive and Advisory Council members, Professor N. S. Bayliss and Professor C. M. Donald.

industry. Members of the Council had before them the evidence which Dr. White re-cently gave to the Committee of Enquiry on Wool Marketing.

The results of research, said Dr. White, are certainly not having as yet a significant in-fluence on the sale of wool. The promotion of the sale of wool textiles, and particularly the integration of research and promotion, is a professional task of great complexity. By contrast, the selling of most agricultural products, f o r example, meat and wheat, supplying as they do the de-mand for food, is relatively more simple. The cotton industry of the U.S.A., influenced by the need to abandon its traditional ap-proach to the sale of its fibre has now, in the National Cotton Council, a modern organization which integrates research, technology, market studies, and promotion. The understanding of the wool fibre producers that their industry must also follow a similar course has been grow-ing over the past few years. The planning of the Australian Wool Bureau and the Inter-national Wool Secretariat ap-pears now to be aimed at the correct objectives. In the planning of the immediate future high priority must be given to increasing the technical staff to undertake the introduction of research results and to give technical assistance to industry. The technical groups in Aus-tralia, in Europe and in the U.S.A., are still too small to handle effectively the task that must be done. For example, the wash-no-iron processes are not widely used in Australia and overseas because the tech-nical staff available for their introduction is already fully committed on other activities. The marriage of research and promotion on con wide scale has

The marriage of research and promotion on a wide scale has been the lifeblood of so many modern industries — certainly including the synthetic fibre industry — that its significance to the wool fibre industry cannot be disputed. Unfortunately, its significance is often ill-understood by the woolgrower, the man who would most benefit and who is called upon to find the greater part of the money required if this policy is to be followed.

## TECHNICAL ASSOCIATION NEWS

The elections for Central Council and State Branch office bearers have now been finalized. The outlook for the forthcoming year is very promising in view of the enthusiasm shown at the elections.

Results of General Elections for 1961-62 Central Council

- Federal President: N. G. Richards (Meteorological (Physics).
- General Secretary: H. F. Heath (Forest Products).
- General Treasurer: Lois Burns (Forest Products).
- *Publicity Officer:* R. A. Humphris (Publishing Section). S.A. Delegate: M. W. Hughes (Soils). *Victorian Delegate:* J. L. Little (Fodder Conservation). N.S.W. Delegate: W. J. Menzies (Animal Genetics).

#### Gazette

Editor: R. A. Humphris (Publishing Section)

#### South Australian Branch

- Chairman: M. W. Hughes (Soils). Secretary: R. A. Buckley (Biochemistry). Treasurer: Jan Hawkes (Math. Stats.). Delegates: Diane Tidswell (Math. Stats.), J. G. Pickering (Soils), P. R. Monk (Biochemistry).

#### Victorian Branch

- Chairman: J. L. Little (Fodder Conservation)
- Secretary: A. van den Brenk (Forest Products). Treasurer: E. McArthur (Forest Products).
- Delegates: R. A. Humphris (Policis) Products). Esdaile (University Group), W. J. Jackson (Chemical Research), A. F. Wilson (Chemical Research), W. P. Rogers (Dairy and Engineering), Sonja Rutherford (Forest Products), Betsy Murray (Textile Industry), V. R. Squires (Deniliquin), E. A. Lawton (Merbein).

#### N.S.W. Branch

- Chairman: W. J. Menzies (Animal Genetics). Secretary: N. S. Thorndike (Radiophysics).

- Secretary: N. S. Thorndike (Radiophysics).
  Treasurer: R. E. Coyte (Animal Physiology).
  Delegates: L. A. O'Loughlin (Coal Research), G. A. Gordon (Fisheries), K. R. Boehme (Food Preservation), R. W. R. Edols (Animal Physiology), Jill Franklin (McMaster Lab.), J. R. Battrick (Metrology), R. B. Abell (Physics), C. D. Howarth (Radiophysics), L. G. Bellamy (Textile Physics).

L. G. benany (TEXUE Physics). It is with regret that Council has agreed to a recom-mendation from the A.C.T. delegate that, because of the general difficulties experienced by the A.C.T. Committee, the members in Canberra should be attached to the N.S.W. Branch. Whilst the delegate will be R. S. McInnes (Ento-mology), the interests of members will also be looked after by the following people.

- W. A. Bruce (Plant Industry).
- Keith (Wildlife). D. E. Havenstein (Entomology).
- Pullen (Land Research).

The members in Western Australia and Queensland will be looked after by the General Secretary until such time as branches are formed to serve their interests.

The members in outlying Field Stations in States other than Victoria will be represented on the N.S.W. Branch until the A.C.T. Branch is fully able to look after their

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## New Laboratory Named | FORESTRY RESEARCH Sir David Rivett After

The Parliamentary Public Works Committee has given its approval for the construction of a new £450,000 building for the Division of Chemical Physics. The new building will be constructed on the 40-acre C.S.I.R.O. site adjoining Monash University in the Melbourne suburb of Clayton. The Executive has decided that the new building will be named the David Rivett Laboratory.

Preliminary work on the site will begin next financial year, and major progress should be made during 1962/63.

In the Senate last month, Senator O'Byrne, a member of the Public Works Committee, spoke about the new laboratory.

spoke about the new laboratory. The Division of Chemical Physics, he said, was estab-lished in 1944. It was a part of C.S.I.R.O.'s Chemical Re-search Laboratories which were doing valuable work in the promotion of technical e efficiency in established indus-tries, in stimulating the estab-lishment of new industries, in encouraging the use of raw materials of Australian origin, in seeking substitutes for im-ported materials, in finding uses for by-products not utilized, and in studying national prob-lems to which the research staff can contribute by way of their experience in other fields. their experience in other fields.

their experience in other fields. "The committee," said Senator O'Byrne, "found that the existing accommodation in-corporated virtually none of the facilities desirable for the type of research work being undertaken, and it directs attention to the fact that the staff is at present accommo-dated in a sprawling group of buildings on a site at Fisher-men's Bend, which is shared with the Aeronautical Research Laboratories of the Department of Supply. of Supply.

#### Space Inadequate

Space inadequate "The space occupied by the Division comprises part of one floor of a permanent laboratory block, two makeshift factory bays with temporary mezzanine floors, two buildings construc-ted from disposal Army huts shortly after the war, and one small hut. We found that there was overcrowding and that there was an urgent need for a new laboratory.

#### Ideal Site

"The site of the proposed building adjoins the Monash University. It is ideally located.

## Fisheries on T.V.

A number of officers of the A number of officers of the Division of Fisheries will be appearing in the A.B.C. tele-vision programme "Micro-scope" during the next few months. The programmes will appear on ABN-2 and other A.B.C. channels.

In each programme a different officer will discuss a different aspect of fisheries re-

search. The tentative schedule is as follows

follows:— June, 1961 "All Fish is Grass" (A programme to introduce the series): Dr. G. L. Kesteven

even. August. 1961 "Phytoplankton": Dr. G. F. Humphrey. October, 1961 "Animal Plank-ton": Mr. D. J. Tranter. December, 1961 "Plankton Eat-ing Fish": Dr. R. G. Chittle-borouch

borough. bruary, 1962 "Carnivorous Pobins.

February, 1962 "Carnivorous Fish": Mr. J. P. Robins. April, 1962 "Physics and Chem-istry of the Sea": Mr. B. V. Hamon or Mr. D. J. Roch-ford

The C.S.I.R.O. authorities be-lieve that proximity to the university will encourage young scientists studying there to take a closer interest in this type of work. "The building which is pro-

"The building which is pro-posed, and which the commit-tee recommends, will meet posed, and which the commit-tee recommends, will meet requirements for approximately ten years. We are finding, in our investigation of many of these very important projects, that even longer planning is percensent. necessary.

#### Air Conditioning

tional

"The building will be fully air conditioned. Extra air conditioning will cost £34,000. "The committee believes that he expenditure of that addi-onal amount is justified the

because of the intricate nature because of the intracte nature of the research. Special assurances were given that the vibration problems associated with the work to be conducted in the building have been met in the design. "On behalf of the commit-tee L phould like to pay (ribute

"On behalf of the commit-tee I should like to pay tribute to the great work that is being done by scientists and research workers in the Division of Chemical Physics of the C.S.I.R.O. We hope that the erection of the proposed build-ing will be expedited so that these officers can get-on with the magnificent work that they are doing."

Architect's perspective of the new Chemical Physics building to be built at Clayton, Victoria.

Forestry School and appro-priate divisions of C.S.I.R.O. Mr. Gordon Freeth, Minister

Mr. Gordon Freelt, withister for the Interior, told the House of Representatives last month that an Australian Forestry Council will be created under the Forestry and Timber Bureau Act to serve as a national advisory body on for-estry matters estry matters.

The advice of the Council will be used by the Bureau to ensure that its work is coordinated with related activities in the forest services of the Australian States and Terri-tories, in C.S.I.R.O., in the universities, and in the timber industry.

The final composition of the Council will require further consideration, but it will contain representatives of the forest



WILL BE EXTENDED

industry, C.S.I.R.O., the uni-versities and, if considered desirable, other appropriate organizations.

#### Long Term Research

Through the Australian Forestry Council, the Forest Re-search Institute and other divi-sions of the Forestry and Timber Bureau, the Commonwealth Government will extend its activities in the field of forestry and thereby give added assistance to the timber industry from a long-term point of view

This long-term approach, said Mr. Freeth, is entirely separate from the detailed examination of the immediate economic stresses being felt by the industry, which the Government is currently undertaking.

#### **Higher Productivity**

"The task ahead," continued the Minister, "is to assist in bringing Australia's forest estate to a condition of maximum productivity. The annual growth of the forests in 1955 was estimated as 6,216,000,000 super, feet,

"Against this increment, we meanwhile harvest for annual use 6,132,000,000 super. feet of timber, waste over another 1,200,000,000 super. feet in the process, and lose another 1,717,000,000 super. feet to borers, insects and fire damage. "At present, therefore, our annual debit in timber exceeds

the replacement capacity of the forests by a figure of no less than 2,832,000,000 super. feet ---or more than half the volume actually harvested.

#### Grave Losses

"Even that fails to convey the full gravity of the situation because the above losses do not include arrested forest growth due to periodic defoliations due to periodic defoliations and other injuries following bushfires, disease and insect attack. Loss of potential growth on this account adds up to at least another 6,000,000,000 super, feet a year.

"After allowing for some unavoidable waste in harvest-ing, the 9,000,000,000 super. feet or so of forest growth at present being lost every year would, if it could be saved, be worth, at present-day prices, about £25,000,000 standing in the forest.

#### **Possible Savings**

"If research resulted in a saving of only a mere 10 per cent, of this loss the value of that 10 per cent. at mill door in the form of logs and pulp-wood would be a round  $\pounds 7,000,000$ , and in the term of sawn timber, fibreboard and paper, its final value at consuming centres would be about £30,000,000.

"The return from the increased production would more than cover any extra cost in-curred in growing it, and it is confidently believed that scientific research can, within a few years, result in a much greater saving than 10 per cent. of the present losses.<sup>1</sup>



# A Swimming Pool for £350

A swimming pool, thirty-six feet long, twelve feet wide, and four feet deep, has been built in Melbourne for a cost of only £350. The pool was designed by Mr. F. A. Dale, of the Division of Forest Products, for his brother John, who is on the staff of the **Defence Research Laboratories.** 

Wood as a constructional material for swimming pools has been largely neglected, al-though wooden pools with plastic liners have been made.

plastic liners have been made. This is surprising, because wooden tanks and pipes have been used for many years and wooden boats are still holding their popularity, particularly since waterproof plywood be-came available, and a swim-ming pool is, after all, only a boat with the water inside! The main objection to the use of waterproof plywood in a pool has been its suscepti-bility to decay, but plywood and certain timbers can be impregnated with clean paint-able preservatives to make them last for many years under the worst conditions. Mr. Dale's is of composite

Mr. Dale's is of composite construction, comprising a wood and plywood wall bolted to a reinforced concrete slab. The use of a concrete slab. The use of a concrete floor simplified construction and re-duced the cost, as did erection at ground level and the adoption of a uniform depth.

A recirculating filter with a plywood filter box and plastic piping keeps the water clean. The pool took about 400

A backyard swimming pool con-structed of preservative-treated wood and plywood walls bolted to a reinforced concrete slab.

man-hours to build and total material cost was about £350. The only outside labour used was that of a concrete finisher for the slab. A logical improvement to the

construction would be the pre-fabrication of the walls in panel form to enable pools of any size to be erected from standard components on a concrete slab.



# **OPEN DAYS AT N.S.L.**

Nearly three thousand people representing many industries attended three Open Days at the National Standards Laboratory on 3rd, 4th, and 5th May.

About 159 exhibits were displayed by the three Divisions of Metrology, Physics, and Electrotechnology.

The Open Days, increased to three this year to cope with a larger crowd, went off smoothly, reflecting smooth organization in the preceding weeks.

A mong the Metrology exhibits was displayed equipment specially developed to enable precision measurements to be made based on the newly adopted length standard, which is related to the wavelength of light emitted by an isotope of krypton.

This equipment incorporates a photoelectric setting microscope capable of determining the position of a line on a standard bar with an accuracy of better than one millionth of an inch.

an inch. The Division of Physics showed two new methods of measuring humidity. These methods, which have previously excited the attention of industry, have been further developed and prototype industrial versions of the apparatus were shown.

One method depends on the conductivity of condensed films on ionic crystals, and the other depends on changes in the electrical properties of minute anodised aluminium disks.

Another new instrument, not previously exhibited, gives a continuous measurement of the surface tension of liquids. The Division of Electro-

technology included among its exhibits a recently developed "parametric" amplifier. This device, based on principles known for many years, will amplify weak radio signals such as those which may be detected by a radio telescope. The "parametric" amplifier might turn out to be more satisfactory in some applications than maser-type amplifiers which require more complex equipment.

Visitors to the Open Day were invited to bring their own cameras as subjects for demonstration tests on lens performance. There was a very good response in the supply of cameras, while the room was always crowded during the demonstration. Dr. J. G. Collins, a graduate of the Universities of Western Australia and Cambridge, has joined the Division of Physics. Dr. Collins, a West Australian

**NewAppointees** 



Dr. J. G. COLLINS

who has been overseas on a C.S.I.R.O. Studentship, will work on theoretical aspects of solid state physics.

solid state physics. Dr. F. Lenz has taken up an appointment with the Irrigation Research Station, Griffith. Dr. Lenz received his doctorate at the Institute of Horticulture. University College, Stuttgart-Hohenheim Iast year. At Griffith he will do nutritional studies on citrus fruits.

**Dr. K. C. Marshall** has joined the staff of the Division of Soils, and will work at the Western Australian Regional Laboratory in Perth. After graduating in agricultural



Dr. K. C. MARSHALL

science in Sydney and serving for three years with the N.S.W. Department of Agriculture he went to America, where he graduated M.S. and Ph.D. at Cornell. At Perth he will undertake a microbiological study of the nitrogen cycle in soil. **Dr. S. C. Mossop** has recently arrived from South Africa to join the cloud physics group in the Division of Radiophysics. A graduate of the Universities of Pretoria and Oxford, Dr. Mossop has been with the National Physical Research Laboratory of the South African Council for Scientific and Industrial Research for the last twelve years.



Dr. J. L. READSHAW

Dr. J. L. Readshaw has been appointed to the staff of the Division of Entomology. He is a graduate of the University of Durham, England, and recently obtained his Ph.D. for a study of the biology and ecology of the Swede Midge. In his new job he will be investigating the ecology of several species of phasmatids.

Mr. A. E. Stark, a graduate in mathematics of the University of Adelaide, has joined the Division of Mathematical Statistics. He will be stationed at Cronulla where he will assist and advise research staff of the Division of Fisheries and Oceanography on statistical problems related to their research programme. He was previously with the Commonwealth Bureau of Census and Statistics.



Mr. A. E. STARK



The A.B.C. presented their radio programme "Smoko" in the cafeteria of the National Standards Laboratory and Radiophysics Division during a lunchtime last month. The picture shows A.B.C. artists Ray McGeary and Peggy Mortimer. The show will be broadcast through 2FC and other A.B.C. stations on Friday, 9th June, at 7.30 p.m.



# **OVERSEAS VISITS**

Mr. J. D. Bronks, of the Division of Coal Research, lett last month to spend a few months overseas. He will visit research centres in Japan, the United Kingdom, and America. He will also attend the Fourth International Conference on the Science of Coal in France.

Science of Coal in France. Dr. G. L. Kesteven and Dr. R. G. Chittleborough, of the Division of Fisheries and Oceanography, left in April to attend the International Whaling Commission Scientific Workshop which was held in Rome. They returned early last month.

last month. Mr. W. Hartley, of the Division of Plant Industry, leaves this month for five months overseas. He will visit Indonesia, Pakistan, the United Kingdom, Europe and North America, visiting institutions which maintain large collections of varieties of crop and pasture plants. Mr. Hartley was invited to Indonesia by Professor Sarwono, President of the Council for Sciences of Indonesia, when he was here recently.

Professor Sarwono and the Indonesian Government would welcome visits from other C.S.I.R.O. scientists who may be passing through Djakarta.

be passing through Djakarta. Mr. R. C. McTaggart, of the Division of Building Research, left last month for Copenhagen, where he will attend a Seminar on the "Contribution of Building Research to Housing Programmes in Developing Countries". He will also visit research institutions in India, the United Kingdom, and Canada. Dr. J. D. Morrison, of the Division of Chemical Physics, left last month to attend the Mass Spectrometry meeting of the American Society for Testing Materials to be held in Chicago this month, and to visit various industrial and academic bodies in America, and the United Kingdom. He will be away for approximately six weeks.

six weeks. Dr. R. F. Riek, of the Animal Research Laboratories, left last month on a three weeks' visit to the United Kingdom and Europe. The main purpose of his visit is to attend a symposium entitled "Immunity to Protozoa" organized by the British Society for Immunology.

Dr. B. F. Short, of the Division of Animal Physiology, left last month to spend a few months overseas. He will visit research establishments in New Zealand, North America, the United Kingdom, France, Finland, and Israel.

Miss Helen Newton Turner, of the Division of Animal Genetics, left last month on a visit to Asia and Europe. She will visit animal breeding establishments in India and Russia, and will return to Australia through Yugoslavia, Greece, and the Middle East.

Dr. D. E. Weiss, of the Division of Physical Chemistry, leaves this month to spend a few weeks in the United States. The main purpose of his visit is to attend the Fifth Biennial Conference on Carbon to be held at Pennsylvania State University. Before Sir Ian Clunies Ross died, a group of his colleagues proposed that his portrait should be painted to hang in the Council Room at Head Office.

However, Sir Ian died before this plan was put into effect, so after his death it was decided to commission a posthumous portrait.

humous portrait. A collection was taken up from the staff and the Executive asked Victorian artist, Mr. Harley Griffiths, to undertake the commission. The portrait is now finished, and will hang in a new Committee Room at Head Office. A print of the painting is distributed with this issue of "Coresearch".

## Boas Lectures

Annual science lectures commemorating a pioneer research worker in the paper pulp industry are planued for Melbourne secondary s c h o o l students.

Named the Boas Memorial Lectures after the late Mr. I. H. Boas, former Chief of the Division of Forest Products of C.S.I.R.O., they have been arranged by the Australian Pulp and Paper Industry Technical Association.

The first will be at the Public Lecture Theatre, Melbourne University, on 15th June at 8 p.m.

The Chief of the Division of Forest Products, Dr. H. E. Dadswell, will talk on "Tough Timber to Tough Paper".

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## Zurany 028##1961 **DRESEA** FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF NUMBER 28, MELBOURNE, JULY 1961

**BIRTHDAY HONOURS LIST** 



Dr. A. J. NICHOLSON, C.B.E.

A retired Chief and a retired Officer-in-Charge were among the people honoured in the Queen's Birthday list.

Dr. A. J. Nicholson, F.A.A., formerly Chief of the Division formerly Chief of the Division of Entomology, was created a Commander of the Order of the British Empire (C.B.E.). Al-though Dr. Nicholson retired as Chief last year he is con-tinuing his research in insect population dynamics as a Senior Research Fellow in the Division

Senior Research Fellow in the Division, Mr. A. V. Lyon, who was Officer-in-Charge of the Irriga-tion Research Station at Mer-bein for over thirty years, was made a Member of the Order of the British Empire (M.B.E.). Three members of the Advisory Council were hon-oured by the Oueen.

Advisory Council were hon-oured by the Queen. Mr. B. Meecham, O.B.E., was made a Companion of the Order of St. Michael and St. George (C. M.G.). Mr. Meecham, a Western Australian industrialist, is a member of the Export Development Coun-cil.

Mr. H. B. Somerset has been created C.B.E. He is managing

director of Associated Pulp and Paper Mills Ltd. of Burnie, Tasmania. In 1959 Mr. Somer-set was Chairman of the Advisory Council's Committee of Review on the Division of Forest Products.

rorest Products. Mr. P. Ryan, who joined the Advisory Council last year, has been awarded the Imperial Service Order (L.S.O.) He re-tired last month from the posi-tion of Director of Agriculture in Victoria.

in Victoria. Mr. F. H. Peacock, a mem-ber of the Tasmanian State Committee, was made C.M.G. in recognition of his services to commerce and industry. He has been chairman and manag-ing director of Henry Jones & Co. since 1926. Mr. B. C. C. Paren Olicaten

Mr. R. G. C. Parry-Okeden, a member of the New South Wales State Committee, was created C.B.E. He is chairman and managing director of John Lysaght (Australia) Ltd., and is a director of serveral other is a director of several other large companies.



Mr. A. V. LYON, M.B.E.

# The Engineers' Case

On 15th June a joint bench of the Conciliation and Arbitration Commission handed down its judgment on the long drawn-out Engineers' Case.

A number of Associations had claimed substantial increases in the salaries of professional en-gineers employed in many Commonwealth and State pub-lic services and authorities and in wide sections of industry.

in wide sections of industry. For the Commonwealth Pub-lic Service the Court set the salary range of an Engineer Grade 1 as f1,400 - f1,540 - f2,020 - f2,840 - f2,840 - f2,020 - f2,240 - f2

In private industry rates are  $\pounds1,400$  for a new diplomate,  $\pounds1,540$  for a new graduate, and  $\pounds2,200$  for an experienced engineer.

An experienced engineer is defined as a qualified profes-sional engineer who is aged 25, who has had at least four years who has had at reast rour years professional experience since graduation (five years for she diplomate), and who is created

on duties which call for pro-fessional qualifications. Because of the number of employers bound by the new determination, and because they are widely spread geo-graphically, the new rates have come to be regarded as national minimum rates for engineers. It should be noted that only

minimum rates for engineers. It should be noted that only employers and authorities who are parties to the award are at this stage bound to apply the new rates to their employees. The application of the rates to engineers employed by other bodies must await variations in the relevant awards or de-terminations.

The Commission's determina-The Commission's determina-tion does not apply to C.S.I.R.O., and at this stage there will be no immediate impact on C.S.I.R.O. salary ranges. However, the Executive is attractional provided the the issuit present considering the judgment rand. its implications for the salaries of the profes-sional staff-of the Organization.

#### JH. 1961 Australian Equipment for U.S. Satellites

C.S.I.R.O. is going ahead with plans for Australian designed space research instruments to be left aloft in an American satellite.

A decision is expected to be made soon whether prototypes of the equipment will be tested by being launched from Woomera in a Skylark rocket or at an American base.

The instruments are radio transmitters designed to investigate radio waves coming from outer space. They have been developed by the Upper Atmos-phere Section.

The work will be linked with outer space probes being car-ried out at Camden. The

instruments will be launched in America as part of the 200 lb. payload of a satellite fired into space by a Scout rocket. The U.S. is also providing space in American satellites for British scientific instruments.

Dr. D. F. Martyn, Officer-in-Charge of the Section, said recently that the Australian equipment had been tested on the ground, and subsequently miniaturized and fitted with telemetry for radioing informa-tion back to the ground.

The instruments had now been flown in navy high alti-tude balloons from the R.A.N. station at Nowra (N.S.W.) and they had worked satisfactorily. The next stage would be the sending aloft of prototypes in a rocket to determine whether the instruments were ready for launching in a satellite, he said. If an American offer of the

If an American offer of the use of a Nike rocket for this stage was accepted, the launch-ing would take place at a U.S. rocket base off the coast of Virginia.

# **Distinguished Company**

Mr. J. P. Wild, of the Division of Radiophysics, has joined a very small band of Australians who have been accorded a notable American distinction --- honorary foreign membership of the American Academy of Arts and Sciences.

Only two other living Austra-lian scientists have been ac-corded this honour. They are Sir MacIarlane Burnet, F.R.S., and Sir John Eccles, F.R.S.



Mr. J. P. WILD

The list of physicists ac-corded this honour in the last annual report of the Academy numbered seventeen — ten of which were Nobel Prize winners.

Mr. Wild's investigations of the short period variations in solar radio frequency output have won for himself and for

have won for himself and for Australia undoubted pre-eminence in this field of radio astronomy. He has pioneered the tech-niques and the interpretation of results and his methods are now being used overseas. He is internationally recognized as an outstanding expert in this particular field of radio astronomy.

In 1957 Mr. Wild shared the Edgworth David medal with Dr. J. M. Cowley, of the Division of Chemical Physics.



Courtesy W.A. Newspapers Ltd.

The Premier of Western Australian, Mr. David Brand (left) and C.S.I.R.O. agronomist, Norman Thompson, looking at a cotton crop growing at the Kimberley Research Station. The station, which is growing cotton experimentally, has produced as much as 2,250 pounds to the acre.

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# Sheep and Wool Research on Show in Sydney

control is the first step in pas-ture control

Certain pasture grubs and the red-legged earth mite are seri-ous threats to improved pasture.

Chemical control of these pests

The laboratory has

studying sheep worms for thirty years, and has amassed a wealth of knowledge about the impor-

lance of different species, their life cycles and their relations with their host.

One of the problems of controlling liver fluke is the

difficulty of eliminating the intermediate host, a fresh water snail. Possible ways of attack-ing the snails are now being explored experimentally.

Footrot is still an outstand-ing problem for woolgrowers. Although effective ways of con-

trolling it have been estab-lished, the process is arelious and time-consuming. Research has revealed little likelihood of

of eliminating the

now being

sirable

in wool.

difficulty

C.S.I.R.O.

NOOL RESEARCH LABORATORIES

Sheep Diseases

possible and very often de-

Some of the contributions made by science to the sheep and wool industry were on display at the 1961 Sydney Sheep Show last month.

Last year the New South Wales Sheepbreeders' Association in-vited C.S.I.R.O., the N.S.W. Department of Agriculture, the Universities of Sydney, New South Wales and New England, and a number of other organizations and firms to put on display some of their research achievements.

The display was designed to bring stud breeders and wool growers into closer contact with some of the applications of science to sheep breeding, animal nutrition, disease con-trol and wool textile tech-nology. A bundred page nology. A hundred page illustrated handbook about the exhibition was available at the show

Funds making the show possible were provided by the Commonwealth Bank, the Wool and Committee, C.S.I.R.O.

## Unlikely Story

If a man calls on you and tells you your house has check with a borers builder or check who the man is.

Recently, a dozen or so house-holders in Monash Street, Box Bill, Victoria, were told that their homes were "borer-infested, and in danger of collanse".

A man who said he repre-sented a firm of pest extermin-ators told them he could "save" each house for £28 — by each house for £28 spraying with borer killer.

- The householders said that; The man disappeared under the house for a tion" inspection. "no-obliga-
- He reappeared with a strip of borer-riddled timber and said that the house was "in a bad way".
- He offered to treat the house for £28, a low price possible only because the firm was "operating in the street".

"operating in the street". There were plenty of worried people for a while, but their worries stopped when they checked with the Division of Forest Products. They found that Victorians can forget about the Lyctus borer. It cats only sapwood, of which Victorian bacdworde contain only a small hardwoods contain only a small quantity,

Once it has eaten out the sapwood the Lyctus must leave or die. And the house bearers, studs or joists it leaves are still sound, basically undamaged members.

One elderly couple in Monash Street had paid £5 deposit on the spray treatment when they discovered this. They cancelled the cheque.

A widow was told her house-bearers were so riddled she would have to pay £400 or £500 for repairs in three or four years if the house wasn't sprayed now. She checked with a builder, whose comment, she said, was "Phooey!".

A widow next door and an elderly man further up the street had similar experiences — and in both cases they were - and in both cases they were put on their guard by the man's urgency in wanting to sign them up. Another man checked with a builder who discussed the matter with the Division of Forest Products.

The Division s ent h im pamphlets explaining the habits of the Lyctus borer, and he distributed them in the street. The Division has hundreds of enquiries about borer every year.—Adapted from an article in the Melbourne "Herald".

The show was divided into three sections, on "The Land", "The Sheep" and "The Pro-duet", and C.S.I.R.O. groups contributed to each section. In "The Land" section there were two exhibits from the Organiza-tion, one on weed control, and the other on insect pests.

#### Weed Control

The weed control exhibit showed how weeds could be kept down either by ecological methods (changes in their en-vironment) or by chemical

means. Chemical control is of in-creasing importance for con-trolling weeds in crops, but where weeds invade pastures the basic approach should be an ecological one. The most the basic approach should be an ecological one. The most convenient and cheapest method of weed control is the establishment of improved pas-tures which will smother the weeds.

Biological control of weeds is another ecological method, best exemplified by the famous example of the prickly pear and its destroyer, the insect *Cacto*blastis.

At the Sheep Show four different weed types were shown, each of which is con-trolled by different methods.

#### Insect Pests

The entomological display was mainly devoted to the story of the sheep blowfly and to some of the insects which infest pasture in sheep country. The sheep blowfly has been the subject of research for many subject of research for many years, both by C.S.I.R.O. and by other research organizations. Present methods of control

involve five factors

- Culling to get rid of sheep which are heavily wrinkled in the crutch region.
- Cutting tails to the correct
- Institution of the second secon shears
- Crutching just before the blowfly season. Jetting with insecticides such
  - as diazinon gives protection for a couple of months.

The Prime Minister opened the Sheep Show. Here Mr. Menzies is discussing solvent scouring with Dr. K. Baird of the Divi-sion of Textile Physics.

The pasture pests shown ina vaccine against footrot being cluded the wingless grass-hopper, which likes flat weeds and thistles, which carry it over dry periods. In this case weed although suitable found. cines have been found for other diseases of sheeps' feet.

been

#### **Textile Research**

In the section on "The Pro-duct" the Wool Research Laboratories showed some of the results of their research on wool.

The Division of Protein Chemistry's work on fell-mongering was illustrated by an exhibit of wool pieces re-covered by the C.S.I.R.O. method alongside pieces ob-teined by the constituent fell tained by the conventional fell-

sics' "pressure coring" method of taking wool samples from bales was demonstrated.

C.S.I.R.O.' printing of woollen fabrics. A section of the McMaster Laboratory's display.

The "SI-RO-MOTH'D" process was dramatically illustrated by showing moth larvae on unby showing moth larvae on un-treated fabric (happily munch-ing) and dying larvae on diel-drin-treated fabric. The sound of the larvae eating the un-treated fabric was heavily am-plified and could be clearly heard through a loud-speaker.

The "SI-RO-SET" and "SIR-ONIZED" processes we re demonstrated by showing fin-ished garments which had been wetted and washed respectively. The "SI-RO-SET" garment re-tined its creases and the "SIR-ONIZED" garments dried smoothly as a "wash-and-wear" fabric should.

On an adjacent stand the Australian Wool Bureau de-monstrated the "SI-RO-SET" process by actually carrying out the process on skirts and



The Annual General Meeting of the Victorian Branch was held in May in the conference room of the Division of Forest Products, South Melbourne. The Annual Report was presented by the Chairman, John Little (Fodder Conservation). A rather small audience listened with interest to an account of the many and varied activities of the Technical Association. One of the more important reports was of the meeting of the C.S.I.R.O. Executive and the Central Council of the Technical Association. Messrs. Menzies, Murray, Little, Battrick, Richards, Hughes, Bellamy and Heath discussed an agenda which covered twenty-eight separate items. It was pointed out to members at the Annual General

It was pointed out to members at the Annual General Meeting that a lot of unpublicized work is done behind the scenes, and that those people who are reluctant to join the Association should support the work of the Central Council and State branches and State branches.

After the General Meeting, some interesting films on wildlife were screened. Members were then invited to supper in the new Forest Products canteen. They were also entertained by some rather dashing female table tennis players.

The publication of our own paper, the "Gazette", has been taken over by the new Central Council, now located in Victoria. We await with interest the first issue in the new style.

Members are urged to read the Gazette, as this is one of the best ways of learning about the activities of the Central Council and State Branches.

The Association would like to bring to your notice that in the issue for June, a change in annual subscriptions was announced. Quite a few members are not aware of this change, and to clarify the situation we list the new rates hereunder:

S.T.O. I-IV, Snr. Lib. I and II	£2	- 5	0
T.O. I and II, Librarian 1 and II	£2	0	0
T.A. III, Lib. Asst. III	£1	15	0
T.A. 1 and II, Lib. Asst. 1 and II	£I	10	0
Asst. 1 and II, Asst. Spec. Meas. 1 and II .	£1	15	0
Juniors	£1	0	0
The ten per cent, discount for the year's subsc	ript	ion	in
advance still applies.			

Branch representatives are urged to submit interesting ems of news to their State Secretary for insertion in the items of Gazette.





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In the section on "The Sheep" the major C.S.I.R.O. display was provided by the McMaster Animal Research Laboratory. The exhibit in-cluded sections on worms, the liver fluke, footrot and diseases in wool. mongering process . The Division of Textile Phy-

The Division of Textile In-dustry's solvent degreasing pro-cess was illustrated with a small working model of the plant. Another working model showed

C.S.I.R.O.'s modified and streamlined process for melange trousers Conservation and a server and a server a se

The "SI-RO-SET" and "SIR-ONIZED" processes were

# A.N.Z.A.A.S. IN RETROSPECT

In a country with such a small number of scientists as Australia, an event which causes an interstate movement of a thousand scientists must be of considerable importance.

At the 35th A.N.Z.A.A.S. Congress, held in Brisbane from the 28th May to 2nd June, C.S.I.R.O. was well represented both among the thousand visitors and among the 1800 members enrolled in Queensland.

The Organization provided two Section Presidents, one Section Sector Presidents, one Section Secretary, and three State Local Secretaries. Well over 50 papers were given by C.S.I.R.O. research workers. and international implications of science

The C.S.I.R.O. representa-tives were Dr. D. F. Martyn, Dr. O. H. Frankel and Dr. R. N. Robertson, and the fourth speaker was Mr. W. C. Went-worth, M.H.R. 

by J. F. H. Wright "我们还有你?" "你是我们还没有你没有我有不能不能不能

The four introductory papers summarized a mass of informa-tion on the current trends in tion population growth, fuel utiliza-tion and food production.

computer-type translating machines.

A test run involving translation from English to Russian and back to English started with the sentence "The spirit is willing but the flesh is weak", which, after double translation, came out as "The vodka is dandy but the steak is rotten".

And then there was the entry in the programme describing Mr. P. G. Law as "Director, Antractic Division, Department of Eternal Affairs".

The tangible results from a meeting such as this may not be immediately obvious. But those involved appear to have considered the expenditure of over 100,000 man- and swoman-hours worthwhile, and who would doubt the wisdom of 2,800 scientists?

## **Conferences** Abroad on Solar Energy, Geothermal

Dr. G. D. Aitchison, of the Soil Mechanics Section. left last month to spend three months overseas. He will at-tend a Colloquium on "Engineering properties and expan-sive soils" to be held in Tel Aviv and the Fifth Conference of the International Society of Soils Mechanics and Foundation Engineering to be held in Paris. Dr. Aitchison will also visit research establishments in Ceylon. India, the United Kingdom, Canada, and attend the 10th Pacific Science Congress in Hawaii.

Dr. O. H. Frankel, Chief of the Division of Plant Industry, leaves this month to attend an F.A.O. meeting on "Plant Exploration and Introduction" to be held in Rome. He will re-turn through the United Kingdom where he will interview a number of applicants for positions in the Division.

Mr. R. N. Morse, Officer-in-Charge of the Engineering Sec-tion, will present a paper to the United Nations Conference

Safety First at Griffith

Energy, and Wind Power in Rome in August. On his way back to Australia he will visit research institutions in Russia India and Malaya. Mr. E. F. Woods, of the Division of Protein Chemistry, leaves this month for fifteen months overseas. He will attend

the Colloquium on Wool Structure to be held in Paris and will also attend the International Congress of Biochem-istry to be held in Moscow in August. In addition, he will visit protein research centres in the United Kingdom, the United States, Europe, and Israel.

Dr. P. L. Waters, of the Division of Coal Research, left in May to spend seven months abroad. He attended the Fourth International Confer-ence on the Science of Coal in France, and will visit research institutions in Europe. He will also visit the U.S.A. and the United Kingdom.



Dr. I. M. Mackerras (centre) was awarded the Mueller Medal, the highest distinction of A.N.Z.A.A.S. In the picture he is receiving congratulations from Professor F. J. Schonell (Vice-Chancellor of the Uni-versity of Queensland) and Professor Ross Haeker. Dr. Mackerras joins the Division of Entomology this month as a Senior Research Fellow.

This year, sixteen specialist societies held meetings in con-junction with the Congress. Most of these took place in the week before the A.N.Z.A.A.S. meeting and many members of the specialist societies stayed on in Brisbane for the Congress.

The A.N.Z.A.A.S. pro gramme included man many gramme included many specialized papers, and there were many joint sessions in symposium form involving two or more Sections.

At recent Congresses there has been much discussion on the functions of the specialist societies and of A.N.Z.A.A.S. itself.

In Brisbane this topic was in Brisbane this topic was discussed again, without any sign of unanimity being achieved. It does appear, how-ever, that most of the specialist societies will hold future meet-ings at the time of A.N.Z.A.A.S. Congresses. Congresses.

In the scientific programme there was ample evidence that scientists are more acutely aware of the world about them than some people would have us believe.

The presidential address of title of "Winds of agricultural change" gave a sober assess-Sir Samuel Wadham under the change" gave a sober assess-ment of the prospects for in-creasing food production to the extent necessary to keep pace with the increase in the world's population. Various aspects of the same problem were dealt with in other papers and symposia.

In the first formal session of In the first formal session of the Congress, on the evening of Sunday, 28th May, three C.S.I.R.O. scientists and one politician discussed "The social

But the headlines in the local newspaper report referred not to these, but to the clash be-tween Mr. Wentworth and an Asian student in the audience. Asian student in the audience. The student was objecting to the expenditure by Australia of large sums on space research whilst a large proportion of the world's population is underfed.

The Congress was made specially enjoyable for inter-state visitors by Queensland hospitality, both official and private. Appreciation of the more serious aspects was helped also by enjoyment of some lighter moments. Dr. some lighter monents. Dr. Robertson talking about recent scientific developments in the Sunday evening Symposium, discussed the limitations of

Cottage Pie

Dairy cottage pie was the piece de resistance at the annual dinner of the Victorian Dairyfarmers' Association last month. The recipe was supplied by the Dairy Research Section of C.S.I.R.O. The Adelaide "Advertiser" next day published the following offering by journalist Max Fatchen.

It treated wool that would not shrink.

- It made the rainclouds snow. It searched the upper atmosphere The C.S.I.R.O.

- It studied water in our land And where the rivers flow It put a knife-edged crease in pants The C.S.I.R.O.
- It pondered deep sea fisheries
- And tuna, shrimp (and whales). And now with scientific zeal The food front it assails.
- . The scientists with faces tense Will watch with shining eye As joyfully researchers shout: "Eureka: cottage pie."

It's made reluctant pastures grow And burny rabbits flee. And now a new and noble gain The "home-made" recipe.

So housewives, when your menus fail, Do not give way to woe. There's always cottage pie. Oh bless The C.S.I.R.O.

# in Tatts

Mr. SCOTT

Mr. A. J. F. Scott, gardener at the Regional Pastoral Labora-tory at Deniliquin, shared first prize in Tattersall's Consulta-tion drawn on 15th May, 1961. His share of the prize is £5,000 When told of his win, Mr. When told of his win, Mr. Scott admitted to feeling some-what shaky, but decided to finish his day with C.S.I.R.O. before celebrating.

His success was shared by most members of the staff between the hours of 5 p.m. and 6.30 p.m.

The staff at the Irrigation Research Station, Griffith, are as safety conscious a group as any in C.S.I.R.O. Various members of the staff fulfil the duties of laboratory safety officer, farm safety officer, first aid attendant, fire officer, and instructor to the junior staff on safety matters.

Mr. H. L. Gilliard, as labora-tory safety officer, sees to it that safety aids are ready to hand in the haboratories, Special cans are provided for the disposal of broken glass.

In these laboratories where inflammable materials are in use, a bucket of dry sand is provided in addition to appro-priate fire extinguishers. Clearly labelled solutions are kept in the chemical laboratories for use in the event of acid spillage spillage.

The farm manager, Mr. J. E. Saunt, looks after safety on the farm. One of his main con-cerns is the safe working of farm equipment; the first job here was provision of guards for power take-ofts.

There is a constant danger from toxic sprays, particularly in glasshouses, and Mr. Saunt makes sure that suitable pro-tective clothing is worn and respirators are used when sprays are being applied. Arrangements have been made with the local hospital for staff working in the glasshouses to have regular blood counts. An interesting innovation has

An interesting innovation has been a series of weekly lectures to junior laboratory staff, given by Dr. H. Dolle, assisted by Mr. Gilliard. The lectures in-corporate elementary chemistry. care and correct use of labora-tory equipment and glassware, and laboratory safety.



"Got a bad scratch from his safety award badge!".



# APPOINTMENTS TO STAFF

Mr. A. K. Allen recently arrived from England to join the staff of the Division of Protein Chemistry. A graduate of the University of London, he has been for the last five years on the staff of the National In-stitute for Medical Research, Mill Hill.



Dr. J. F. BROTCHIE

Dr. J. F. Brotchie, a graduate in civil engineering from Melbourne, has joined the staff of the Division of Building Research. Since graduation he has been on the staff of the Department of Works. From 1958-61 he was on study leave America, working for a in D.Eng. degree at California.

Dr. K. Hoen, a plant breeder. has been appointed to the staff of the Division of Plant Industry. After graduating M.Sc. from Wageningen in Holland he spent the years 1955-59 in America. He graduated Ph.D. from Wisconsin in 1958 and then spent a year at North Carolina State College.

Mr. D. Bennett, another London graduate, has been ap-pointed to the Division of Plant Industry, and will be "Glen Lossie", Kojonup, W.A. Since arriving in Australia two years ago he has been employed by the King Ranch Pastoral Company at Brunette Downs. N.T., and Grafton, N.S.W.

Dr. H. J. Katz, who has joined the Division of Textile Industry, is a graduate of the Universities of London and

Munster (Germany). coming to Australia in 1949 he has been working as an industrial chemist in Melbourne. Mr. D. E. Rivett has been

appointed to the Division of Protein Chemistry as an or-ganic chemist. A diplomate of Swinburne Technical College, he has previously been employed by the Kodak Research Laboratories and by General Motors-Holden's.



Dr. A. R. G. Lang has joined the staff of the Irrigation Research Station, Griffith, He is a graduate of Swinburne Technical College and the Univer-sity of Melbourne. After several years of experience in the paper industry he won a fellowship to the McGill Uni-versity in Canada, and obtained his Ph.D. degree there in 1959.

Mr. I. F. Wardlaw recently joined the Division of Plant Industry, and after spending a few weeks at Canberra, has been granted a year's leave without pay. He has just sub-mitted his Ph.D. thesis at Mel-bourne, and is now at Harvard. On his return he will carry out plant environmental studies with the phytotron. plant environmental with the phytotron.



Courtesy "The Age"

Graeme Heyes, of the Melbourne Ore-Dressing Laboratory, is a bell-ringer. He used to ring church bells in his home town of Ballarat until he came to Melbourne four years ago to work for C.S.I.R.O.

Keen to continue with his bell-ringing, he went along to St. Paul's Cathedral. There he was introduced to a pretty eighteen-year-old bell-ringer. Beverley-Ann Sayce, who was assigned to show him the ropes.

Last month wedding bells rang out at the Cathedral for the marriage of Graeme and his instructor.

Their favourite peal of bells, "The Pretty Six", was rung out at the wedding. Their bell-ringing friends, heaving on the long ropes, weren't able to watch the wedding. So they algoride wedding. So they planted a spy inside a towering archway above them so that they could have a running com-mentary on the ceremony.

#### OVERSEAS TRAVELLERS

Dr. W. W. Emerson, of the Division of Soils, left last month to spend fifteen months in the U.S.A. He will work with the Soil and Water Conservation Division of the Agricultural Research Service of the United States Department of Agriculture, St. Paul, Min-

nesota. Dr. R. D. Hughes, of the Division of Entomology, leaves this month to spend ten weeks in South Africa. He will report on the possibilities for the biological control in Southern Australia of certain noxious weeds\_which are of South African origin. He will also visit Indonesia before he re-turns to Australia. nesota. turns to Australia.

turns to Australia. Mr. L. L. Muller, of the Dairy Research Section, left last month to spend a few weeks overseas. He will visit the United States, Japan and Honolulu. The main purpose of his visit is to study tech-nical problems of casein utiliza-tion

Dr. C. H. B. Priestley, Chief of the Division of Meteoro-logical Physics, left last week to spend a month overseas. He will attend a conference in the United States to lay down a long term plan for the guid-ance of the American Govern-ment in financing research in the atmospheric sciences, and will also visit the United King-dom and Europe. Mr. A. Rosel, of the Divi-Dr. C. H. B. Priestley, Chief

Mr. A. Rosel, of the Divi-Mr. A. Kosel, of the Divi-sion of Forest Products, left last month for Fiji where he will help with the investigation of Fiji timbers. He will do Printed by C.S.I.R.O., Melbourne

research into seasoning practice, preservative treatment, mechanical properties and gen-eral utilization. Mr. Rosel will be away for approximately

eral utilization. Mr. Koser win be away for approximately three months. Mr. S. F. Smerd, of the Division of Radiophysics, left in May to spend a few months in the United States, where he will carry out preliminary statistical studies of the solar radio emission data gathered radio emission data gathered during the International Geo-

physical Year at the High Altitude Observatory, Colorado. He will also visit radio astronomy groups in France and Holland.

and Holland, Dr. C. G. Stephens, of the Division of Soils, left last month to attend a meeting of an international advisory com-mittee set up by F.A.O. to compile a world soil map. He will call at Djarkata for a few days on big way beek to Aug days on his way back to Australia.

## Launceston Hospital Site

The investigation of a proposed hospital site in Launceston by the Soil Mechanics Section (see Coresearch Number 24) has reached a stage where recommendations can be made to the Tasmanian Government.

For over a year the Section. with the help of the National Museum of Victoria and the Bureau of Mineral Resources, has been studying the underlying strata beneath and adjacent to the hospital site.

Last month Dr. G. D. Aitchison, Officer-in-Charge of the Section, presented the re-sults of the survey to the architects, Stephenson and Turner, and representatives of the Tasmanian Department of Health Health.

It was agreed that the evi-dence presented by C.S.I.R.O. and the associated technical groups could be interpreted as removing all serious doubts about the present stability of the slope upon which the hos-pital is to be erected. The con-struction of the hospital should not therefore be further de-

layed by uncertainties about the stability of the sile. In seeking an evaluation of the hospital site the investigat-ing groups have found it neces-sary to look not only at the hospital site itself but also at a large area of the City of Launceston in order to obtain a working definition of the general nature of the under-ground strata.

The evidence available has been extremely scanty in rela-tion to the complexity and variability of the subsurface formations. The present level of knowledge represents only a first aproximation to the defini-tion of the pattern of the underlying materials.

However, from an engineer-ing point of view the available data is sufficient to suggest an adequate margin of safety for even a major structure.



"The Chief gave me an appreciative slap on the back yesterday-while I was looking at some slides." Courtesy "Chemical and Engineering News" 

# **Sports Girl of the Day**

No doubt many members of the C.S.I.R.O. staff, like Fern Matthews, travel to work on motor-scooters. But, for Fern, head accounting machinist at Head Office, scooter riding is a sport as well as a method of transport.

Fern, who has been riding her Vespa for the past eight years, was elected vice-captain of the Vespa Club of Melbourne this year. She is the first girl to hold this position.

On 4th June Fern distinguished herself at the annual Victorian Combined Scooter She carried off three Sports.

trophies, including that for the Grand Champion for the Concourse d'Elegance. She was judged the Sports Girl of the Day for the most number of points won at the Sports.

Fern Matthews showing her trophies to Antoinette Butler at Head Office.



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**DIRECTOR RETIRES** N.S.L. Mr. N. A. Esserman, Chief of the Division of Metrology and Director

of the National Standards Laboratory, retired on 21st July.

Seventy-five of his friends and colleagues in C.S.I.R.O. and industry gave him a farewell dinner at "The Amory" in the Sydney suburb of Ashfield on 4th July.

July. The Chairman, Dr. F. W. G. White, proposed the health of the guest of honour, Dr. White referred to Mr. Esserman's in-valuable service to the war effort in both world wars. Mr. Esserman, he said, also had the unique distinction of being the first physicist appointed as such to the Commonwealth Government's service.

The toast was supported by Captain G. I. D. Hutcheson, R.A.N. (reid.), who spoke of the value of Mr. Esserman's contributions to industry, and in particular to the Navy.

in particular to the Navy. Mr. F. J. Lehany, Chief of the Division of Electrotech-nology, followed in lighter vein, "firsts" (physicist in Common-wealth service, Chief of Metrology, Director of N.S.L., and grandfather therein). He congratulated Mr. Esserman on his international committees, which had taken him quite fre-quently to meetings in Paris. Mr. Esserman in reply spoke

quently to meetings in Paris. Mr. Esserman in reply spoke of his early days as the only physicist in a chemical estab-lishment, the growth of standards in Australia, and the development of the N.S.L. He thanked those present for their gracious remarks.

The following appreciation of Mr. Esserman's career is con-tributed by his colleague, Mr. F. J. Lehany.

Mr. Norman A. Esserman joined C.S.I.R. as Officer-in-Charge of the National Stand-

ards Laboratory in 1939, to-gether with Dr. G. H. Briggs and Dr. D. M. Myers as the senior men chosen to lead the three Sections, Metrology. Physics and Electrolechnology th ree Sections, Metrology, Physics and Electrotechnology, of the National Standards Laboratory. He is the last of the three to formally sever his connections with the Laboratory.

of metrology and optics with the latter, I suspect, holding pride of place. However, one might, in a way, summarize his professional career by saying it has been devoted to precision measurement and its exploita-tion for the community's benefit.

This began immediately after his graduation as a physicist

8.8.4.4 1 4 4 6 9 - Alter

To appreciate the all-im-portant part he played in this phase of the Laboratory's history we must remind our-selves of his unique background ord arregiance and experience.

His own technical interests have been mainly in the fields

from the University of Sydney, when he went to England as a member of the Australian munitions team to assist Great Britain during the 1914-18 war. It was during this period, working in close contact with such men as Sir Henry Barra-clough and Sir John Jensen, that he first accepted the challenge to the physicist in-herent in the problems of modern manufacture. It was also in London at this under Professor Conrady of the Imperial College, an experience which undoubtedly had a very profound effect on his future actions and interests.

In retrospect it seems in-evitable that he should become the first physicist to join the Munitions Supply Laboratory at Maribyrnong in the early nineteen-twenties.

nineteen-twenties. During the next ten years he built up a first-class physical measurements laboratory there, with special emphasis on metrology and optics which were of such paramount military importance before radar stole some of the lime-light light.

light. Apart from the defence sig-nificance of this Laboratory, its technical impact on the manufacturing industry of the time must have been of vital importance to Australia. When in 1939 the lifelong ambition of Sir John Madsen was realized in the formation of a National Standards Laboratory, it seems equally

of a National Standards Laboratory, it seems equally inevitable that Esserman should be chosen as Officer-in-Charge and given specific responsi-bility for the Metrology Sec-tion

It was largely due to his pre-vious experience that Metrology

# Mr. I. E. Newnham Chief of Mineral Chemistry

Mr. Ivan E. Newnham, M.B.E., M.Sc., F.R.A.C.I., has been appointed Chief of the Division of Mineral Chemistry.

Mr. Newnham, who is aged 41, graduated Master of Science from the University of Mel-bourne in 1940. In 1942 he joined the Department of Air-craft Production and subcraft Production and sub-sequently became supervisor of

Mr. Esserman (centre) with Mr. Trainor (Watson Victor) and Mr. Christie (A.C.I.) at his fare-

was able to establish and equip

was able to establish and equip itself so quickly and to make such an outstanding contribu-tion to Australia's wartime production. In the comparatively free and easy atmosphere of today it is almost impossible to appreciate the tremendous per-sonal load he must have carried during the early years of the war.

of the war. After the war the National

Standards Laboratory was able to concentrate on its original purpose of establishing precise physical standards of measure-

physical standards of measure-ment for the nation. During its comparatively short peacetime existence the Laboratory's scientific contribu-tions in this field have gained international recognition.

tions in this field have gained international recognition. Mr. Esserman in particular has been honoured personally by his election to the Inter-national Committee for Weights and Measures -- a fitting climax to a career devoted to physical measurements and a tribute to the man who has had the unique distinction of playing the leading role in establish-ing the two main laboratories in Australia concerned with this type of work. It is not my purpose to cover all aspects of Esserman's work and interests, but I should like to make a personal selection from his many and varied activities in the community. In the international sphere he

In the international sphere he is a member of the Inter-national Institution of Produc-tion Engineers, and also serves on the Committee of the Inter-

well dinner on 4th July.

oratories, where he was asso-ciated with the production of the first aircraft bearings made in Australia.

the Department's Testing Lab-

the first aircraft bearings made in Australia. During the later war years, while employed by the New-castle firm of P. J. Taylor Pty. Ltd., he pioneered new tech-niques for the manufacture of automotive bearings. Since joining C.S.LR.O. in 1947, Mr. Newnham's main interests have centred around the chemistry of the metals zirconium, hafnium, and beryl-lium, all of which occur in Australian minerals. During the years 1950-55 he was engaged on research into methods for separating zir-conium and hafnium, which occur together in the mineral zircon in Australian beach sands. Pure zirconium is used as a container for uranium in the manufacture of atomic reactors, especially for use in nuclear submarines. Hafnium, which absorbs neutrons, is used for making control rods in reactors. Mr. Newnham's process for separat-ing these elements was patented in 1956, and the foreign rights

ing these elements was patented in 1956, and the foreign rights were sold to a U.S. corporation for \$250,000.



Mr. I. E. NEWNHAM

In 1957 Mr. Newnham won the Waverley Gold Medal of the British journal "Research", and in 1958 he was an Aus-tralian delegate to the "Atoms for Peace" conference in Concerne in Geneva.

national Organization for Legal

national Organization for Legar Metrology. In New South Wales he is working very actively as a member of three bodies all concerned with some aspect of advantage. education.

education. I refer to the Board of Trustees of the Museum of Applied Arts and Sciences, the Technical Education Advisory Council and the Committee on Tertiary Education, all of which seem to rank very highly amongst committees for their effectiveness and the satisfac-tion they give their members. I have tried to visualize Esserman in retirement, but must admit complete failure. However, I am sure I write for all his friends in C.S.I.R.O. when I take this opportunity to with his new environment. Bowls may help a little, but even here I fear the pleasure may be tinged with disappoint-ment, the constant companion of the true perfectionist. refer to the Board of



Trophy from Montevideo

The judges, in giving the film their "Grand Premium" in the scientific film category, praised the director, Mr. S. T. Evans, for the rigorous form and the precise cinematographic lan-

was registered. The "Ariel" was presented in

And the was presented in Montevideo to Captain Harry Cross, the Australian Govern-ment Trade Correspondent in Uruguay, Last month it arrived in Australia. Our picture shows Film Unit members, Rosalind Smith and John Colquhoun, admiring the elegant little fourteen - inch bronze statuette.

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## Atomic Energy Contracts for Plant Industry

The Division of Plant Industry has been awarded (wo research contracts by the International Atomic Energy Agency.

The Agency awards small re-Inc Agency awards small re-search contracts to national institutions of member coun-tries, pursuant to the provision in its statute that it shall "en-courage and assist research on and development and practical employeding of change energy application of atomic energy for peaceful uses throughout the world".

C.S.I.R.O. was approached in 1959 to submit proposals to the Agency, and two proposals were subsequently submitted by the Division of Plant Industry.

One proposal was for an in-vestigation of the factors which influence the movement of Strontium 90 from soils to plants, to be undertaken by Dr. J. V. Possingham.

The second proposal was for the second proposal was tor study into the movements of mutation rates in plants in-duced by different mutagenic radiations, to be undertaken by Dr. R. D. Brock.

Dr. R. D. Brock. In August, 1960, the Agency accepted the proposal for the Strontium 90 project and made available a sum of \$6200 for the project. Advice has now been received that the proposal for Dr. Brock's project has also been accepted, and that a sum of \$5650 will be made available. available.

#### EXTENSION

Although the need to explain Although the need to explain research to farmers and indus-trialists has been recognized for many years, the need for similar extension work within the Or-ganization has perhaps not re-ceived the attention it deserves.

ceived the attention if deserves. In some Divisions and Sec-tions members of the technical, clerical and other staff groups are regularly invited to attend suitable meetings and lectures at which current research work is discussed and explained.

In the Division of Meteor-In the Division of Meteor-ological Physics, for example, laboratory assistants are invited to attend a number of the monthly talks given by mem-bers of the research staff.

The response to invitations of this kind has been very en-couraging, and those who have taken part, research and non-research staff alike, have found this experience rewarding.



Mr. J. E. Algie, of the Division of Textile Physics. has been awarded a Japanese Science Fellowship available for one year's research work in Japan.

The Fellowship provides for first class air passages be-tween Japan and Australia, a certain amount of internal travel in Japan, and a small living allowance.

Mr. Algie has elected to work in the Japanese National Textile Institute at Yokohama, and left Sydney by air on Wednesday, 19th July.

July. Mr. Algie, who was re-cently awarded a Master's degree by the University of New South Wales for a thesis on electrical conduc-tion in keratin, hopes to extend this work in Japan by examining the effects of

stress, strain and water content on the electrical conductivity of other fibres. Although he does not speak Japanese, Mr. Algie does not expect much diffi-cultv in communicating with his Japanese colleagues be-cause so many of them cause so many of speak English. them

Mr. Algie's wife, Jill, and their two children, Myfanwy, 9, and John, 5, are joining him in Japan after he has had a few weeks in which to settle in and find suitable scomprodution. Then, are accommodation. They are booked on the "Tjiwangi", which leaves Brisbane for Japan on 15th August.

## Investors Still Wanted

It is now well known that the C.S.I.R.O. Co-operative Credit Society has helped solve the financial problems of many members of the Organization. Those who have received loans know only too well that they could not have borrowed on better terms from other institutions.

The recent credit squeeze has put an unprecedented demand on the resources of the Society and the waiting time for loans is now three to four months.

Investors are urgently needed to enable the Society to carry

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out its important work more efficiently. The interest paid for monies received on deposit for twelve months or longer is 6% with *pro rata* rates for shorter terms. These rates of interest are currently being reviewed

Viewed. Vacancy for Secretary Due to the rapid growth of the Society, the Directors are considering the appointment of a part-time Secretary-Treasurer, and would like to hear from anyone who would be interested in the position. The appointment of a person

The appointment of a person who is about to retire, or perhaps who has retired, and who has had the necessary experience in accounting prac-

tice is envisaged. The remuneration has yet to be fixed, but will be attractive to the right person. Further details may be obtained from Mr. I. Carrucan, Head Office.



Mr. Peter Fox, a Senior Laboratory Craftsman with the Wildlife Survey Section, equalled an Australian Pistol Shooting Record last month. Mr. Fox, who is captain of the Canberra Pistol Club, scored 571, including 35 "bulls" and 22 "nines". The shoot bettered the club record by four points.

# **Conferences** Abroad

Mr. H. G. Higgins, of the Division of Forest Products, left last month for a three months visit to the United Kingdom, Europe and Canada. Kingdom, Europe and Canada. The main purpose of his trip is to attend the Wood Chem-istry Symposium of the 18th International Congress of Pure and Applied Chemistry at Montreal.

Mr. E. R. Honre, Officer-in-Charge of the Irrigation Re-search Station, Griffith, leaves this month on a visit to Africa, the United Kingdom, Europe and North America. He will deliver a series of lectures at a symposium on "Africa and Irrigation" to be held in August at Salisbury, Southern Rhodesia. Rhodesia.

Dr. J. L. Pawsey, Assistant Chief of the Division of Radio-physics, left last month on a visit to North America, the United Kingdom and Europe. The main purpose of his trip, which will last a little over three months, is to attend the General Assembly of the Inter-national Astronomical Union to be held in Berkeley, Cali-fornia, in August. He will also attend a conference on "Physics of the Solar System and Re-entry Dynamics" at Blacksburg, Virginia.

Mr. J. P. Wild, of the Divi-sion of Radiophysics, left last month for overseas. The main purpose of his trip is to attend a Symposium on the "Solar Corona" which forms part of the International As-tronomical Union Meeting to be held at Berkeley, California, in August. He will also visit in August. He will also visit other research centres in the U.S.A.. the United Kingdom, Europe and Japan.

Mr. G. N. Wilkinson, of the Division of Mathematical Stat-istics, left last month to spend twelve months overseas. He will attend the National Stat-istical Institute's Conference in Paris and the Royal Statistical Society's Conference in Bristol and will also visit research centres in Bombay, the U.K., Europe and North America.

## **Colombo** Plan Anniversary

The Tenth Anniversary of the inauguration of the Colombo Plan was celebrated on 1st July.

In these ten years the Plan has grown from small begin-nings and is now a factor of major importance in South and South East Asia.

South East Asia. Australia has contributed more than £37 million to the Plan. In recent years an in-creasing proportion of this contribution has been directed towards technical co-operation rather than economic develop-ment ment.

In all, 3,500 Colombo Plan In all, 3,500 Colombo Plan students have received training in Australia, of whom some 930 are here at present. More-over, some 444 Australians have gone to countries of South and South East Asia to give expert advice and assistance. Of these 62 are at present in the field. The Department of External Affairs has written to the Chair-

Affairs has written to the Chair-man of C.S.I.R.O. offering thanks for the part played by the Organization in providing training facilities for Colombo Plan students.

## FULBRIGHT VISITOR

Dr. William H. Marshall, Professor of Economic Zoology at the University of Minnesota, visited the Wildlife Survey Section and the Division of Animal Physiology last month. Professor Marshall is travelling under a Fulbright grant.

Professor Marshall has, during the last two years, been en-gaged on research concerning be ecology of introduced pre-datory mammals (ferret, stoat, weasel, polecat). w fiils t attached to the New Zealand Department of Scientific and Industrial Research as a Ful-bright Research Scholar bright Research Scholar.

He discussed with officers of the Wildlife Survey Section predator research problems in the field and gave also an in-teresting talk on his work in Minnesota with particular reference to the ecology of ruffed grouse. In this work miniature radios weighing 3 oz. were

attached to the birds to follow their movements in the field.

Whilst with the Wildlife Whilst with the Wildlife Survey Section, Professor Marshall availed himself of the opportunity to accompany officers on field trips to the Lyrebird study area at Tid-binbilla, A.C.T., and to the Ulonga and Togamain Stations in N.S.W., to acquaint himself with the dry inland areas.

Mr. R. H. Weston of the Division of Animal Physiology showing Professor Marshall one nf the transistorized transmitters used in pasture utilization research.



This Association has formed an "Equal Pay" Sub-

TECHNICAL ASSOCIATION NEWS

Committee with Sonia Rutherford of the Division of Forest Products as spokeswoman. The Sub-Committee will investigate, report, publicize and strengthen the case for equal pay for equal work.

Many people are under the misapprehension that crusading for equal pay is designed to bring complete equality of pay to all women workers. Such is not the case.

But where a man and woman are doing exactly the same work under the same same work under the same conditions, and are classified the same, it is the right of this woman to expect and claim equal pay. A woman has to pay as much as a man to study and

pass her exams, and she re-ceives exactly the same perhaps Certificate or Diploma. As aducational qualifications are thinkers. ~~~~~

of equal value, why should there not be equal remunera-tion for equal work? There is no thought of forming a matriarchal state. This is one of the fears of the opponents of equal pay, and is quite groundless. The archaic attitude to-ward women is indicated by the recent Federal Basic Wage rise of 12/- for men and 9/- for women, whereby women workers fall further behind in the wage scale.

Logic doesn't seem to enter into this matter, but perhaps fair play may appeal to conscientious

# Limiting Noise — A Legal and Scientific Problem

Does the noise of your neighbour's motor mower annoy you? Does he enjoy your piano interpretations of Bach's fugues, or does he dislike the noise? Can you obtain an injunction limiting the operating hours of the garage opposite so that your sleep is less disturbed?

Everyone is familiar with similar problems to these, in which noise (unwanted sound) is an intrusion, and most people say "Some-thing should be done about it".

It is easy to say, but not at all easy to do, because the law says "the affairs of life in a dense neighbourhood cannot be carried out without mutual sacrifices of comfort".

People living in residential communities are exposed to noise from many sources, from factory machinery in certain areas, and from the activities of their neighbours. Each noise source creates a different amount of sound power and has different frequency and different has different frequency and directional characteristics.

All these properties may vary from time to time. The sound

Mr. R. W. Muncey of the Division of Building Research measuring the noise of city traffic from the balcony of the Melbourne Town Hall.

energy may come from nearby energy may come from nearby or far away. In the case of far-off noises there may be con-siderable time variations in the characteristics of the noise, as the propagation depends on atmospheric conditions and on the contours of the land round about about.

#### by A. F. B. Nickson

It is difficult to describe the It is difficult to describe the noise measured at any point in the community unless it comes from a well defined source, and is considerably louder than the noises from any other sources which may also be heard at the point of observation point of observation.

It would be convenient if loudness could be related to noise level in a rather simple way, but individuals respond to noise in varied and complex ways. Extensive studies have not yet produced a simple state-ment of this relation that is generally acceptable.

Practically speaking, there is no general definition of a sound



that is annoving, but a really annoying sound

- is loud
   i • is rich in high frequencies
- has a definite pitch
  is sudden in onset
- is repeated at frequent but irregular intervals occurs when ambient levels are expected to be low as at night.

An annoying sound need not have all these characteristics. The noise-level meter, which consists of a microphone, amplifier and meter, is the simplest practical device for measuring loudness objectively. But readings from such an instrument do not give the true loudness of a noise.

Although the circuits have Although the circuits have frequency response curves something like those of the ear, the ear judges the loudness of noises in a complicated manner, depending on such things as the number of different components present in the noise.

An instrument called an octave-band analyser is more useful but more expensive. It is quite difficult to obtain a meaningful description of noise in terms of a single meter reading, particularly as it is the effect of the noise upon people that really matters. that really matters.

that really matters. Experimenters have studied the personal reactions of in-dividuals to noise, but there have been practically no studies on the responses of groups of individuals. The area of human knowledge concerned with in-dividual-and-group actions-and-attitudes, and the way these are related to sound levels and noise, is extremely complex. Few attempts have yet been made to acquire the data to provide a better understanding of the problems. It is known that the attitudes of individuals to community noise are in-

to community noise are in-fluenced by many factors that have no definite relation to the noise stimulus.

Such factors as like or dislike of the local area, interest or otherwise in the noise produc-ing operation, degree of in-dividual social adjustment, economic and educational adjustment, educational achievements are all-important in determining whether the individual is annoyed, resentful, or not disturbed by the noise.

Attitudes of extreme annoy-ice usually lead to action. ance Neighbourhood action may result from extreme group annoyance, but again the type



and extent of the group action are not related to the noise stimulus alone, but also to the extent of neighbourhood or-ganization, its leadership, and the extent of its knowledge about effective procedures.

about effective procedures. The use of any predictive method to show the degree of annoyance expected, which is the aim of any attempt to con-trol community noise, implies that definable and continuing relationships exist between a noise and the community reaction to it, and that the social group will behave in the future as in the past. If is important that we

It is important that we should learn more about these things because, as we progress further into the machine age, the community is becoming more aware of noise as a muisance nuisance.

Some municipal councils are Some municipal councils are realizing, or are being made to realize, that the Local Govern-ment Act allows them to make by-laws "suppressing nuisances including controlling and regu-lating the-use of-premises with a view to preventing objection-able noises at unreasonable able noises at unreasonable times".

They are asking how noises are measured, and what the criteria are for deciding whether a certain noise is a "anything injurious or obnox-ious to the community, or member of it, for which legal remedy may be had".

remedy may be had". One answer might be a law that states "At the nearest boundary of the residence the sound pressure level of noise radiated continuously from a facility at night time shall not exceed 45 dB on the A scale, and/or 60 dB on the B scale, and/or 70 dB on the C scale of a sound level meter con-forming to the standard specifi-cation"; with corrections for daytime operation, inter-mittent operation, and for noises of impulsive character or mittent operation, and for noises of impulsive character or

of steady pitch (Ranges A, B and C have different frequency responses)

But difficulties arise imme-diately. For one thing, there are probably no more than 30 sound level meters in Australia.

The Court would have to be satisfied that there is general agreement on the part of the community that the noise-level meter readings give a true representation of the subjective impressions involved, and that the average man reading such a by-law could determine whether he would incur a penalty. penalty.

According to law there is no absolute standard to be applied to muisances, and it is always a question of degree whether the interference is sufficiently serious to constitute a nuisance. The law recognizes that in or-ganized society everyone must put up with a certain amount of discomfort and annoyance from the legitimate activities of his neighbours. In attempting to fix the According to law there is no

In attempting to fix the standards of tolerance the homely phrases "Give and take", "Live and let live" are very near the truth, and a just balance must be struck between the right of the defendant to use his property for his own lawful enjoyment and the right of the plaintiff to the undis-turbed enjoyment of his property. property.

Because nuisances caused by noise are questions of degree, it is often a difficult question of fact to decide whether the inconvenience caused is suffi-ciently serious to constitute a muisance.

But there is a demand, as yet small but increasing, for definite standards to be suggested which are soundly based on fact — and the soundness of the basis will be established if at the same time it is good both in law and in science.

Rainmaking in the Strategy of Cricket — as seen by Rigby and Frith



<sup>&</sup>quot;Got it, chabs, We rendezvous over Edgbaston . . ." With grateful acknowledgment to the "Herald and Weekly Times"



"This looks like the Australian reinforcements arriving."

# **Overseas** Visits

Mr. A. W. Hounslow, of the Mineragraphic Section, left in June for Canada. He will work for twelve months at the Geochemistry and Economic Geology School of Queen's University, Ontario, where he will acquaint himself with special equipment and techniques, in particular fluorescence analysis. X-ray

Mr. K. Loftus-Hills, of the Agricultural Research Liaison Section, left last month to spend three months overseas. He will attend a seminar on the communication of skills and ideas to be held in northern Michigan, and will also visit research centres in the U.S.A., Canada, Europe, United Kingdom and Asia

#### Exam Successes

After the Executive introduced new classifications for Divisional Administrative Officers in 1958, several members of the administrative and clerical staff began courses of study to qualify themselves for these positions.

Fifteen members of the administrative staff are now working for degrees in arts, economics, and commerce, and diplomas in public administra-tion and accountancy.

Last year these fifteen people sat for twenty-four examination subjects, gaining one high dis-tinction, one distinction, four credits, and fourteen passes.

This year, two administrative officers will complete their degrees and a third will complete his diploma.

#### HONOURS

Dr. F. W. G. White has been elected a Member of the Coun-cil of Monash University.

Mr. R. N. Farquhar, of the Agricultural Research Liaison Section, has been awarded a doctorate in edu Cornell University. in education by

#### Interplanetary Society

Branches of the British Interplanetary Society are now being formed in Sydney, Melbourne and Adelaide.

The stepped up interest in space science and technology; the increasing activity at Woomera and in Western Australia associated with the American Project Mercury, the various lesser space probes centred on Woomera itself and the optimism that either a combined Commonwealth-European or a British space programme will soon be decided upon have had result in the recent formation of two branches of the British Interplanetary Society. at Sydney and Melbourne, and moves to form a third in South Australia.

So far, each of these groupings has been individually or-ganized and there is no immediate move to link as an Australian body.

Dr. D. F. Martyn, Officer-in-Charge of the C.S.I.R.O. Upper Atmosphere Section, gave a talk on July 28th to the Sydney Group on recent developments in onem tercenth in space research.

In April Dr. Martyn was the Australian delegate to the COSPAR meeting and symposium on space research held at Florence in Italy.

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

Mr. R. S. Mitchell, of the Division of Food Preservation, Division of Food Preservation, has been seconded to the De-partment of External Affairs for six weeks to undertake a Colombo Plan Assignment in Indonesia. His visit is in con-nection with a gift of £18,500 worth of equipment which Australia is providing under the Plan for a food technology laboratory in Djakarta. Dr. A. L. C. Bress Chief of

Dr. A. L. G. Rees, Chief of the Division of Chemical Phy-sics, left last month to spend two months overseas. The main purpose of his visit is to examine recent developments examine recent developments in the application of physical phenomena to the resolution of chemical problems and to study the trends of scientific instrument development. This will take him to the U.S.S.R. Hong Kong, Japan, Indonesia, North America, the United Kingdom, and Europe.

## MEETING ON ANTARCTIC

Representatives of twelve nations engaged in Antarctic research met in Canberra in July to discuss the future of Antarctica.

The Australian delegation included two C.S.I.R.O. officers, Dr. R. Carrick of the Wildlife Survey Section, who is an authority of Antarctic fauna, and Dr. D. F. Martyn of the Upper Atmosphere Section, who represented the Australian Academy of Science.

The nations attending the The nations attending the Conference, apart from Aus-tralia, were Argentina, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the U.K., the U.S.A., and the USSR. U.S.S.R.

The Conference was the first consultative meeting under the Antarctic Treaty signed in Washington in 1959.

The Antarctic Treaty, which preserves Antarctica for peace-ful scientific research for all time, bans all military weapons from the five million square mile continent. It is designed to reduce international con-The Antarctic Treaty, which to reduce international con-troversy over territorial claims in Antarctica, and to promote co-operation in scientific inves-



Mr. R. I. Baxter, an engineering graduate from the University of N.S.W.. has been appointed to the staff of the Regional Pastoral Laboratory, Denili-quin. Mr. Baxter, who was formerly a teaching fellow at the University of N.S.W., will act as general consultant to the staff at the Laboratory on prob-lems of an engineering nature. Mr. F. Coue. a graduate of

Dr. R. DAL BON

Dr. R. Dal Bon has joined Dr. R. Dal Bon has joined the staff of the Division of Organic Chemistry. Dr. Dal Bon, who graduated Doctor of Industrial Chemistry from the University of Bologua, Italy, will take part in the chemical investigation of biologically active constituents of plants, particularly plants poisonous to livestock. Mr. S. Demerae, a graduate of the University of Zagreb in Yugoslavia, has been appointed to the Division of Organic Chemistry. Mr. Demerae, who was formerly with Reichhold Chemicals, will do research on a variety of organo-metallie and organo-phosphorus compounds. organo-phosphorus compounds.

APPOINTMENTS TO STAFF



#### Mr. S. DEMERAC

Dr. O. T. Denmead has joined the staff of the Division of Plant Industry. Dr. Den-mead worked for two years with the Division in 1957-58, and since then has been a Research Associate in Agricul-tural Climatology in the Agronomy Department of Iowa State University. Mr. I. B. Dundas-Taylor.

State University. Mr. J. B. Dundas-Taylor, who joined the Organization in June, is working at the National Cattle Breeding Station at Rockhampton. A graduate of the Royal Veterinary College of Edinburgh, Scotland, Mr. Dundas-Taylor will be respon-sible for health of the stock and will study the character-istics of cattle related to adap-tation. tation.

Mr. J. Grzeszkiewicz, a grad-uate in veterinary science from the University of Warsaw, has joined the Division of Plant

# Search for Wild Camels

Proposed field research by a group of science under-graduates at the University of New England could help to explain how animals resist drought.

The group - the University of New England Exploration Society—is planning to send an expedition to the region north of Ayers Rock to make field tests on animals and soil.

The second prong of the American attack, Professor Dick Lewontin, of Rochester

Dick Lewontin, of Rochester University, has not allowed the pace to flag; within a few weeks of his arrival he had a tortuous 32-dimensional genetic model on its way into Silliac; had been on collecting trips in the wildernesses of Cairns and Canberca, and had disagreed effectively with every pet idea of the home staff.

Prof. R. LEWONTIN

029-1961

One of its main objects is to study the drought resistance of camels, hundreds of which roam wild in the area. It is suspected, following laboratory experiments by Professor Evans of the University's Physiology Department, that the camels' adaptability may be associated with peculiarities in their red blood cells.

From field tests the society hopes to prove that some sheep which are known to have similar blood characteristics could be developed into a drought-resistant strain.

Samples of the camel blood will be examined in a compact mobile field laboratory, which has its own power supply and a complete range of scientific equipment necessary for the job.

job. Another aim of the expedi-tion will be to study changes which have occurred in the climate of Central Australia over the past few thousand years. It is known that these changes have had a profound effect on the distribution and nature of grazing plants and other vegetation in the Ayer's Rock region. Soils and plants will be classified, studied and collected for future work in the Uni-versity.

versity. The expedition still needs

The expedition still needs three cross-country vehicles. It has already been given finan-cial support from within the University and the Science and Industry Endowment Fund which is administered by the Executive of C.S.I.R.O. Its leader is Mr. Dennis Madden, a student in the Faculty of Rural Science.

Industry. He will assist in a research programme concerned with the development of fungicidal materials

cidal materials. Mr. T. R. Paton, a graduate of the University of Durham, England, has joined the Divi-sion of Soils. Before joining the Organization he was Assis-tant Director of the Inter-African Pedological Service stationed at Uangambi in the Belaine Corgan Party Physical Service Belgian Congo, where he made extensive tours to west and central Africa establishing a basis for a compilation map of African soils.

**Dr. R. L. Segail** has joined the staft of the Division of Tribophysics. Dr. Sega11, formerly holder of a C.S.LR.O. formerly holder of a C.S.I.R.O. Overseas Studentship, obtained his Ph.D. from Cambridge last year and has since continued at the Cavendish Laboratory, working with Dr. Hirsch on dislocations and plastic pro-perties of refractory metals.



Dr. R. L. SEGALL

Dr. R. L. SEGALL Mr. R. W. Strickhand, who was formerly an agronomist with the Papua - New Guinea Administration, has been ap-pointed to the Division of Land Research and Regional Survey's Coastal Plains Research Station. He is a graduate of the Uni-versity of Western Australia, and in his new position will carry out research to determine the factors limiting rice pro-duction. duction.

Mr. A. Tirkel, a graduate of he Lwow Polytechnic in Poland, has joined the Division. the of Chemical Physics. He will assist in the design, preliminary construction and testing of special electronic equipment.



Mr. A. TIRKEL

Mr. A. HIKKEL Mr. B. H. Wall, a graduate in engineering from the Uni-versity of Adelaide, has joined the Division of Plant Industry. Mr. Wall, who was formerly with the lonospheric Prediction Service of the Department of Interior, spent 1960 at Wilkes Base in the Antarctic. He will develop electronic and physical instruments for research proinstruments for research pro-jects in the Division.

jects in the Division. Dr. R. G. Giovanelli, Chief of the Division of Physics, left last month to spend three months overseas. The main purpose of his trip is to attend various scientific conferences, including the International As-tronomical Union Meeting, in Berkeley, California, and the International Commission for Optics conference on "Optical Instruments" in London. He will also visit research estab-lishments in the U.S.A., the U.K. and Indonesia.



The Animal Genetics Laboratory is coping with a formidable American invasion, which is proving just how much impact two men can generate.

Professor Alan Fox, from Michigan State University, is an immunogeneticist who is well on the way to completing an ambitious research pro-gramme without letting it in any way affect his enjoyment of the Australian scene, or ston any way affect his enjoyment of the Australian scene, or stop him giving a series of marathon seminars which have left the home staff in a state of intel-lectual shock from a surfeit of D.N.A.



Prof. A. FOX

## CONGRESS BUILDING

Five hundred people from all States in Australia and from overseas countries attended the first Australian Building Research Congress last month.

The Congress, which was held at Monash University in the Melbourne suburb of Clayton on 16th and 17th August, was attended by architects, builders, building surveyors, consulting en-gineers, manufacturers of building materials a n d students.

students. The C.S.I.R.O. Division of Building Research organized the Congress for the Building Research Committee, which consists of representatives of all the Commonwealth agencies concerned with building re-search search.

concerned with building re-search. Among the forty authors who presented technical papers at the conference were Dr. T. L. Webb, Director of the National Building Research Institute in South Africa, Dr. P. C. Kreij-ger, from the Institute for Building Materials and Build-ing Structures, Delft, Holland, and Dr. L. Bastings, Director of the Building Research Bureau in New Zealand. The Congress was formally opened at 10.00 a.m. on Wed-nesday, 16th August, by Dr. L. F. Loder, Director-General of the Department of Works. The opening was followed by an address by the Chairman, Dr. F. W. G. White. Subjects discussed at the con-ference were grouped under

ference were grouped under four headings. One session was ference four headings. One session was devoted to papers on moisture and its effect on such building materials as wood, bricks, mor-tar, concrete, plaster, and bitu-minous roofing materials. A second session was devoted to modern developments in

He held meetings with the Australian National Advisory

building methods and techni-ques, and the use of new building materials. On the second day, delegates heard a series of papers on "Cracking in Buildings", or a second series on curtain walls, which have become a common feature of city buildings as well as private houses over the last few years.

Interstate and overseas visitors were given the opportunity of seeing the progress of con-structional work at Monash, and also the I.C.I.A.N.Z. build-ing, the Sidney Myer Sound Bowl, the Morshead overpass at Punt Road Bridge, and the new Southern Cross Hotel which is being built on the old Eastern Market site.

The Chairman, Dr. White, addressing delegates to the Building Research Congress at Monash University,

up by £1,000,000 C.S.I.R.O. will have a total Budget for 1961/62 of £12,593,000 for capital and non-capital items. an additional allocation of £233,000 for non-capital items. Inescapable salaries increases amounted to £60,000 leaving £173,000 for development of the wool research programme. A total of £9,628,000 will come

TotalC.S.I.R.O. Vote

direct from Treasury, of which £8,600,000 is for non-capital expenditure. Unavoidable salaries increases

(increments and basic wage adjustment) will absorb £309,700 leaving £554,300 available for other purposes. The Executive

visions to adequate levels.

To increase the temporary assistance votes in cases where insufficient funds have been available for casual labour.

casual labour. To allocate funds to some Divisions for specific major items of equipment. To provide new positions for some ancillary staff.

Money from wool funds and other contributions has in-creased and has permitted ex-pansion in some fields.

(1)

(2)

(3)

Non-capital funds contributed from other sources have in-creased by £14,500. Most of this increase is being provided by existing contributors to cover increased salaries and additional running costs additional running costs. Capital Vote

A total sum of £1,714,000 has been provided for capital works of which Treasury will contribute £1,028,000.

The latter sum is divided into two categories—those pro-jects controlled by C.S.I.R.O. and those handled by the De-partment of Works.

The radiotelescope and the phytotron are in the first group and these will absorb over £500,000 between them.

Three-quarters of the funds allocated for projects under the control of the Department of Works will be needed for build-ings under construction.

Ings under construction. These include the Biochem-istry and Genetics Laboratories for Plant Industry, Canberra, the Division of Soils Labora-tory at Adelaide, and laboratory extensions at the Irrigation Re-search Station, Griffith. The remainder of the funds made available to the Depart-ment of Works will be used for a number of small projects

The Wool Research Com-mittee increased its allocation for capital works from 5340,000 to £601,000. Textile machinery, to £601,000. Textile machinery, plant and development expendi-ture will absorb £135,500 leav-ing £465,500 for buildings. The major building projects are at Parkville and Geelong for wool textile research.

## Film on Sheep Breeding

A new colour film called "Science and Sheep Breeding" has been released by the Film Unit.

Produced for the Division of Animal Genetics, it tells the story of the research which lies behind practical recommenda-tions for a more accurate and efficient method of selecting

Merino sheep for wool production.

Inbreeding for increased pro-duction, the Merino breeder is atiming to raise fleece weight without sacrificing the quality of the wool or the health and fertility of the sheep.

fertility of the sheep. To do this, he has, in the past, depended on his ability to select, by eye, animals which are not only superior them-selves, but which will produce superior offspring.

superior onspring. As an extension film "Science and Sheep Breeding" will show how a breeder, using fleece weighing as the main factor for selection, can expect to double the rate of increase in wool production per head. production per head.

The film had its premiere at the Sydney Sheep Show in June where it attracted considerable

has shown it to interested audiences in Moscow and in Great Britain during her present overseas trip.

"The Russians", Miss Turner "The Russians", Miss Turner writes "were interested, I think, judging by the number of ques-tions asked afterwards. The interpreter who accompanied the Russian group to Australia last year was there, and inter-preted the commentary."

made up of animated drawings and diagrams which explain some of the more complicated theoretical concepts of accurate



short visit to Australia last month. short visit to Australia last They were Professor N. Kovda, Director of the Department of Natural Sciences, and Dr. M. Batisse, Programme Specialist for the Arid Zone. Professor Kovda, who was formerly Professor of Soil Sciences at Moscow State Uni-versity, came to Australia to discuss the future programme of his department with repre-sentatives of the Australian Academy of Science, C.S.I.R.O. and the Universities. He held meetings with the Committee for U.N.E.S.C.O. and visited a number of C.S.I.R.O. laboratories in Ade-laide, Melbourne, Canberra, Griffith and Deniliquin.

Dr. Batisse met a number of Dr. Battsse met a number of specialists in research in the field of natural resources. He visited the Divisions of Plant Industry and Land Research and Regional Survey in Can-berra, and toured the Snowy Mountains area Mountains area.

Dr. M. Batisse (left) with Mr. G. A. Stewart at Canberra.

attention

Miss Helen Newton Turner, who was responsible for the scientific direction of the film

At least half of the film is selection.

The last sequence shows that the recommended methods are easy to apply and how fleece weighing is carried out on a large property in New South Wales.



Total .....

4,426

GELOTING S(COR)

# VISITORS FROM U.N.E.S.C.O. Two senior members of the U.N.E.S.C.O. staff paid a

# A Trip to the Kimberleys

Wyndham, 65 miles from the Kimberley Research Station, is very much a shanty town, "enjoying" what is reputed to be the most uncomfortable climate in Australia.

The North-West Coastal Highway is a good gravel road, at least as far as the Research Station, and high speeds can be maintained,

At one point the road passes the grave of the Stockman, well-known to readers of Mrs. Aeneas Gunn's book "We of the Never-Never".

Bird life is abundant, and it is interesting to see brolgas (native companions) take to the air like a 'plane by running along the ground and flapping their wings until they become air-borne.

The centre of Kimberley Reearch Station consists, like all auon properties, 'village''. station of а

quarters, a dining room, an



two or three years The most likely crops are rice, safflower and linseed, although crops such as cotton and castor may be successful. The Ord River Project is divided into four stages, each complete in itself. It provider aach

for progressive increases in the irrigated area, up to a maxi-mum of 200,000 acres, plus generation of electric power.

In the first stage a diversion dam is being built at a point of the river known as Bandicoot Bar, which is a natural rock ledge across the river.

Work has commenced on this dam, and when it is completed in 1963 it will store 40,000 acre feet of water and enable about 15,000 acres to be irrigated.

In the last "dry" season ove 400 people visited the Station. for an irrigation settlement on tor an irrigation settlement on the Ord River valley, and the Research Station has done valuable work in selecting the best crops and the highest yielding varieties for this area. to test these recommendations on a practical farming scale. From this experience advice will be given to farmers when the first land is opened up in

The C.S.I.R.O. film "The Biological Control of Insects" has won yet another trophy. This one is called the "Lubra" — awarded by the Savage Club of Sydney,

office building, a laboratory building, a generating plant and sheds for stores and implements are grouped at the top of the east bank of the Ord river.

Amenities include a flood-lif Amentues include a hold-int grass tennis court, a concrete swimming pool (built by the staff) and a school for the ten children on the Station, plus a few that come each day from Ivanhoe cattle station, across the short the river.

Mr. D. E. Angus of the Division of Meteorogolical Physics recently visited the n or the rn outposts of CSJ.R.O. at the invitation of the Division of Land Re-search and Regional Survey. Here he records his impres-sions of the Kimberley Research Station. Research Station.

Plans are now well advanced

The State Government has

One of the most impressive sights in the area is the new township of Kununurra, about twelve miles from the Research Station, which has been carved out of the bush to house con-struction workers working on

In a little over twelve months a power generating station with ample capacity, an air-strip, sealed roads, a modern office building, a large dormitory block, an excellent club and several dozen excellent homes have been built.

Due to high costs in this re-mote area, a good house costs £11,000 to build.

Within a reasonable distance of the Research Station there are some very aboriginal cave paintings.

But unless one is prepared to examine each individual rock outcrop, the assistance of one of the local people is definitely required to locate them.

Planning the daily affairs of life in such an area is in-fluenced very largely by the remoteness and the weather.

Groceries are purchased in bulk from Perth by each household, and one family found that a "carton of Cornflakes" con-sisted of 32 giant size packets!

When a chance storm puts Ivanhoe air-strip out of action, the only link with the outside world is the road to Wyndham. And during the wet the Ord River Crossing is often im-passable.

At such times the river can only be crossed by a boat kept at the Station, and the luckless at the Station, and the fuckless passengers must like through the mud on the far bank with shoes in hand and trousers shoes in rolled up.

When the Diversion Weir is completed it will be possible to cross the river at all times, as the weir will be topped by a road.

# THE RISE

On July 13th the Common-wealth Conciliation and Arbi-tration Commission granted an increase in the Federal basic wage. The effect of this was to increase the salaries of adult males in C.S.I.R.O. by 12/- per week. week.

One member of the staff of the Division of Building Re-search received his increase without enthusiasm. He con-tributes the following lines:---

How nice to have a twelve bob

rise To take home to the missus, How nice to see her happy eyes and share her grateful kisses.

For she would give me steak

for tea, Instead of bread and wieners. Oh, I could hardly wait to see Those lovely shining deeners!

But when I open up my pay, I don't get what I oughter, For Super's taken half away, And Tax has got a quarter!

For someone's done a mighty

So one can just philosophise

How nice to have a twelve bob rise! One day, I'd like to get one.

## A MEMOIR OF SIR IAN CLUNIES-ROSS Sir Ian Clunies-Ross, the first Chairman of C.S.I.R.O.,

died a little over two years ago, at the age of 60.

Last month the Oxford University Press published a collection of his writings, together with a number of memoirs of him.

His writings include some fragments of autobiography, extracts from his personal diary written during the last two months of his life, a short story, and a selection of his papers, lectures and broadcasts.

The memoirs of him are contributed by Lord Casey, Sir Owen Dixon, Miss Helen Newton Turner, Dr. I. W. Mc-Donald, his son Anthony Clunies-Ross, Mr. D. A. Gill, Dr. Peter Russo, Mr. Brian Jones (the former Master of International House), the late Sir Richard Boyer, Dr. O. H. Frankel and the Rev. Professor J. D. McCaughey.

Lady Clunies-Ross contributed a preface, and Mr. Frank Eyre, who edited the volume, has written an introduction.

The book has been kindly reviewed by the press, and it seems clear that it will appeal to the general public. It is, as Lady Clunies-Ross writes, "a frail craft, the pale ghost only of the great modern liner it should have been . .

For the many members of the C.S.I.R.O. staff who remember Sir Ian, it is a volume which abounds with interest.

Of his own writings, the autobiographical fragments are quite the most fascinating. His "Early Memories", an account of his childhood in Bathurst and Sydney, is charmingly written.

Many of the childhood happenings which influenced his life and career are clearly de-lineated — the religious train-ing of his mother; the demo-cratic outlook of his father, a disciple of Burns; his early introduction to literature; his interest in the wildlife which frequented the woods and paddocks near his home; and the love for animals engendered in a household which included "a small menagerie of domesticated birds and beasts".

The other brief fragments of autobiography are concerned with the later years of his life - at the time of his first heart attack, the causes of which greatly excited his scientific curiosity.

There is a short account of the events after the war which led to the conversion of C.S.I.R. into C.S.I.R.O.

## HONOURS

Mr. E. J. Burnett, of the Divi-**WR. E. J. Burnett**, of the Divi-sion of Animal Genetics, has been awarded the Polar Medal, in recognition of his services as physicist with the 1958 Aus-tening National Action tralian National Antarctic Re-search Expedition at Mawson.

Dr. A. J. Nicholson, C.B.E., Senior Research Fellow in the Division of Entomology, has been elected an Honorary Fel-low of the Royal Entomological Society of London. This

low of the Royal Entomological Society of London. This honour is limited to only twenty-five people. **Dr. J. B. Willis**, of the Divi-sion of Chemical Physics, has been awarded the D.Sc. degree of the University of London, in recognition of his contribu-tions to spectroscopy.

"Ian Clunies-Ross: Memoirs and Papers", edited by Frank Eyre. (Oxford Uni-versity Press; Australian price 40(2) price 40/-.)

The excerpts from his diary, written in April, May and June of 1959, are more revealing of Sir Ian than anything else.

From these pages emerges picture of his extraordinary interest in everybody he metthe Commonwealth chauffeurs who drove him to and from the office, the medicos who came regularly to listen to his heart, and the many C.S.I.R.O. and non-C.S.I.R.O. people who came daily to his office.

His short story, "The Good Life", is completely done, reminiscent in style of the earlier works of Somerset Maughan.

It must be admitted that most of his papers, lectures and broadcasts do not quite live up of to the expectations of people who remember hearing him speak.

It seems that he wrote his texts for guidance, illuminating them ad lib as he went along, His scripts, as a result, do not do him full justice, although they do, as Frank Eyre claims, express "the viewpoint of an educated, travelled, widely read a n d deeply experienced twentieth century humanist".



Sir IAN CLUNIES-ROSS

While each of the eleven emoirs about Sir Ian is memoirs about Sir Ian is illuminating, it is tedious to read them all one after another because many of them say, in effect, the same thing.

This is, perhaps, as Mr. Eyre suggests, because Sir Ian "was the same thing to all men, but he made them like it, because his sincerity and genuineness were so transparent.

The most penetrating of all is by Anthony Clunics-Ross, who saw clearly the qualities of romanticism, morality, and generosity which dominated his father's character.

It is possible, but unlikely, that a gifted writer may one day attempt a biography of Sir lan Clunies-Ross. Unless that does happen, this book, with all its admitted inadequacies, will be his memorial.

No doubt many C.S.I.R.O. people who fell under Sir Ian's spell will want to have a copy, as a means of keeping alive for themselves something of his clusive spirit.

Whether or not he would have been pleased with it, no one can say. But he would certainly be delighted that the royalities from its sale are being given to International House.

Commonwealth Research Station (Merbein) with 7 Division of Textile Industry (Geelong) with 31 members. Regional Pastoral Laboratory (Plant Industry) (Denili-

TECHNICAL ASSOCIATION NEWS

It is gratifying to Central Council and the Branch Execu-

tives to receive enquiries for membership of the Association from outlying research stations and divisions.

Enquiries for membership have recently come from:

quin) with 12 members. The representatives for these divisions are:-Merbein E. A. Lawton,

members.

Geelong Miss B, A. Murray. Deniliquin V. R. Squires.

There has also been an enquiry from Queensland, where a group of 27 people desire to form a State branch. This could develop into quite a large and im-porting the parch portant branch.

Our Federal Secretary, Harry Heath, who will be carrying out field work in ) Currenserverserverserverserverserverserverserver

Queensland for the next nine months, will be able to take a first-hand look at the situation. There have also been at

least three enquiries from organizations outside C.S.I.R.O. for admittance to the Technical Association.

These people, of course, are not eligible to join, but their applications give an indication of the regard with which the Association is held by outside organizations.

030-1961

# for someone's done a mighty job Of quartering and halving; And left me just three lousy bob To keep the kids from starving.

The Treasurer, we understand, Is kinder than a Mother. He giveth with an open hand. (But taketh with the other.)

On troubles that beset one.

# The Preservation of an Historical Document

There are several documents which are regarded as landmarks in the history of man's social development, and which we come to feel should be preserved indefinitely.

It is not difficult to understand the affection with which the American people regard their Declaration of Independence, nor the care with which they guard it.

In the British Common-wealth the document which we weath the document which we hold most dear is the Magna Carta, which contrary to its original purpose of securing privileges for a few has come to symbolize the freedom of the common man.

Its half-forgotten phrases secure our persons and our homes, and promise us justice. As we read the document today, these things are clearly stated. The First Charter

The first Magna Carta, signed by King John at Runnymede in 1215, had a legal life of only a few weeks before being annulled by Pope Innocent III.

The Magna Carta which was finally written into the Statute Roll, and which appears to this day in the Statutes of the

Realm, was issued by Edward 1 in 1297.

It is believed to be word-for-word affirmation of the 1225 version of Henry III, in which most of the original clauses omitted in 1216 and 1217 have been restored. 

#### By Dr. M. E. Winfield ;反使可以将这些就是自己的事实有可能是不是不是

It takes its name, "the Inspeximus issue", from the first word of Edward's second sentence, which begins "We have seen the Great Charter of the Lord Henry". One of three remaining of the borecimum lense mer combined

Inspeximus issue was acquired by Australia in 1951 from the Kings School, Bruton, Somerset, where it had lain unrecognized in the archives for several centuries.

Portion of the Latin script written in the clear hand of the 13th century scribe, Hugh de lernemuth.

The Australian National Library is privileged to possess the only Magna Carta outside Great Britain. Although faded, and stained in several areas, almost all of the script is still easily readable and with proper care should remain so for many centuries to come.

The need for special treatment became clear when the parchment began to wrinkle in the dry atmosphere of Canberra.

C.S.I.R.O. was asked by the National Library to enclose the document in an inert atmosphere at constant humidity with protection against the harmful effects of light.

Two groups within C.S.I.R.O., together-with the Defence Standards Labora-tories, agreed to carry out the work, which was finally com-pleted in August, 1961.

#### King's Hall

Our Magna Carta is now on display in King's Hall, the im-posing antechamber of Parlia-ment House.

As one enters, with the Senate on the right and the House of Representatives on the left, the Magna Carta is on the far right, while facing it on the left is the Act, signed by Queen Victoria, which set up the Australian Commonwealth.

The Charter is contained in an atmosphere of argon at a relative humidity of 30%, within a glass capsule protected by a brouze frame and an outer frame of oak, the whole lying on royal-purple velvet in a show-case of heavy armour-plate glass. A yellow perspex filter excludes ultra-violet light.

#### Techniques

Intended to be the same as the method of preservation of the U.S. Constitution and De-claration of Independence, the procedure finally adopted for protecting the Magna Carta differs in several details, mostly necessitated by the very thick way seal wax seal.

To prepare the capsule a strip of lead two inches wide was soldered to the periphery of each of two parallel sheets of plate glass, which the formed the front and back the enclosure while the less sheet formed the four sides. thus lead

Soldering to the glass was made possible by a thin layer of copper-titanium alloy sprayed onto the glass at high temperatures by the Libbey-Owens-Ford Glass Co. of U.S.A

Into the sides of the capsule were scaled two lead gassing tubes and one to carry the electrical leads from a very sensitive thermal conductivity gauge within the cardboard mount which supports the document.

#### Leak Detection

By means of the gauge it was possible to measure the rate at which air leaked into the capsule after the latter had been filled with bumidified helium.

No leak could be detected in the most recently prepared enclosure.

The sensitivity of the detec-tion equipment was such that we can assume at least 400 years, and probably several thousand years, would be re-quired for the air concentration to build up to 10% provided that the seals do not de-teriorate teriorate



It should be emphasized that the test method does not measure the rate at which helium leaks out.

Since helium is known to diffuse through many materials at a significant rate, argon, with a ten times greater atomic weight, was used as the perman-ent gas atmosphere of the capsule.

Although the sensitivity of the thermocouple gauge was thereby diminished, it re-mained more than adequate for the yearly checks which it is proposed to make on the gas composition within the en-closure closure.

#### Transport

For transporation from Mel-bourne to Canberra, with a change of altitude of about 2,000 feet, it was necessary to attach the enclosure to a bladder, also filled with argon.

On arrival at Parliament House the gassing tubes were sealed off under conditions corresponding to the mean temperature and pressure anti-cipated in King's Hall.

On a fine morning in July, or a stormy day in summer, the force exerted on the glass plates of the enclosure will be quite high, equivalent to a weight of about 400 lbs., but this should be well within the strength of the materials.

The Magna Carta can now be regarded as reasonably well protected against changes in humidity, the action of micro-

rather an industrial job.

So the citizen phoned the C.S.I.R.O. Chemical Research

Laboratories and described how his hair, neck and clothes were rapidly congealing into a non-flexible mass.

Alcohol, of course, is the ppropriate thinners for such a job, but our officers were con-cerned that the liberal applica-tion of methylated spirits might

J. H. Bayston, a Technical Officer of the C.S.I.R.O. Divi-sion of Physical Chemistry, test-ing Magna Carta's container for leaks.

organisms and insects, ultra-violet light, oxidation and other readily avoidable chemical reactions and mechanical damage due to handling.

damage due to handling. If, due to accident, it should be necessary at any time to transfer the document to a new enclosure, this can be done enclosure, this can be done without handling of the parch-ment or detracting in any sig-nificant way from its life expectancy.

It is expected that in the near future steps will be taken to isolate the enclosure from vibration and changes in temperature.

#### Many Helped

Many Helped Many people have contri-buted to the making of trial enclosures, the testing of a vibration-free mounting used during road transport to Can-berra, the construction of the final capsule, its metal and wood frames, and the cabinets which contain the testing equipment.

As well as the C.S.I.R.O. En-gineering Section and C.R.L. Workshops, we wish to thank the Defence Standards Laborathe Defence Standards Labora-tories and the Aeronautical Research Laboratories of the Department of Supply, the Libbey-Owens-Ford Co., Ohio, and Pilkington Bros. Ltd. of Gaelano Geelong.

# Sticky Situation

It is bad luck to walk under a ladder, but what does one do to rectify that bad luck when it is in the form of a bucket, recently full of shellac, upturned and emptied on one's head?

An unfortunate Melbourne citiproduce undesirable effects from denaturant. zen faced just this problem last month. Clearly it was not a case for hospitalization, but

from denaturant. By the time the victim had secured his alcohol licence for white spirit he would be ready for sanding and polishing. So after checking with a doctor that medical treatment was unnecessary, he was invited to Fishermen's Bend for the cleaning operation

cleaning operation. This proved such an excellent apertif that the cleaned-up citi-zen goes on record as the best satisfied diner on a meal of curried steak in the C.R.L. canteen.

Subardy da and the land the fiton marran Serve postice denne tore a timed una fui novora a Tourcon fuis illefre Con Connet bol betrout wood our aleast remained De Connetter incepto je contre libre Deves cofrecedente feodore De sure hore Meridie

#### Visits Overseas

Dr. A. F. A. Berson, of the Division of Meteorological Dr. A. F. A. Berson, of the Division of Meteorological Physics left Australia a week ago to spend a year in America. He will work in the extended Forecast Section of the U.S. Department of Commerce Weather Bureau in Washington, D.C. DC

Mr. C. S. Elliott, Assistant Chief of the Division of Forest Products, left last month for South America. He is attend-ing the second World Eucal-yptus Conference at Sao Paulo, Brazil, as an official Australian mercenetulue. representative.

Mr. A. Howard, Officer-in-Charge of the Meat Research Laboratory of the Division of Food Preservation, left last month to attend the Seventh Meeting of the European Meat Research Workers to be held Research Workers to be held in Warsaw in September. He will visit the United Kingdom, Europe and North America, and will also attend the Tenth Pacific Science Congress to be held at Honolulu.

Mr. H. R. Jitts, of the Divi-sion of Fisheries and Oceanosion of Fisheries and Oceano-graphy left recently on a visit to North America, Great Britain and Europe. His major objective is to spend five months at Nanaimo, Canada, where he will study the measurement of primary pro-duction is the ace duction in the sea.

duction in the sea. Mr. F. J. Kerr, of the Divi-sion of Radiophysics, left recently to attend a symposium on "Problems of Extragalactic Research" at Santa Barbara, California. The symposium was held in association with the International Astronomical Union meeting at Berkeley.

Mr. M. M. Komesaroff, of Mr. M. M. Komesaroff, of the Division of Radiophysics left last month for the United States, where he will spend a month working at the Convair Radio Astronomy Laboratory in San Diego. He also attended a meeting of the International Astronomical Union at Berke-ley, California. Mr. R. E. Lowelchend, a solar

Mr. R. E. Longhhead, a solar physicist with the Division of Radiophysics, is now in America attending a meeting of the International Astronomical Union, and a Symposium of the Solar Corona. Before returning home he will visit a number of laboratories and observatories in North America, Europe, and U.S.S.R.

U.S.S.R. Dr. A. G. Lyne, of the Divi-sion of Animal Physiology left Australia last week to take up a twelve months Fellowship at Brown University, Providence, Rhode Island. He will under-take research into the histo-chemistry and electron micro-scopy of skin and wool. Dr. T. R. Scott, of the Divi-

Dr. T. R. Scott, of the Divi-sion of Mineral Chemistry left last month for Canada. He has been invited to present a paper on "Pressure Hydrolysis of Leach Liquors" to a meeting of the International Union of Pure and Applied Chemistry in Pure and Applied Chemistry in Montreal.

Montreal. Mr. E. K. Webb, of the Divi-sion of Meteorological Physics, set forth last month for Penn-sylvania State University, where he will spend six months as a Visiting Research Professor. Before returning home via Europe he will spend six weeks with Professor R. B. Montgom-ery at John Hopkins University.

# Impressions of Soviet Russia

Miss Helen Turner, of the Division of Animal Genetics. was in Russia at the same time as us and I heard that she was having a very useful time.

Amongst other things she had been to see the Sheep Pavilion at the All Russia Permanent Exhibition in Moscow, which we also visited.

I was impressed with the I was impressed with the very large size of the Russian Merino rams that had been developed from the Merino sheep that had been exported to Russia in the late 1920's, before the ban on their export had been impressed had been imposed.

#### **Research** Co-ordination

I visited the State Committee for Co-ordinating Scientific Re-search in Moscow.

This is a recently formed body of considerable impor-tance on the scientific and plan-ning side. It deals with all scientific and technological sub-jects other than agricultural, military and medical.

It has been brought into exis-At has been brought into exis-tence to co-ordinate research and planning, to avoid duplica-tion and to set up priorities. All the many scientific bodies are presented on it, usually by their Chairmen.

The Chairman of the Com-mittee is the deputy Prime mittee is the deputy Prime Minister, which gives it author-ity as an executive and financing body.

I was told that it did not carry out any scientific research itself, but reviews and lays down the broad lines of re-search and planning to be carried out by its constituent bodier bodies.

It has under it the Institute It has under it the Institute of Scientific and Technical In-formation, which publishes ab-stracts of articles on each branch of Science (including translations in English), as well as the "Abstract Magazine", and "Express Information", although both of these are in Russian only. I was told that the ILSS R.

I was told that the U.S.S.R. has a very considerable ex-change of scientific and techchange of scientific and tech-nological information with the other Socialist countries, as well as entering into two-year agreements with certain Capi-talist countries — the U.K., U.S.A., France, West Germany, Belgium and Finland.

The agreements include provision for the exchange of scientific and technical teams with these countries.

Very few of the Embassies of Western countries maintain Scientific Attaches in Moscow, and most countries rely on periodical visits to the U.S.S.R. by scientific specialists on their own subjects own subjects.

#### Polar Regions

I visited the Arctic and Antarctic Institute at Leningrad.

It has been in existence for a long time, particularly to do research and planning in respect of the Arctic, including keeping open the northern seaway on the Arctic north of the Soviet Union.

Meteorological work Meteorological work is stressed, and they are paying a lot of attention to long range weather forecasting, although I understood without much suc-cess up to the present.

Interest in the Antarctic has been developed only in the last five years. Mr. Treshnikov, the Director of the Institute, was in charge of the Soviet Antarctic activities a few years ago.

The Institute is in charge of the scientific work and planning of Soviet activities in the Ant-

arctic. They co-operate closely with our Australian Antarctic activities and exchange maps and scientific papers.

I was taken over the Polar Museum connected with the Arctic and Antarctic Institute Leningrad.

This represents a very com-plete collection of Arctic and Antarctic data, designed to be intelligible to the layman and of value for reference to the more initiated.

## **By Lord Casey**

(Lord and Lady Casey spent ten days in the Soviet Union in July, Lord Casey contributes to 'Core-search' comments on " ch' comments on a matters of scientific . interest.)

It contains a large collection u contains a large collection of photographs, paintings, maps, Arctic and Antarctic equipment, dioramas and models, as well as historic relics and data.

Bellingshausen's voyage round the Antarctic in the early 1800's was of course featured — as well as information about the voyages of Scott, Shackleton, Amundsen, Maw-son, and others.

When they showed me the Bellingshausen material, I re-minded them that this was when Russia was a Capitalist country, at which there was a short laugh, but only short.

#### National Progress

My time in the Soviet Union was only ten days, a very short time — although it was made more useful by discussions with the Soviet Foreign Minister and his deputies — as well as with the Australian and other Western Ambassadors.

There is no doubt of the material progress in the Soviet Union, particularly in recent years. The standard of living of the Soviet people is improv-ing appreciably, although it is still very low by Western standards.

standards. There seemed to me to be a number of inherent disabilities from which the U.S.S.R. suffers — its great geographical size (over 8 million square miles as against 3 million in Australia) — their very cold winter which must slow everything down — the multitude of individual languages, although Russian is the lingua franca — and their Russian script, which is un-intelligible to a foreigner.

There seens to be a very large differential between the rate of pay of senior people in many professions (particularly science, teaching, engineering and literary and cultural mat-ters) — as compared with those in the lower ranks.

There is a great urge for education in all sections of the population of the Soviet Union.

population of the Soviet Order. I visited a few factories in Moscow and heard broadcast talks to the workers, which I was told were designed to en-courage them to take advantage of the considerable amount of of the considerable amount of both general and technical edu-cation that was available to them in their own interests and in the interests of their country.

It was made clear that the only way to advance themselves was by service to the State.

# APPOINTMENTS TO STAFF

Miss Mary K. Asdell, a virologist, has been appointed to the Division of Animal Health. Miss Asdell, who is a graduate of the University of Wisconsin, U.S.A., has recently been engaged on studies of human viruses at the Biological War-fare Laboratories in Maryland, U.S.A.



Miss M. K. ASDELL

Mr. H. W. Chapman, graduate of the University of Sydney, has been appointed to the Division of Plant Industry to assist in studies of animal intake and behaviour and in experiments on fat lamb pro-duction. Mr. Chapman was formerly a Veterinary Officer with the Department of Health at Canberra.

Mr. H. N. Edwardes joined the staff of the Division of Electrotechnology. Mr. Edwardes was once on the staff of the Division of Radiophysics and for the last ten years he has been a Lecturer at the University of New South Wales. He will do research in the field of radio frequency.

Mr. D. B. Elison, a graduate of the University of Mel-bourne, has joined the Cement and Refractories Section to work on the improvement of refractory materials used in high temperature industrial processes. Before joining C.S.I.R.O. he was with the Research Department of Australian Iron and Steel Pty. Ltd. at Wollongong, New South Wales.

Mr. F. D. Looney has joined the Division of Physical Chem-

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"By Jove, Harrison - that's more than sediment."

istry after several years with the Defence Standards Labora tories at Maribyrnong. He will operate an electron spin reson-ance spectrometer by which means the magnetic moments within a molecule are utilized to probe into details of molecular structure and reactivity.

Miss Pamela Pennycuik, who recently joined the Division of Animal Genetics, will carry out experiments on tempera-ture control and the effects of X-rays on animals. Miss Penny-cuik was formerly a Senior Demonstrator in the Physiology Department of the University of Queensland.

Mr. M. R. Robins, a graduate from the University of Western Australia, has joined the staff of the Division of Tropical Pastures where he will be responsible for the conduct and management of the analytical laboratory. He was pre-viously employed in the Department of Animal Husbandry at the University of Queensland.



Mr. T. D. St. GEORGE

Mr. T. D. St. George, a graduate in veterinary science from the University of Queensland, has joined the staff of the Division of Animal Health to participate in the work of the infertility and virology sections. Mr. St. George, formerly an officer of the South Australian Department of Agriculture, recently spent two years working with the United States Department of Agriculture as a Veterinary Livestock Inspector.

Dr. N. Snow has been appointed to the staff of the Dairy Research Section, where he will work on the structure of casein lactoglobulin and other milk proteins. He has been in Oxford for the last three years, working for his doctorate under Studentships from the University of Sydney and C.S.I.R.O.



Dr. N. S. SNOW

Mr. K. J. Van Damme bas been appointed to a Research Fellowship in the Division of Radiophysics. Since graduating from the University of Leiden (Holland) in 1957, he has been engaged on research in radioastronomy at Leiden Observatory.

Mr. D. A. Watson, a gradu-ate from the London School of Printing and Graphic Arts, has joined the Agricultural Re-search Liaison Section. He will assist in the design and production of popular scientific publications specializing in the simplified presentation of re-search results in graphic form.

## Vacancies at Holiday Club

The Anglesea Holiday Club has two shares available for sale to members of C.S.I.R.O. The cost is \$100 per share but terms can be arranged.

The Club comprises 48 mem-bers of C.S.I.R.O. and kindred bodies, and owns three selfcontained flats at Anglesea.

Within limits, members can expect to be able to go to the flats at any time, but bookings for Christmas are arranged on a basis to ensure equitable allotment.

Further information on how to become a member may be obtained from Mr. F. A. Priest of the Division of Forest Products.

The flats are also available to guests of members.

Bookings are handled by Ir. S. T. Evans, Film Unit. Head Office.

#### TRANSFERS

Dr. D. W. Goodall has transferred from the Tobacco Re-search Institute to the Division of Mathematical Statistics. He will carry out statistical re-search at the Western Aus-tralian Regional Laboratory, Perth.

Mr. R. Roe has reconfly transferred from the Division of Plant Industry to the Divi-sion of Tropical Pastures to take charge of intensive re-search on pasture production and utilization, a field in which he has had wide experience.

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# 031##1961 ORESEARCH FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF -NUMBER 31, MELBOURNE, OCTOBER 1961

# INTERNATIONAL CLOUD PHYSICS CONFERENCE

Forty leading meteorologists and cloud physicists from fifteen different countries arrived in Australia last month for an International Conference on Cloud Physics.

For eight days they partici-pated with ninety Australian delegates in lectures and dis-cussions on such subjects as artificial rainmaking, hail formation, and cloud dynamics.

formation, and cloud dynamics. The Conference was spon-sored by the Australian Academy of Science, C.S.I.R.O., and the International Union of G e o d e s y and Geophysics. Delegates were formally wel-comed in Canberra on 11th September by Lord Casey. Lord Casey said he believed that evidence would be put be-fore the conference by Aus-tralia and some overseas dele-gates on Dr. Bowen's theory that meteorite dust was a sig-nificant source of the "freezing nuclei" which stimulated pre-cipitation of rain.

nuclei" which stimulated pre-cipitation of rain. "I now believe there is be-ginning to be some acceptance of this theory, but it is not universal as yet," he said. Lord Casey asked the scien-tists to see what they could do to solve the problem of weather which had "humiliated" man-kind for thousands of years. kind for thousands of years.

phere was possible a Pandora's box of problems would be opened up.

Scientists knew the atmosphere was a source of chemical energy that could be tapped.

They were e x a m in i n g schemes such as damming of the Bering Straits, filling in the Straits of Gibraltar and creat-ing ice crystal fogs over the derive Arctic.

Dr. Malone said scientists were in a position to think seriously about these schemes and replace speculation with what might be the conse-quences of large-scale experi-ments.

After five days in Canberra After live days in Canberra where the meetings were held in the Academy of Science building, members of the con-ference made an excursion to the Snowy Mountains, to see something of the Hydro-Electric Scheme.

It is in this area that one of the C.S.I.R.O. rainmaking experiments is being carried

The Laboratories, recently con-structed at the Sydney suburb of North Ryde, cost £639,000. Their opening marks the com-pletion of C.S.I.R.O.'s biggest post-war building project. Among the features of the new Laboratory is a special food processing building, equipped with pilot scale plant for canning, dehydrating and quick-freezing food. Another building contains a

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# **Dr. Cameron Opens Food Preservation Laboratory**

New laboratories for the Division of Food Preservation were officially opened on 18th September by the Minister-in-Charge of C.S.I.R.O.

Another building contains and quick-freezing food. Another building contains a large array of controlled tem-perature rooms in which stor-age conditions for various foods can be evaluated. There is also a special tast-ing room, in which panels of tasters can assess taste under ideal conditions. Dr. Cameron, in opening the Laboratories, said that food preservation was one of C.S.I.R.O.'s most important fields of research.

C.S.I.R.O.'s most important fields of research. The population of the world, he said, had increased by 700,000,000 since 1940, and would be more than doubled in the next 40 years. Tremen-dous surpluses of food were being accumulated in some countries, while there was famine in others. In the enormous in ter-national problem of feeding the world's hungry people, food preservation was a key factor. Food preservation was a key factor. Food preservation was of vital importance to the export in dustry. The work of C.S.I.R.O. scientists had done much to assist the export of beef, said Dr. Cameron. The Government was at present demonstrating its faith in the future of this industry by building new beef cattle roads in Queensland. The Chairman, Dr. F. W.

Cameron

opening.

The Chairman, Dr. F. W. White, welcomed Dr.



Dr. Cameron (left) inspected and a number of the new building in the com-pany of Dr. J. R. Vickery. distinguished scientists from overseas. the The visitors from England, U.S.A. and New Zealand were at North Ryde to take part with 250 Australians in a four day Food Science Conference which was held at the new Laboratories after the official opening

at the Cannon Hill Abattoir in Brisbane, and for many years since then at the Home-bush Abattoir in Sydney.

It was a matter for regret, said Dr. White, that one of Dr. Vickery's principal lieuten-ants, the late Mr. E. W. Hicks, did not live to see the opening day

Mr. Hicks' name is to be commemorated by naming the Division's meeting room after



Referring briefly to the history of the Division, the Chairman said that Dr. Vickery had been its leader for thirty years, since the days when it was a very small section. The first headquarters were

Thirty C.S.I.R.O. librarians from all over Australia were among the 800 delegates to the 11th Btennial Conference of the Library Association of Australia in Melbourne last month. Pictures from left to right are Misses Margaret Russell (Griffith), who presented a paper, Jenny Shone (Head, Office), Barbara Clowston (McMaster Laboratory) and Helen Kirby (National Standards).



ciety. Dr. Malone said that scien-tists should co-operate in a

concerned research effort to control the atmosphere.

He said the existing inter-national co-operation on weather observations should be extended to research work on the control of the atmosphere.

Progress in the study of the Progress in the study of the earth's atmospheric environ-ment had taken science to the "kick-off" point from which they could expect significant advances in describing, under-standing, predicting and just possibly controlling the atmos-phere phere.

"We do not yet know whether we can exert large-scale control of the atmos-phere, but the implications of such control are so great that we should get together and work on it," Dr. Malone said. He said if someone found out that control of the atmos-

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"On behalf of the laymen of the world, you might say we look to you to resolve us from a the humiliation of the weather," he said. " An opening address yras," the schedule-packed conference. given by Di 2. Thomas dr. Malone, President of the American Meteorological So-ciety."

From the browy Mountains the Conference moved to Syd-hey where the delegates examined some of the instru-ments and flight equipment used by C.S.I.R.O. in its cloud physics and rainmaking research.

cloud physics and rainmaking research. Among the visitors from oversens were two men with an assured place in the history of cloud physics. One of them, Professor Tor Bergeron, from the University of Uppsala in Sweden, was the first man to explain how rain-drops were formed in cold clouds. His theory, first pub-lished nearly thirty years ago, has won world-wide acceptance. Another distinguished visitor was Dr. Vincent G. Schaefer, from the United States. Dr. Schaefer, together with the late Dr. Irving Langmuir, dropped pieces of dry ice into a super-cooled cloud over Pittsburgh on 13th November, 1946, and so produced the first artifi-cially induced snowstorm in the world.



Miss Catherine Eales, of the Division of Animal Health, retired last month after thirty years' service. Two former members of the Division's staff, Dr. A. W. Turner and Dr. D. Murnane attended a farewell luncheon given for her at the Parkville laboratory. Miss Eales had been closely associated with both of them during her research career. In the picture, are Dr. Turner (left), Miss Eales and Dr. T. S. Gregory.

McILRATH FELLOW Californian Dr. I. D. Wardrop has been appointed to the William

McIlrath Fellowship in Animal Husbandry. He succeeds Dr. M. C. Franklin, who recently moved to Brisbane.

Dr. Wardrop, who is aged 27, will hold a lectureship in Animal Husbandry at the Uni-versity of Sydney concurrently with the Fellowship. He has been Acting Director of the Mort Descarch Faberatory of Meat Research Laboratory at the University Farm, Camden, for the past year.

Dr. I. D. WARDROP

Dr/ Wardrop recently finished an investigation into consumer preference for meats and is now initiating a study into beef production from dairy herds.

dairy herds. This programme is financed by a grant to the Department of Animal Husbandry from C.S.I.R.O. Sydney University Senate has decided to name the Meat Re-search Laboratory at Canden in honor of Dr. M. C. Franklin.

As William McIlrath Fellow in Animal Husbandry in the

C.S.I.R.O., Dr. Franklin, with Professor T. J. Robinson, Pro-fessor of Animal Husbandry, played a prominent part in raising the finance needed to build the laboratory.

## ACADEMY COUNCIL

Dr. R. N. Robertson, Member of the Executive, has been elected to the Council of the Australian Academy of Science.

#### **RUGBY LEAGUE**

The annual "grudge match" between the Canberra and Sydney Administrative Offices was played at St. John's Oval, Sydney University, on 16th September. The Sydney team won 17-8.

## Lecturer

Dr. H. Fraenkel-Conrat, of the Virus Laboratory, University of California, an eminent authority on proteins, delivered a series of lectures to research workers in Melbourne month.

The subject of the lectures was "The Structure and Func-tion of Proteins and Nucleic Acids".

Acids". The series, which was ar-ranged by the Division of Pro-tein Chemistry, was attended by 180 scientists from Victoria, New South Wales, South Aus-tralia and Canberra. The decision to invite Dr. Fraenkel - Conrat to lecture here followed on the success of the lectures given in 1959 by Professor H. A. Scheraga, also under the auspices of the Division of Protein Chemistry.

Dr. Fraenkel-Conrat (right) with Dr. H. Lindley in the grounds of the Division of Protein Chemistry. **Overseas** Visits

Mr. B. L. Clark, of the Divi-sion of Animal Health, is in the United Kingdom. He is working for a post-graduate diploma in bacteriology at the University of London, under an overseas studentship.

Dr. J. M. Cowley and Mr. A. F. Moodie, of the Division of Chemical Physics, have been given leave to enable them to accept invitations to participate in a conference of the International Union of Constellements in Leaven this Crystallography in Japan this month.

Mr. E. L. Deacon of the Division of Meteorological Physics, left for Europe a month ago. The main purpose of his visit is to attend two international conferences on meteorological subjects in Marseilles and Rome.

Mr. W. R. Ferguson, the C.S.I.R.O. architect, is at pre-sent on a three months' visit to Europe and North America. He is studying recent develop-ments in laboratory layout, design and equipment.

Mr. C. A. Gladman, of the Division of Metrology, left last month on an overseas trip of six months' duration. He attended international conferences in Prague and Manchester in September, and will visit various European countries, U.S.A. and Japan before returning home.

Dr. D. F. Martyn, Officer-in-Charge of the Upper Atmosphere Section, was in Japan last month. He had been in-vited to take part in an inter-national conference on "Earth Storms and Cosmic Rays" at Kyoto.

Mr. C. H. Thompson, an officer of the Division of Soils stationed at the Cunningham Laboratory, Brisbane, left last week for New Zealand, where he will spend nine months studying soil survey techniques. The visit is being made under an exchange agreement with D.S.I.R., New Zealand.



# Extended Leave

A number of officers have been granted long terms of leave to enable them to work in America.

Dr. W. F. Cole, of the Division of Building Research, has been granted nine months' leave to work in America. He will undertake research in the Department of Ceramic Tech-nology, Pennsylvania State University. Mr. C. G. Greenham, of the Division of Plant Industry, has

Division of Plant Industry, has been granted eleven months'

leave. He will work at the University of California, Davis, on translocation in Mistletoe. Dr. P. G. Harper, of the Division of Electrotechnology, left Australia last week for Pittsburgh, U.S.A. He has been granted leave to take up a fifteen-month appointment in the Westinghouse Research Laboratories.

Laboratories. Dr. D. L. Ingles, of the Division of Food Preservation, left in August for America. He has been given leave to take up a post-doctoral fellow-ship in the Department of Biochemistry, Purdue Uni-versity, Lafayette, Indiana, for one year one year.

Dr. A. K. Head, of the Divi-sion of Tribophysics, has been granted leave to enable him to spend an academic year in America. He will be a Visiting Providence, Rhode Island, and also at the University of Illinois.

Dr. D. J. McLean, of the Division of Chemical Physics, has been granted leave for one year. He has been invited to work in the Biology Depart-ment at the recently established La Jolla campus of the Uni-versity of California.

September. He visited a number of Uni-versities and research estab-lishments, including the C.S.I.R.O. Divisions of Animal Physiology, Food Preservation, Entomology, Radiophysics and Tropical Pastures.

Dr. Siple, explorer and military geographer, is perhaps best known for his explorations in the Polar regions.

He began his polar activities in 1928 when he was selected as a Boy Scout representative to accompany Admiral Byrd on his first expedition to Little America.

Since then, he has made six separate trips to Antarctica and in that period wintered over four times. He has also fre-quented the Arctic regions and accompanied early pioneering flights over the North Pole in 1946 and 47.

During the International Geophysical Year (1956-57) he served as the Scientific Leader at the U.S. Amundsen-Scott Station located at the geo-graphic South Pole. For a neriod of time D

factors controlling building design, and the development of clothing and protection devices for which he holds a number of patents



Dr. PAUL A. SIPLE

He is author of several books as well as many scientific and magazine articles and in his world travels has visited all seven continents world travels has seven continents.

His most recent book, "90° South", is an account of the first year of occupation of the Geographic South Pole during IGY.



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# POLAR EXPLORER

Dr. Paul A. Siple, Scientific Advisor to the U.S. Army

Research Office, spent three weeks in Australia in

graphic South Pole. For a period of time Dr. Siple directed the Army's basic research programs and has done extensive research in the fields of climatology, climatic

# Harnessing the Sun's Energy

In a century when the quest for new sources of energy has brought us from coal through oil to nuclear fission very little progress has been made to harness economically the energy of the sun and wind.

The United Nations Confer-ence on New Sources of Energy, which finished a month ago in Rome, was convened to examine the practical uspects of homeoring enchymery. of harnessing such energy, particularly as an aid to under-developed areas lacking con-ventional sources of energy or facing high power costs.

The theme of the conference was that the material pros-perity of a people estimated in the terms of income per person is directly related to the per capita consumption of energy.

is directly related to the per capita consumption of energy. The inference which was drawn was that energy must somehow be supplied to raise the standard of living of a people. Where there is no coal, oil or water people must be shown how to use other sources of energy. Although the sun and the wind and the heat of under-ground waters are as old as the earth, for the purpose of the conference they were des-cribed as new sources of energy because so little has been done to exploit them. The conference brought to-gether experts in the fields of solar energy. It aimed to provide them as well as people interested in energy development in general with up-to-date information on progress achieved and to facili-tate an exchange of views

progress achieved and to facili-tate an exchange of views relating to practical problems. Over 250 experts from all over the world were asked to emphasize applications rather than scientific principles or basic research, to give promin-

#### **New Fisheries Council** Formed

A conference of Federal and State Ministers decided last month to establish an Australian Fisheries Council.

They took action after the Minister for Primary Industry (Mr. Adermann) had said that Australia had to import more than half her fish and fish product supplies from other countries.

countries. The council will consist of the six State Ministers respon-sible for fisheries, the Minister for Primary Industry as chair-man, the Minister-in-Charge of C.S.I.R.O. (Dr. Cameron), the Minister for Trade (Mr. McEwen) and the Minister for Territories (Mr. Hasluck). The objectives of the council

The objectives of the council include -· Promotion of the welfare of

An exchange of information on fish products and market-

- ing.
- Ensuring the improvement of the qualities of fish products and

• Maintenance of high-grade standards.

standards. The conference also decided to create a Standing Commit-tee of Fisheries consisting of the principal fisheries officers of the States, the Common-wealth, the C.S.I.R.O., and a representative of the Depart-ment of Territories.

Mr. Ademann told the conference yesterday that the Australian fishing industry should be helped to enable it to secure a reasonable share of the domestic market.

of the domestic market. He said the total value of fish imports in 1957-58 was  $\pounds_0, 445, 000$ . This had risen to  $\pounds_8, 047, 000$  in 1959-60. Mr. Adermann said that fish exports for the same period had increased from £2,800,000 to  $\pounds_4, 196, 000$ , but crayfish tails creat to a varging had second sent to America had accounted for 90% of the increase.

ence to lines of action which have already led or are about to lead to commercial energy The agenda provided for two parallel series of technical discussions:

· Geothermic energy production.

Dosign and testing of wind power plants. Use of solar energy for heating and cool-ing, for water distillation and electricity production and for high-temperature processing.

processing. Six of the conference papers came from Australia. Mr. Roger Morse, Officer-in-Charge of the C.S.I.R.O. Engineering Section, acted as chairman during the session which dis-cussed the use of solar energy for water heating and space heating. heating.

for water heating and space heating. Design studies, manufacture and installation of solar water heaters are proceeding at a quick pace in a number of countries. The economic value of solar water heating in semi-tropic areas is well established. But, before solar installa-tions can be made econom-ically, accurate studies are necessary of solar radiation, climate and proximity of alternate energy sources. This is a difficult task over a conti-nent as large as Australia. Three Australian contribu-tions to the conference dealt with instruments for solar radiation measurement, solar radiation measurement, solar adiation records in Australia and their presentation and some aspects of the climatology of solar radiation. In a discussion on water heating by solar energy, Mr.

heating by solar energy, Mr. Morse said that much research is still necessary into cheaper and better ways of collecting solar energy and improving methods of manufacture. Cost is apparently still the chief deterrent to the wide-spread use of solar water heaters which are otherwise efficient.

In Australia, if the cost could be reduced to one quarter of its present value, the solar unit would probably become the most widely used system for domestic water heating.

The energy of the sun can also be used for air condition-ing. Australia, with 40 per cent. of its land area in the tropics but only 4 per cent. of its population, has vast tropical areas awaiting development.

In a paper which he wrote for the conference, Mr. Norman Sheridan of the University of Queensland suggests that air-conditioning could do much to assist in populating this area.

Air - conditioning has a reasonably large demand for power but the normal fuels, oil and coal, are not generally indigenous to the area.

Imported fuels are expensive Imported tuess are expensive and it would seem that solar energy, with which the area is liberally supplied, should be investigated as a possible source of power.

Mr. Sheridan expressed the hope that experimental tropical homes with vapour compres-sion refrigeration and solar absorber roofs will soon be built for study in Australia.

built for study in Australia. Solar energy has also been used for centuries in the drying of agricultural products, almost invariably by the simple pro-cess of spreading the material on the ground directly expos-ing it to sunshine.

Relatively little use has been made of solar heated air in the drying of materials in

# MISS HULME RETIRES

When Miss M. I. Hulme, librarian of the Division of Forest Products, retires at the end of this month, C.S.I.R.O. will lose a staff member with a very long record of service.

She joined the Advisory Council of Science and Industry (one of C.S.I.R.O.'s predeces-sors) in 1918 and gained her early training with Mr. E. R. pit, assisting in the compila-tion of the early card version of "Pitt's Catalogue", fore-runner of "Scientific Serials in Australian Libraries".

She continued as librarian of the renamed Institute of Science and Industry, until she left in 1924.

On rejoining the reconsti-tuted Council for Scientific and Industrial Research, 1929, Miss Hulme again assisted Mr. Pitt in the production of the first printed edition of his famous catalogue and, at the same time, established the library of the newly-formed Division of Forest Products.

more or less conventional drying equipment. Mr. B. W. Wilson, of the C.S.I.R.O. Chemical Research

Laboratories, told the conference of grape drying experiments in Australia.

Ticred racks which operate partly by the absorption of solar radiation directly and partly by natural air drying are particularly well adapted for clear sky conditions in low rainfall areas.

Tainfall areas. This method was more suc-cessful than drying chambers heated indirectly by solar energy. With minor modifica-tions the system of tiered racks could prove to be adaptable to the drying of other agricultural products. From the "Australian Financial Review".

In the early years of the Division's existence, she also took charge of the records and supervised the office staff.

From 1943 Miss Hulme was From 1943 Miss Hulme was able to devote her full time to the library. She established an excellent library service and developed an extensive subject index in the forest products field which was not covered by adequate published indexes until post-war years.



Miss M. I. HULME

The library has a unique collection in its subject and Miss Hulme has done much to publicize and exploit its re-sources. She has built up a valuable liaison between librarians working in similar fields overseas.

The translation exchange scheme on forest products sub-jects, promoted by Miss Hulme, was one of the first examples of international co-promise hertware translations between special operation librarians.

# **Radiation** Safety

The increased use of sources of radiation in scientific laboratories has stimulated careful consideration of the safety precautions needed.

At the Division of Plant In-At the Dryslon of Flah hi-dustry, for example, radiation equipment recently installed has been designed very thoroughly to ensure that thoroughly to ensure that harmful radiation does not create dangers to people who are operating it or working nearby. Irradiation work with plants

Irradiation work with plants is carried out in separate X-ray and Cobalt 60 rooms adjacent to a "work room". The deep therapy X-ray unit is housed in a room with con-crete walls and ceilings 12" thick and the door heavily screened with lead. If this door is opened during treatment, a limit switch on the door shuts off the X-ray unit. Cobalt 60 was obtained from the Australian Atomic Energy Commission's reactor at Lucas

the Australian Atomic Energy Commission's reactor at Lucas Height. This source is kept in a lead-filled container designed to prevent radiation coming up from a special plug which holds it. The radiation dose on the outside of the container is re-duced to a very low figure as

duced to a very low figure as the container for sources with quantities of radiation up to 100 curies is made of lead 8" thick.

thick. To ensure safe transport from Lucas Heights to Can-berra, the plug holding the source is held rigid by a steel plate bolted across the top and securally locked

plate bolted across the top and securely locked. Special remote control ap-paratus has been installed to connect the door of the isotope room with the source lifting mechanism. The source can only be

The source can only be raised when the door is closed

and locked; and if the source is raised it is impossible to open the door. When the source is out of

walls and ceiling. Radiation monitoring instru-Radiation monitoring instru-ments are used to provide a visual warning of the source being exposed. Green, amber, and red lights and buzzers operate to indicate warning of a rise in the radiation dose rate inside the work room. Any dangerous occurrence

rate inside the work room. Any dangerous occurrence can be seen and heard as soon as it takes place, because, in addition to warning lights, a mirror viewing system enables examination of the whole of the cobalt room when the door is locked and the source is exposed

exposed. People exposed. People working in the vicinity of the sources must know the accumulated weekly dose of radiation absorbed by their bodies. Film badges and radiation pocket dosimeters

dose of radiation absorbed by their bodies. Film badges and radiation pocket dosimeters are used to keep these im-portant safety records. But, as a final check, every-body is examined by a doctor at three monthly intervals and blood tests are carried out. The whole installation has cost about £10,000, furnished by a Grant from the Rocke-feller Foundation. The Com-monwealth X-ray and Radium Laboratory and the Australian Atomic Energy Commission both helped with the design. The attention given to detail in the planning of this project shows that the money has been spent to provide one of the most modern and safe facilities of its kind in Australia.

of its kind in Australia



#### Dr. Pradisth Cheosakul, Deputy Secretary-General of the National Research Council of Thailand, is at present in Australia under a Colombo Plan Fellowship.

Dr. Pradisth, a graduate of Cornell University, U.S.A., is an organic chemist, who has had research experience in the Philippines, Switzerland and America. As the senior scientist in the

Dr. Pradisth with Mr. L. G. Wilson (Assistant Secretary) at Head Office.

National Research Council he has come to Australia for four weeks to see something of C.S.I.R.O., the Universities, and other Government research

THAI SCIENCE CHIEF

and other Government research agencies. He has already visited the C.S.I.R.O. Divisions of Forest Products and Building Re-search, the National Standards Laboratory and the Chemical Research Laboratories.

# Round-Up of Sporting News



In "Coresearch" for October last year, we published a photograph of a lunchtime softball match at the Canherra laboratories. This match was between the "Old Buffers" and a team calling itself "The Girls". Since then, things have become more serious and a team was entered in "C" grade of the Public Service Competition. The C.S.I.R.O. team, known from their shirts as the "Tartan Terrors", climaxed a successful season with a triumphant win over Parliament to take the premiership. The score in the grand final played on 7th-8th August was: C.S.I.R.O. 22 — Parliament 8. Promotion to a higher grade next year is certain.



A team of girls from the Astional Standards and National Standards and — Radiophysics laboratories won the 1961 premiership of the New South Wales Public Ser-vice Table Tennis Competition. Members of the team (left to right) were Clare Wilson (Ad-ministrative Office), Jan Rayner (Library), and Luise Gagliardi (Radiophysics).

After a battered and bloody apprenticeship in go-karting, Dr. A. S. Fraser, of the Divi-sion of Animal Genetics, has finally won through. He beat a national field of drivers at Dapto to take the D class championship. The track was wet and sodden; so was Dr. Fraser, but he averaged 43 m.p.h., getting close to 70 m.p.h. at the bottom of the straight. The photograph illus-trates the "if you can't go round them, go under them" approach much de-veloped by Dr. Fraser. After a battered and bloody

## **Australian Rules** Football Team

The C.S.I.R.O. Australian Rules Football Club, which draws its players from Head Office and Divisions and Sec-tions in Melbourne, was defeated in the preliminary final of its 1961 competition.

The Ian Clunies Ross Memorial Trophy will be held for another season by Taxa-tion, the premier side.

Eric French, of the Division of Protein Chemistry, was narrowly defeated for the com-petition's "best and fairest" award.

Other C.S.I.R.O. players to poll well were Don Smith (Head Office), Danny O'Toole (Chemical Research), and Peter Jackson (Forest Products).

## To Wool Bureau

Dr. A. J. Farnworth, M.B.E., M.Sc., Ph.D., of the Division of Textile Industry, has been appointed manager of the Technical Development Section of the Australian Wool Bureau.

His appointment was an-nounced last month by the chairman of the Australian Wool Bureau, Sir William Gunn.

Dr. Farnworth is being seconded to the bureau for two years and will take up his duties on 18th September.

As technical manager, he will lead a team of technical officers whose responsibilities include the personal introduction of new wool processes to the testile identity.

textile industry. Dr. Farnworth, 37, a grad-uate of the Gordon Institute of uate of the Gordon Institute of Technology, Geelong, obtained his M.Sc. degree at Melbourne University in 1946. He then studied for two years with Professor Speakman at the University of Leeds before receiving his Ph.D. in 1948. Until he joined C.S.I.R.O. in 1954, Dr. Farnworth was for six years senior lecturer in Textile Chemistry at the Gordon Institute. In 1956, he was associated

In 1956, he was associated with a Columbo Plan mission to advise the Burmese Govern-

ment on textile education. In 1957 his greatest personal

In 1957 his greatest personal triumph was announced — the development of the Si-Ro-Set permanent creasing process. During the past two years he has <u>visited</u> textile labora-tories in the United States and Europe, studied in Sweden and attended the Second Inter-national Wool Textile Research Conference at Harrogate, England.

#### Resignation

Dr. Roger H. Watson has re-signed from the Division of Animal Health to join the scientific staff of the Victorian Department of Agriculture.

Department of Agriculture. Dr. Watson will be stationed, as a senior livestock research officer, at the department's animal husbandry research centre at Werribee, where his long experience in research into the applied physiology of domestic animals, particularly sheep, will be of great value. After graduating with first-class honors from the Uni-versity of Queensland in 1932, he did four years post-graduate research work, including three years overseas.

# **NEW APPOINTEES**

Dr. J. K. Dineen, an immun-Dr. J. K. Dineen, an immun-ologist, has joined the Division of Animal Health, and will be stationed at the McMaster Laboratory in Sydney. Since graduating Ph.D. from Ade-laide in 1956 he has been working with Professor P. B. working with Professor P. B. Medawar at University Col-lege, London, and Sir Mac-farlane Burnet at the Walter Eliza Hall Institute in Melbourne.

Mr. E. A. Fitzpatrick, a graduate of Washington State and Sydney Universities, has joined the Division of Land Research and Regional Survey. Since 1958 he has been a Lecturer in Geography at the University of New England,



#### Mr. E. A. FITZPATRICK

Dr. F. H. Grau, a Queensland graduate, has been ap-pointed to the staff of the Division of Food Preservation, and will be stationed in Bris-bane. Since 1958 he has been working in the Bacteriology Department of the University of Wisconsin, where he ob-tained his M.S. and Ph.D. degrees

Mr. K. G. T. Hollands, a graduate of the University of Toronto, has been appointed to the Engineering Section. He will carry out experimental work on selective surfaces for solar absorbers with the Solar Energy Group.

## New N.S.L. Site

The Kuring-gai Council has approved a C.S.I.R.O. proposal to rebuild the National Standards Laboratory at West Bradfield, a northern suburb of Sydney.

The laboratory is planned for land now occupied by the Commonwealth and State Housing authorities.

A draft plan submitted to the council shows a series of buildings comprising laboratory, lecture-room, conferencecanteen, library and a room workshop.

These will cover an area of 900 ft. x 900 ft.

In return the C.S.I.R.O. will give five acres of land valued at £30,000 to Kuring-gai Council for recreation purposes.

The Mayor, Alderman A. H. Jago, said the council should be grateful to C.S.I.R.O. for its generosity.

## TRANSFER

Mr. H. Hirst, formerly Direc-tor of the Kimberley Research Station, has transferred to the Division of Food Preservation, Division of Food Preservation, where he will be responsible for the editing of scientific papers, the preparation of tech-nical reports and other editorial work.

Mr. B. H. Hooper has joined the staff of the Film Unit at Head Office. For the last two years he has been a film editor and cameraman on the staff of TVW7, the commercial television station in Western Australia.

Mr. A. R. Jenkins, a graduate of the University of Durham, U.K., has joined the staff of the Division of Animal Genetics, and will be stationed at Rockhampton. During the last six years, Mr. Jenkins has been in East Africa with the Trypanosomiasis Research Unit and the Uganda Cement Industry Ltd.

Dr. J. H. Leigh has joined the staff of the Regional the staff of the Regional Pastoral Laboratory, Denili-quin. A graduate of the Uni-versity of the Witwatersrand, South Africa, he has been for the past year on the staff of the Grasslands Research In-stitute at Hurley in England.



Dr. J. H. LEIGH

Dr. D. N. Munns has joined the Division of Plant Industry to undertake research on the nutrition of pastures. As a Pawlett Scholar from the Uni-versity of Sydney, Dr. Munns recently obtained his Ph.D. from the University of Cali-fornia. fornia.

fornia. Mr. N. A. A. Proctor has joined the staff of the Division of Coal Research and will arrive in Australia this month. He will apply coal microscopy to the examination of deposits from coal burning appliances. A graduate of the University of Oxford, Mr. Proctor has spont two years on geological exploration in the Antarctic. Dr. K. L. Temple a graduate

**Dr. K. L. Temple**, a graduate of the University of Wisconsin and Rutgers University (U.S.A.), has joined the Divi-sion of Plant Industry's Geo-biology Unit under a Mining Research Association Grant. Ho will undertake research on He will undertake research on the inter-conversion of in-organic substances by microorganisms.



Dr. J. WARREN WILSON

Dr. J. Warren Wilson has joined the staff of the Re-gional Pastoral Laboratory, Deniliquin, where he will study the grazing habits of animals. Since graduating from Oxford in 1947 he has carried out research at the Universities of Oxford and Reading and at McGill University in Canada.

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# C.R.S. Library 032##1961 ORE STALE A FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF --- NUMBER 32, MELBOURNE, NOVEMBER 1961

# Lord De L'Isle at Wildlife



His Excellency the Governor-General, Viscount De L'Isle, paid an informal visit to the Wildlife Survey Section on 1st September. He was accom-panied by the Honourable Phillip Sidney and the Minister for C.S.I.R.O., Dr. Cameron.

for C.S.I.R.O., Dr. Cameron. Mr. H. J. Frith, the Officer-in-Charge of the Section, re-ceived the visitors and gave them a brief resumé of the aims, purposes and activities of the Section. His Excellency was very in-terested in the problems tackled by the Section, particularly the kangaroo and rabbit investiga-tions.

kangaroo and rabbit investiga-tions. His Excellency is an ardent duck shooter and took par-ticular pleasure in discussing the habits and movements of Australian species of waterfowl with Mr. Frith. During his two and a half hours stay Lord De L'Isle was

Mr. H. J. Frith, Officer-in-Charge of the Wildlife Survey Section, talking to the Governor-General about kanga-Governor-General about kanga-roos. Others in the picture are, from left: Dr. R. Mykytowycz, Mr. J. H. Calaby, Dr. R. Car-rick (part hidden) and the Minister-in-Charge of C.S.I.R.O. (Dr. Cameron).

shown some of the work in progress in the various en-closures at Canberra. He followed with interest the field operation of a ladder truck, and was so intrigued with it that he decided to take some photographs himself of the men on the top of the ladder, as they were being attacked by magpies. magpies. The Governor-General met

all members of the Section's research staff at an afternoon tea function and discussed with them their individual interests. He was thus admirably equipped for the research in soil chemistry which earned for him in 1933 the Ph.D. degree of the University of London.

On Tuesday, 10th October, the House of Representatives debated the estimates of C.S.I.R.O. and the Department

Estimates

association with C.S.I.R.O. was brought to an untimely end by his death in Melbourne on October 9th.

**DEATH OF Dr. A. WALKLEY** 

Dr. Allan Walkley's long and exceedingly valuable

He was one of the few officers classified as Chief Research Officer for scientific rather than administrative duties.

Only 55, he had covered a wide range of activities, scien-tific and cultural, and numbered among his friends all his colleagues and a host of men in industry and public affairs.

Born in Adelaide in 1906, Walkley studied at St. Peter's College and the University of Adelaide from which he graduated B.Sc. in 1927.

He spent 1928 in Zürich on organic chemical research with Professor Karrer. There he be-came an expert skier and con-tinued to take a keen interest in skiing throughout his life.

At Trinity College, Cam-bridge, he graduated B.A. in the Natural Sciences Tripos, having added biochemistry and physiology to the physical and geological science of his earlier studies.

The same year he became M.A.(Cantab.). His final degree

was that of D.Sc. of the University of London in 1949.

Walkley came from Rothamsted to the Soils Division of C.S.I.R. in 1933. At the Waite Institute he published a dozen papers on the chemical and physical properties of soils and on various aspects of zinc deficiency.

deficiency. He joined his old friend, R. G. Thomas, in the Division of Industrial Chemistry in 1942, and there his versatility and meticulous attention with respect to essentials led him into some very interesting though unusually difficult assignments. assignments.

First he worked on the raw materials for the dry cells for which the Army was so hungry, then on the complex systems met in recovery of copper and gold by hydro-metallurgical methods.

Some of his numerous papers were applied, some fundamental: they were all good.

Walkley enjoyed a fine repu-tation in mining circles; in-deed, he visited and reported on the African copper mining fields on behalf of four Aus-tralian companies in 1956.

Well known to the chemical profession, he served as Honorary General Secretary of the Royal Australian Chemical Institute from 1958-60.

He will be missed as much for his charm of manner as for his scientific leadership. If one might offer a word of comfort to his widow and son, it is that Australia will be forever in his debt .--- I.W.W.

#### HONOURS

Dr. H. E. Dadswell, D.Sc., F.R.A.C.I., Chief of the Divi-sion of Forest Products, was elected President of the Royal Australian Chemical Institute at the Institute's Annual General Meeting on 2nd October. Dr. Dadswell has previously held the offices of Honorary General Secretary and Victorian Branch President. Dr. C. H. Gallaeber of the

**Dr. C. H. Gallagher** of the Division of Animal Health has been awarded the Payne Ex-hibition for 1961, jointly with Professor J. F. Sprent of the University of Queensland.

The Payne Exhibition is awarded triennially by the University of Melbourne. It is given for original research mak-ing the most important contri-bution to unformation bution to veterinary science.

between the north of Australia and the more temperate regions.

"I think there are still re-search problems in the north of Australia and increased extension work might not be able to achieve very great changes there until additional research knowledge is available.

knowledge is available. "But, in the southern parts of Australia, there is a great fund of knowledge, much of which is unused because exten-sion services, for various reasons, are perhaps not as good as they could be."

#### Fisheries School

A training school for departmental field officers was held at Cronulla by the Division of Fisheries and Oceanography from 9th-20th October.

Twelve members of the Divi-sion's staff took part in the school which consisted of

ston's start took part in the school which consisted of twenty-three lectures, thirteen practical demonstrations and three discussion periods. Among the subjects listed for discussion were fish industry statistics, gear and boats, and identification of fish. There were visits to ports, fish markets, and canneries. The Minister for Primary In-dustry (Mr. Adermann), in opening the school, said that the decline of catches in the fishing industry was a challenge to the field officers attending. He said that in spite of a long coastline and varied fish-ing conditions, Australia im-orded down thelf the fish cord

ing conditions, Australia im-ported about half the fish and fish products consumed in Australia

This was because the pro-



duction of Australia's fisheries was not keeping up with the population growth. Federal Government was considering fleets with a mother ship in a new programme to develop the Australian fishing industry industry. **Rivett** Street

The name of the late Sir David Rivett has been commemorated by the naming of a street after him in the Canberra suburb of

him in the Canberra suburb of Hackett. This in accordance with the policy of naming Canberra streets after famous A us-tralians—there is already a Clunies Ross street near the laboratories at Black Moun-tein tain.

The main speaker on the Government side was Mr. Malcolm Fraser (Liberal, Victoria). Mr. Fraser said that Aus-tralia was losing nearly £100 million a year through lack of research in the wool and cattle

Debate on

of National Development.

of National Development. Most speakers confined their remarks to National Develop-ment. Among those who dis-cussed C.S.I.R.O. were Mr. Benzley (Labour, W.A.), who urged the Government to give greater support to scientific education, so that C.S.I.R.O. and the Universities might have a bigger pool of scientific talent to draw upon. The main speaker on the

research in the wool and cattle industries. After discussing the role C.S.I.R.O. has to play in the development of the cattle in-dustry in the north, Mr. Fraser turned to the sheep industry. He quoted from Rural Re-search No. 35--

search No. 35— "Perhaps as many as 10,000,000 lambs die in Aus-tralia each year before they are a few days old. This repre-sents an annual loss of roughly 20 per cent. in the lamb crop before it reaches marking age. To it must be added, possibly, a further 10 per cent. loss suffered before the lambs reach productivity.

a juniter log per cent. loss suffered before the lambs reach productivity. "If you value these lambs at £2 a head," he said, "which again at present values is reasonably conservative, and if you take no account of wool production over a life of four or five years, the loss reaches the figure of £30,000,000 a year, which is a pretty hefty loss. "It is also estimated that an additional £3,000,000 loss re-sults from the death of 1,000,000 ewes each year as

the result of inadequate nutri-

the result of inadequate nutri-tion. "In another debate I pointed out that an increase of only 2 per cent. in the national average for lambing would produce an additional 1,000,000lambs which, at £2 a head, would equal £2,000,000.

would equal £2,000,000. "An increased cut of wool of 1 lb. a head would increase the clip by 3.3 per cent, which would be worth f10,000,000 at present prices. "There are good reasons to think that this is a conserva-tive estimate if full use of the present scientific knowledge was made by primary producers.

present scientific knowledge was made by primary producers. "It has been shown quite clearly that even in the rela-tively prosperous and high pro-ductivity areas of Australia, wool production in the flush spring period of the year is about four or five times what it is in the worst periods of late summer or autumn. "The total losses I have

"The total losses I have mentioned for the sheep in-dustry amount to just under \$60,000,000, which I believe is a pretty alarming total when a considerable proportion of the farmers in this industry are facing cost problems at the present time.

"These losses in the beef in-These losses in the beet in-dustry, the dairy industry and the sheep industry demand powerful support for increased research and increased exten-sion work.

sion work. "Increased research is cer-tainly not the whole answer to the problem; increased and more efficient extension services throughout Australia are a part, and possibly the most important part, of it. "In this instance it might be worklub to down a distinction

possible to draw a distinction

# **One of the World's Finest Astronomical Instr**

The opening of the 210 feet radio telescope is an important event in the history of C.S.I.R.O., and indeed in the history of radio astronomy.

It is now some years since Dr. E. G. Bowen, the Chief of the Division of Radiophysics, and Dr. J. L. Pawsey approached the Executive and put forward the idea that such a telescope should be built.

Following the remarkable work that the Division of Radiophysics did during the War to assist the fighting services with the development and use of radar equipment, the Division ended the War with considerable abilities in the field of radio technology.

The science of radio astronomy did not exist prior to the War.

A member of the Bell Telephone Laboratories in the thirties had made an observation, reported in the literature, suggesting that signals were coming in from outer space.

Another member of that Laboratory had also made observations of the intensity of the radio radiations from the Sun. Since the Sun is a very hot body it has a spectrum which extends into the range of radio wavelengths.

A radio amateur, Grote Reber, had made observations of a similar nature, and had made a survey of parts of the heavens from which radio signals appeared to come.

These three observations were all that existed in the literature prior to the War.

It was very natural that Dr. Pawsey and his colleagues, having the technical ability to m a k e similar observations, should wish to repeat these early findings.

This was the way the subject began here, and indeed it began in a similar way in the United Kingdom. The whole subject began to open up with explosive violence.

Discovery after original discovery was made in Australia, f ollowed immediately by similar original discoveries by by a smaller group at Cambridge.

Within a few years the scientific world was astonished to find a great new aspect of astronomy had been created.

Australia was particularly fortunate that, amongst all the

laboratories of the world, three alone opened up this subject at this time.

These were the Division of Radiophysics under the guidance of Dr. Pawsey, the group at Manchester University, now under the guidance of Professor Sir Bernard Lovell, and the group at Cambridge University under Dr. Ryle.

The early observations were made with relatively simple equipment but as this science developed the need for more complex equipment — particularly aerials — was keenly felt.

There was a need to "see" further out into space and to fix with greater accuracy the position of the celestial objects from which these signals were coming.

Professor Lovell's large telescope in Manchester enabled this to be done in the Northern Hemisphere. There was much of interest to be seen in the southern sky so it was natural that Australia should wish to build a large telescope, too.

At first it did not seem possible that C.S.I.R.O. would ever be able to obtain the very large sums of money that would be necessary, but out of the blue came a significant offer from the United States.

The Carnegie Corporation of New York voluntarily offered to provide \$250,000 towards the building of a large Southern Hemisphere radio telescope. It was not long after this that the Rockefeller Foundation also made an offer of \$250,000, supported by a later offer of a further \$107,000.

Dr. Bowen and Dr. Pawsey approached the Executive and pointed out that this sum of money, while generous in the extreme, would not be sufficient for the purpose.

Then a large number of men in senior positions in industry in Australia assisted us by making substantial contributions.

At this time two things seemed very evident. Firstly, the Division of Radiophysics had made outstanding progress in an entirely new science.

Secondly, the new subject was obviously a field of basic science and had no particular or definable applied purpose. C.S.I.R.O. has the responsibility to engage in research of some interest to the nation, and this interest is usually an applied one.

Here it was faced with the desirability of supporting research in an aspect of science which there was no reason to support, other than its sterling worth and the remarkable advance in science that it represented.

Sir Ian Clunies Ross, and the members of the Executive, were quite convinced of the desirability of going ahead. They did, however, wish to obtain the support of our Advisory Council.

The Council was told of the remarkable advances that had occurred, and of the outstanding merit of the group of men at the Division who had achieved this distinction.

It was made quite clear that the Executive could see no applied aspect of this work which in normal circumstances would have justified C.S.I.R.O. in going ahead.

One further aspect was emphasized.

The Advisory Council was told that it was important to the morale of C.S.I.R.O. that, when a group of men in it had made discoveries of such outstanding basic significance to science, they ought to be given backing.

This was, in fact, a sort of test case. The discussion at the Advisory Council was a very interesting one.

It was quite obvious from the beginning that all members of the Advisory Council supported the project wholeheartedly.

This was very illuminating and encouraging to the Executive,

Here was a group — a quite large group — of senior industrialists, senior members of the agricultural in dustry, and academic people from the Universities, supporting the principle that first-class basic research by C.S.I.R.O. should be supported wholeheartedly and well, even if it promised no material return.

An approach was immediately made to the Commonwealth Government, which underlook to match, pound for  $p \circ u n d$ , every contribution made, both from the American institutions and from any donors in Australia.



Three radio telescope builders stand in the giant dish high above the ground. From left: Mr. J. G. Bolton, the first man to identify "radio stars"; Mr. M. Jeffery of Freeman, Fox and Partners, designers of the telescope; and Dr. E. G. Bowen, Chief of the Division of Radiophysics, who initiated the whole project.



So it came about that, with the support of the Council, with the support of so many generous grants from the United States, from Australia, and particularly from the Commonwealth Government, it was decided to go ahead and build this large instrument.

It is not possible to outline here the very hard work that has been involved for Dr. Bowen and his colleagues in bringing this project to a successful conclusion.

These very large instruments are not by any means easy to design. There is only one other in existence in the world already, the Jodrell Bank telescope near Manchester.

The instrument at Parkes is the second largest in the world. It is only slightly smaller than the Manchester instrument, being 210 feet in diameter as against the 240 feet of the Manchester instrument.

The consulting engineers, Freeman, Fox and Partners, together with the Radiophysics officers, have done a magnificent design job.

The contract, after being tendered for by many companies in England, in the United States, and Germany, was finally let to the German firm, Maschinenfabrik Augsburg Nurnberg A.G.

This firm has, from the beginning, showed exceptional skill in carrying through into practical effect the design put forward by Freeman, Fox and Partners.

At the opening this week the world will see a remarkable piece of engineering, built to the strict specifications of the Division of Radiophysics.

It will enable the Division to maintain its position as one of the outstanding groups in the science of radio astronomy in the world.



# uments - the New Radio Telescope at Parkes



C.S.I.R.O.'s new radio telescope, commissioned this week by the Governor-General, stands amid ripening wheat fields in a peaceful valley near Parkes, two hundred miles west of Sydney.

A gigantic structure of steel and concrete, it soars nearly two hundred feet into the clear skies of central New South Wales.

It will be able to look ten times further into the universe than the world's best optical telescope, the 200-inch reflector at Mt. Palomar in California.

Today's inauguration ushers in a new phase of Australia's pre-eminence in one of the newest and most exciting fields of science. For radio astronomy is only fifteen years old.

#### A New Science

Only in 1946 was it discovered that radio waves were reaching the earth from certain areas of outer space.

Nobody knew whether the radio waves were being emitted by the brighter stars in the heavens, or whether they came from some completely unsuspected source.

pected source. In 1945, a C.S.I.R.O. group under the leadership of Dr. J. L. Pawsey, using a radar aerial and an improvised radio receiver, had shown that the Sun's atmosphere is enormously hotter than had been supposed and that sunspots can be powerful sources of radio waves.

ful sources of radio waves. In 1946, another C.S.I.R.O. team, led by Mr. J. G. Bolton, tracked down similar waves from a distant spot in space, apparently unidentified with

Mr. A. J. Helm, from whom C.S.I.R.O. bought the radio observatory site, musters a flock of sheep in the paddocks surrounding the telescope.

The radio felescope may be tilted from the horizontal position down to an angle of 60 degrees from the vertical. When fully tilted the lower rim of the dish is only two or three feet from the ground.

any visible object, which Mt. Palomar astronomers were eventually able to identify as two colliding galaxies hundreds of millions of light years away (a light year is nearly 60,000,000,000 miles).

#### Early Discoveries

C.S.I.R.O. radio astronomers were quick to follow up these early discoveries.

They found that one of the new "radio stars" was the remnant of a "supernova" or exploding star. The actual explosion of the star had been recorded by Chinese astronomers over 900 years ago, in 1054 A.D.

With the aid of ingenious new instruments designed in Sydney, the C.S.I.R.O. group was able to detect many more "radio stars" in the sky.

And their study of the Sun revealed that enormous explosions sometimes occur deep down in the Sun's atmosphere which not only give rise to powerful radio waves but to the expulsion of high speed particles from the Sun itself.

The radio waves often cause serious disturbances to radio communications on earth and the particles cause auroral displays and magnetic scores

the particles cause auroral displays and magnetic storms. Many of the problems facing the new science (the detection of hydrogen in remote galaxies, for example) call for the use of large aerials which can be pointed at any part of the skies, and even used down to short wavelengths.

This means a big steerable radio telescope with a big reflecting dish to collect radio waves and focus them on an aerial.

Design & Construction At that time no big radio telescope had been built, although one was in course of construction at Jodrell Bank near Manchester in England.

New discoveries, made after the Jodrell Bank telescope was started, indicated that the surface accuracy and pointing accuracy of the Australian telescope needed to be much better than the British one.

During 1956-58 the radio telescope was designed by Freeman, Fox and Partners, a London firm of consulting engineers.

One of the C.S.I.R.O. radio astronomers, Mr. H. C. Minnett, worked with them on the design.

Some novel suggestions came from Dr. Barnes Wallis, the British scientist who won wartime fame as author of the "Dam Busters" project.

In 1959 tenders project. In 1959 tenders for construction were called, and the main contract was placed with M.A.N., a West German firm. An Australian firm, Concrete Constructions Ltd., put in the foundations and built the concrete tower.

#### The Telescope

The radio telescope is one of the most powerful and sensitive instruments of its kind in the world.

It can receive radio waves from 5,000 million light years away, from the very outermost fringe of the observable universe.

Although it is slighter smaller than the Jodrell Bank telescope (210 feet across as compared with 250 feet), it has a number of advantages over the British instrument. Its better surface accuracy.

Ver the British instrument. Its better surface accuracy allows it to be used at full accuracy down to short wave lengths. Its control system is also expected to be superior, so that it can be trained on a moving point in the heavens without wavering from it. Because it is situated in a

Because it is situated in a quiet piece of the Australian countryside instead of the heart of the English industrial midlands, it will be much less susceptible to interference from industrial radio noise.

#### What It Will Do

There are many tasks awaiting the glittering giant at Parkes.

It will be used for studying the behaviour of the Sun. It is known that disturbances in the atmosphere of the Sun are linked with disturbances in our own atmosphere.

linked with disturbances in our own atmosphere. It can easily detect the very weak signals emitted by the Moon, and the Moon's radio emission will convey to scientists new information about the temperature and the composition of its surface.

Further out in space, the telescope will trace out the spiral pattern of our own Milky Way system and provide us with a picture of the universe painted in the strange new "light" of radio waves.

And it may answer the questions that have puzzled men from time immemorial. What lies in the outermost regions of space? Is the universe constant in size, or exploding ever outwards?

Finally, the telescope will almost certainly be used for a purpose which was never intended when it was designed.

When any nation attempts to send a space vehicle to the moon or one of the planets, it is likely to ask for Australia's help. For the Parkes radio telescope is better equipped for tracking space probes than any other instrument.



# Death of Dr. E. Feigl

Dr. E. Feigl, of the Translation Section, Head Office, died suddenly at his home on September 23rd. He was 60 years of age, and leaves a widow and a son.

Dr. Feigel was born in Baku, of Austrian parents and received his early education in St. Petersburg.

He returned with his parents to Austria in 1914, and later studied Chemistry and Physics at the Universities of Vienna and Graz, graduating Dr.Phil. at the latter in 1929.

He worked until 1938 in the Austrian oil industry, and came to Australia in 1939. Here he worked as an industrial chemist, and as a research chemist at the Waite Institute. In 1946 he joined the Translation Section.

The combination of his languages, native and acquired, with a scientific training and experience, and with the infinite pains that it was his nature to take, produced translation of high quality.

In addition to his regular work he collaborated in the translation, for publication, of two Russian scientific text books on electron diffraction and for some years before his death even graving before his death gave evening lectures in scientific German and Russian at the Royal Melbourne In-stitute of Technology.

## Fellowship

Dr. H. E. Adler, of the Department of Avian Medicine, School of Veterinary Medicine, University of California, arrived in Melbourne on 20th September.

September. Dr. Adler, who is a noted authority on several important poultry diseases, has been awarded a Fellowship of the United States National Insti-tutes of Health and will spend one year working at the Animal Health Research Laboratory at Parkville. Parkville.

C.S.I.R.O. research workers have made considerable pro-gress in the investigation of the gress in the investigation of the genus Mycoplasma of which *M. mycoides* is of considerable economic importance. Dr. Adler's work has been mainly on the avian group of these organisms organisms.

He kept up to date his read-ing of scientific literature, par-ticularly in Russian, and was thus able to draw the attention of research workers to signi-ficant developments in their falt field.

The Organization, and all whose interests he so much studied, will deeply feel his loss. —A.L.G.

# All-Rounder

During her 12 years in Australia Ilze Raudzins (22), of the Western Australian Regional Laboratory, has excelled in sport and her recent selection as captain of the State women's basketball team was a fitting reward for a versatile sports woman.

She began playing basketball only last year, and became a member of the State side that went to Melbourne.

Her father, James Raudzins, represented Latvia in basket-

#### Miss ILZE RAUDZINS

ball at the 1936 Berlin Olympic Games

As a high school student Ilze was prominent in hockey, athletics and swimming, and in 1957 she won the Swim-through-Perth in fastest time.

She is in the last year of an arts course and is majoring in mathematical statistics and pure mathematics.

TECHNICAL ASSOCIATION NEWS

## FULBRIGHT SCHOLARS

Mr. R. M. Price, of the University of Colorado, has been awarded a Fulbright Scholarship, and is working in the Division of Radiophysics. He will carry out research in astrophysics, in association with the radio telescope at Parkes.

Dr. F. J. Stevenson, Asso-ciate Professor in Soil Chemis-try, University of Illinois, is visiting the Division of Soils as a Fulbright Scholar. He arrived in Adelaide with his family in August and has settled in to work in the Micro-biology Section of the Division in Adelaide. He will work on the role of organic substances in the soil in causing nitrites to disappear.

The theme of the Convention,

which was opened by the Governor - General, Lord De L'Isle, was "Australia's Pot-ential in the Chemical Indus-

Papers having reference to national development, economic aspects, the potential of the minerals industry, research and

**Big Week For** 

Albury Girl Miss Diana Kirkpatrick had a

big week recently. On Thurs-

14th September, she ed an appointment as

C.S.I.R.O. staff.

try"

day.

secured

NEW APPOINTEES

**Dr. S. N. Adams** has been appointed to the Division of Soils, and will be stationed at the Tasmanian Regional Laboratory in Hobart. Since graduating D.Phil. at Oxford in 1950 he has carried out research on cocca in Ghana and search on cocoa in Ghana and on sugar beet at Rothamsted in England.

England. Mr. T. R. Evans has been appointed to the staff of the Division of Tropical Pastures. He is a graduate of the Uni-versity of Wales, and holds the Diploma in Tropical Agricul-ture from Trinidad. Since 1957 he has been in the Colonial Service in Kenya.

Dr. D. Graham has joined the Plant Physiology Unit of the Division of Food Preservation, He is a graduate of the Universities of Durham and Cambridge, and for the last

development aspects, commer-

cial aspects, plastics and petro-chemicals, and the role of the universities in the long term development of the chemical

industry were presented and discussed.

discussed. C.S.I.R.O. was represented by Dr. I. W. Wark (Executive), Dr. H. E. Dadswell (Forest Products), and Mr. W. E. Bwers, Mr. I. E. Newnham, Dr. J. R. Price, Dr. J. M. Swan, Mr. E. A. Swinton, Mr. R. W. Urie and Dr. D. E. Weiss, all of the Chemical Research Laboratories. Dr. I. W. Wark read a paper on "The Potential of the Min-erals Industry".

Athletic Coach

two years he has held an I.C.I. Research Fellowship at the University of London. Dr. P. D. Mercer has been

Dr. P. D. Moreer nas been appointed to a three-year re-search fellowship in surface chemistry at the Division of Tribophysics. Since graduating Ph.D. from "Manchester in



Dr. P. D. MERCER

1958 he has held research ap-pointments at the University of Florida and with Courtaulds in England.

Mr. M. J. Murphy, a graduate of the University of Liverpool, has joined the staff of the Division of Physics. He will take responsibility for en-gineering problems in the Division and will supervise the workshop and drawing office.

workshop and drawing office. Dr. T. ap Rees has joined the Plant Physiology Unit of the Division of Food Preser-vation. Since graduating D.Phil. from Oxford in 1957 he has held a post-doctoral fellowship at Purdue University and a lectureship in botany at the University of Sydney.

## **OVERSEAS** VISITS

Dr. R. Carrick, of the Wildlife Survey Section, left last month for a short visit to New Zealand and the Antarctic. He attended a meeting of the Special Committee on Antarc-tic Research, after which he made a short visit to McMurdo Sound on the Anterctic Conti Sound on the Antarctic Continent.

Dr. G. F. Humphrey, Chief of the Division of Fisheries and Oceanography, represented Australia last month at a meeting of the International Oceanoing of the International Oceano-graphic Commission in Paris. Before returning home he will attend meetings of the Special Committee on Oceanic Re-search in Hamburg and

search in Hamburg and Monaco. Mr. J. D. Murray, of the Division of Radiophysics, has been granted two years' leave to work at the University of Leiden in Holland. He will take part in the design of a large cross aerial, which is to be jointly constructed by the Benelux countries.

be jointly countries.
Dr. K. Norrish, of the Division of Soils, is on a short visit to the United States. He presented a paper last month to the Tenth National Clay Minerals Conference, held at the University of Texas.
Dr. A. D. Rovira, of the Division of Soils, left recently to spend one academic year in America as Visiting Professor in Soil Microbiology at Cornell University. Before returning home he will attend next year's International C on g r e s s on Microbiology.
Dr. W. J. eScott, Assistant

Dr. W. J. Scott, Assistant Chief of the Division of Food Crite of the Division of Food Preservation, leaves next week for America. He has been in-vited to attend a Symposium on Low Temperature Micro-biology at the research labora-tories of the Campbell Soup Company in New Jersey.

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

We cannot let the opportunity go by without bringing to your notice two of the Association's achieve-The first one, "The Harry Palmer Case", is an old perennial, which has at last been concluded to the satis-faction of all concerned. considered it unnecessary to have members of the C.S.I.R.O. technical staff

This case concerned a man doing work calling for a highter classification than the one he enjoyed.

ments.

The man, being quite capable of doing this higher class work, applied for re-classification. On being re-fused, he approached the Technical Association and use are placed to rear that we are pleased to say, that after many months of good work by the past Central Council, the reclassification has been approved.

The second one concerns Draughtsmen and Assistants (Special Measuring)).

A special exclusion clause A special exclusion clause has been inserted in a judge-ment brought down from the Industrial Registrar, re the Association of Archi-tects, Engineers, Surveyors, and Draughtsmen of Aus-ter line for the second second second second ter line for the second second second second ter line for the second s and tralia

After much effort on the part of Bill Menzies and Eric Murray, we won this exclusion clause.

The Technical Association .....

C.S.I.R.O. technical staff obliged to be members of the A.A.E.S.D.A. and the Industrial Registrar con-firmed this by upholding our appeal for the exclusion clause.

Thanks to Bill Menzies and Eric Murray on both cases

Staff Numbers

C.S.I.R.O. staff statistics were given in "Coresearch" for September. It is interesting to note, that the Technical Section is by far the largest, with 1,228 employees.

1,228 employees. It is also interesting to note that of that 1,228 em-ployees, only 600 are mem-bers of the Technical Asso-ciation.

Where are the other 600 odd eligibles?

Membership of the C.S.I.R.O. Technical Asso-ciation is open to:-Senior Technical Officers; Technical Officers, Techni-cal Assistants (Laboratory); Assistants, Senior Librar-Assistants, Senior Librar-ians; Librarians and Library Assistants.

Miss DIANA KIRKPATRICK

She will be with the entomological team working on phasmatid problems, and will be based in Albury, her home town.

## **U.N.** Job for Dr.W.G.Kauman

Dr. W. G. Kauman, of the Division of Forest Products, has accepted a two and a half year assignment with the Food and Agricultural Organization of the U.N.

He has been appointed as a Forestry Officer (Wood Tech-nology Branch) on a Special Fund project of the U.N. to the Government of Chile.

He will leave in a couple of months time for Rome, where he will receive briefing at F.A.O. headquarters before proceeding to Chile.



Two days later she was awarded the sash for "Miss Albury Showgirl" at the Albury Show.

#### **Too Many Scientists?**

The supply of scientific man-power in Britain — scientific and technologists — will almost meet all the demands from in-dustry, the Government, local authorities, educational estab-lishments and public corpora-tions by 1965.

After that there should be a surplus, judged to be about 17,500 in 1970.

17,300 in 1970. These are the main con-clusions of the Committee on Scientific Manpower, the latest report of which, "The Long-Term Demand for Scientific Manpower", was published on 10th October.

Toth October. Discussing the report, the chairman of the Committee, Sir Solly Zuckerman, Scientific Advisor to the Ministry of Defence, admitted that there might be a shortage of mathe-maticians and this was serious.

Apart from this the report is the most optimistic yet pub-lished, though it shows that the proportional utilization of scientific manpower in the U.S. appears to be greater than in Britain.

The comparison, however, is not an exact one because many of the people included in the U.S. figures are not, according to British standards, fully professionally qualified.

secured an appointment as Technical Assistant in the Division of Entomology.

R.A.C.I. CONVENTION

The Second National Convention of the Royal Australian

Chemical Institute was held in Canberra from 29th September to 2nd October, and was attended by several members of the

Mr. Anton Tesija, who re-cently joined the Division of Entomology as a Scientific Instrument Maker, is a world renowned athletics coach. Mr. Tesija, a Yugoslav, was official coach of the West German team at last year's Rome Olympic Games. He coached Armin Harv.

erals Industry

He coached Armin Hary, gold medallist at the Rome Olympic Games, and world record holder for the 100 metres dash.

In his spare time, Mr. Tesija will coach athletes from the North Canberra Club.

# Librany. 033##1961 ORESEA FOR CIRCULATION AMONG MEMBERS OF C.S.I.R.O. STAFF - NUMBER 33, MELBOURNE, DECEMBER 1961

# **Radio Telescope Commissioned**



The new radio telescope at Parkes was formally commissioned on 31st October by His Excellency Lord De L'Isle, Governor-General of the Commonwealth of Australia.

Special charter planes brought 250 guests from Melbourne, 250 guests from Melbourne, Syd ney and Canberra. A similar number went up by car from Sydney and Canberra.

Unfortunately, the day was un-pleasant, with a strong gale blowing across the central western plains of New South Wales.

A planned ceremony, in which the Governor-General was to command the movement of the telescope, had to be abandoned.

Wind speeds were higher than the upper operational limit specified for the telescope.

Instead, the Governor-General commissioned the telescope by pressing a button on the rostrum, upon which a flag broke out from a mast on the telescope's aerial cabin.

His Excellency was accom-panied by Lady De L'Isle and the Hon. Catherine Sidney.

Dr. White introduced Lord De L'Isle to the audience and His Excellency then addressed the assembly.

He began by reading a mes-sage received that day from H.R.H. Prince Philip, which

said — "The development of radio astronomy has been one of the great events of modern Science, and the scientists of C.S.J.R.O. have played a leading part in this important work. Their studies of the Sun and the ex-ploration of extraterrestrial space to the remotest parts of the universe has gained the ad-miration of astronomers every-where and has brought great credit to Australia.

"Today the radio astronomers of Australia are to be rewarded

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by the inauguration of a mag-nificent radio telescope which will enable them to penetrate still further the secrets of the cosmos. This occasion marks the culmination of much planning and hard work and I send you my best wishes for the success of your investiga-tions with this new instrument."

The Governor-General then referred to four of the circum-stances which, he said, had helped towards the realization of the project.

Firstly, there was the physical environment, a favourable factor because of the immensity of the possibilities afforded by that part of the firmament which can be viewed only from a suitable point in Southern Hemisphere. the

Secondly, the science of op-tical astronomy was already firmly established and flourish-ing in Australia, forming as it did one of the most important sections of World Astronomy.

Thirdly, Australia had built up since the War a Radio-physics Laboratory which has been described "as the most advanced and the best equipped in the world".

Lastly, in Dr. Bowen, the Radiophysics Division of the C.S.I.R.O. possesses a leader not only of the highest scien-tific attainment and reputation but having as well great prac-tical capacity and initiative.

The ceremony concluded with speeches by the Minister-in-Charge of C.S.I.R.O. (Dr. Cameron), Lord Casey and Dr. Bowen.

After the ceremony the Vice-Regal party made an inspection of the radio telescope.

The Vice-Regal party arriving at the telescope site. Mrs. F. W. G. White is about to present a bouquet to Lady De L'Isle (almost hidden by the Governor-General).

## **Tools of Science**

At the forthcoming meeting of A.N.Z.A.A.S. to be held in Sydney from 20-24th August, 1962, it is proposed to hold a "Tools of Science" Exhibition in the Chemistry School of the University of Sydney. Any person, or division, interested in exhibiting new instruments or novel uses for existing instruments should address his inquiries to: Professor A. E. Alwander

Professor A. E. Alexander, "Tools of Science" Exhibition Committee,

Chemistry School, University of Sydney.

## **Teachers** Wanted

There is a serious shortage of feachers of science and mathe-matics in the Independent Girls' Schools of Victoria.

schools of Victoria. So far these schools have managed to carry on by re-sorting to various expedients but, with growing numbers of girls attending the higher classes in the secondary course, the position is becoming critical.

It has been suggested that there may be some wives of C.S.I.R.O. officers who would be willing to help for a year or two by teaching one of these classes classes.

classes. Contact could be made in the first place with Mr. Ives at Head Office who will be glad to provide details of needs which have been examined by a special committee headed by Mr. L. W. Weickhardt, Tech-nical Director of I.C.I.A.N.Z.

# DETECTING THE MEGATON BOMBS

In the last week of October, as the Russian series of bomb tests reached its climax, the attention of the Australian Press was focussed on the Division of Meteorological Physics at Aspendale, Victoria.

For the Division was able to record on its micro-barograph the pressure waves from the explosions in the Arctic.

explosions in the Arctic. The Division first recorded strong shock waves at 6.55 a.m. on 24th October. Seismo-graphs in Melbourne had recorded a shock wave at 7.36 p.m. on the previous evening, as earth shock waves travel much faster than air pressure waves. waves.

Mr. E. L. Deacon, of Meteorological Physics, told the Press that the barograph recordings were as strong as those recorded during the U.S. Deacon, H-bomb tests at Bikini atoll in 1958.

However, Bikini was only 3,600 miles from Melbourne, while Novaya Temlya, where the Russian bomb was ex-ploded, was 8,800 miles away.

# **Divisions** Merge

The Executive has decided to combine the Divisions of Metrology and Electrotech-nology into one unit. The new unit will be called the Division of Applied Physics.

and will be called the Division of Applied Physics. ... Mr. F. J. Lehany, Chief of the Division of Electrotech-nology, will becomes Chief. Mr. Lehany and Dr. R. G. Giovanelli, Chief of the Divi-sion of Physics, will form a National Standards Laboratory Committee, which will advise the Executive on policy mat-ters concerning the Laboratory as a whole, and will be respon-sible for the administration of services used by both Divisions. Mr. Lehany will serve as Chairman of this Committee and will act as spokesman for the National Standards Labora-tory on standards and other matters of mutual concern to the two Divisions.

This indicated that the blast

Inis indicated that the blast could have been from a 50 megaton bomb, he added. On 31st October, the second series of shock waves were recorded at Aspendale, 5-6 times stronger than the record-ing made a week earlier.

Mr. Deacon said that the strength of the recording did not necessarily indicate that the second bomb was 5-6 times stronger than that of the previous week.

The recording was probably so clear because atmospheric conditions were favourable for good reception.

"After the main bang, shock waves continued for nearly 50 minutes compared with 30 minutes compared with 30 minutes last week," Mr. Deacon said. Dr. C. H. B. Priestley, Chief of the Division, told a re-porter that radioactivity from the big Russian bombs might or might not reach Australia. "But you may rest assured we shall be on the watch for it," he said, "although nothing is likely for another three months."

months." Rainwater provides the best means of testing for radio-active "washout". Three rain gauges – large plastic bottles with funnels in the necks – stand in an open observation yard behind the laboratory and rain water samples are tested each week. "So far, the only washouts of radioactivity we have been able to identify came from American explosions near the equator in 1958-59," Dr. Priestley said.

Mr. E. L. Deacon with the micro-barograph on which the shock waves from the Arctic were recorded.

Courtesy of the Herald and Weekly Times



# **Eighth Meeting of Executive with Woolgrowers**

On Tuesday and Wednesday, 14th and 15th November, the Executive and Advisory Council held their eighth meeting with representatives of the sheep and wool industry.

The meeting was held in Melbourne at the labora-tories of the Division of Protein Chemistry and the Division of Animal Health.

Representatives from many woolgrowers' organizations, and also from the textile trade, attended. Organizations repre-sented included the various State branches of the Graziers' Association; the Australian Wool and Meat Producers' Federation; the Australian Woolgrowers and Graziers Council; the Federated Cloth-ing Industries Council; the A s s o ci at ed Woollen and Worsted Manufacturers of Aus-tralia; the Wool Research Com-mittee; the Australian Wool Bureau; and various State and regional farmers' organizations. The Chairman, Dr. White, in Representatives from many

The Chairman, Dr. White, in the Chairman, Dr. White, in welcoming the delegates, said that close collaboration be-tween Woolgrower Organiza-tions and C.S.I.R.O. had been a feature of C.S.I.R.O.'s wool research programme over the wears years

"Practical problems being faced by woolgrowers have a large bearing on the direction taken by C.S.I.R.O.'s research programme," said Dr. White.

Mr. M. R. Blaikie (United Graziers' Association of Queensto Dr. land) making a point to R. N. Farquhar (A.R.L.S.),

"In a similar way our textile programme is geared to meet problems being met in the pro-motion of wool as a fibre."

motion of wool as a fibre." Dr. White said he looked forward to the review of C.S.I.R.O.'s wool research pro-gramme which would be made at the meeting. It enabled woolgrowers to keep in touch with progress in research and to see where C.S.I.R.O.'s re-search programmes may be leading.

In their own turn, C.S.I.R.O. research officers were anxious to learn woolgrowers' views about problems being en-countered in the field.

Twenty-one C.S.I.R.O. officers from eight Divisions and Sections gave short talks to the delegates on many different aspects of the sheep and wool research programme.

#### Sliver Converter

Among the newer projects described to the meeting was a "sliver converter" being de-veloped by the Division of Textile Industry at Geelong. Dr. D. S. Taylor told the dele-gates that the machine would be an alternative to the worsted "card" which rearranges scoured wool into a continuous sliver. sliver.

The sliver converter pro duces, after combing, 2½ pounds more clean wool than the "card" from 100 pounds of scoured wool. Its production is at least 60% greater than the "card", it needs less floor space, less maintenance, and a smaller applied outland

capital outlay. Its main disadvantage is that it does not remove as much vegetable matter as does the "card", but work is in progress to see if this can be rectified.

#### Yellowing

Dr. B. Milligan, of the Divi-sion of Protein Chemistry, told delegates about recent research on wool's tendency to turn yellow in sunlight.

yellow in sunlight. Although yellowing of natural "creany" wool is not usually very noticeable, bleach-ing unfortunately increases the tendency of wool to vellow, particularly if fluorescent brightening agents have been applied to give a "brighter-than-white" effect. The presence of moisture

applied to give a "brighter-than-white" effect. The presence of moisture also increases the rate of yellowing and so garments are particularly prone to yellow if, after washing, they are hung in the sun to dry. The Division has adopted two approaches in the search for a method of preventing or minimizing sunlight yellowing. Since it is believed that the ultraviolet light present in sun-light is primarily responsible for yellowing, many compounds which absorb this light have been tested for their ability to minimize yellowing when ap-plied to the wool. Only limited success has been achieved so far. far

The second approach is to chemically modify those amino acids in the wool structure which are degraded by yellow-ion ing.

Since it is known that cystine and tryptophan are the most easily damaged, a study is be-ing made of the mechanism by which these two amino acids decompose on exposure to light. It is then hoped to devise methods by which they can be modified so as to minimize their decomposition by the ulterwide light ultraviolet light.

ultraviolet light. They have already had some success, as treatment of the wool with formaldehyde under conditions which will modify the tryptophan residues results in quite substantial protection sections valowing against yellowing.

#### Irradiation

Dr. D. F. Stewart, Associate Chief of the Division of Animal Health, described a new approach to the control of parasitic worms in sheep. This involves the irradiation of larvae with X-rays.

M. Lipson (Chief, Division Textile Industry) with Mr. A. Dumaresq (Tasmanian J. A. Dumaresq (T Farmers' Association).

> moving from place to place, but it does not seem that the movements are anything like those that were previously those tha suspected.

> Under most conditions, 10 miles seems to be quite a long way in a kangaroo's life.

way in a kangaroo's life. The animal eats similar plants to the sheep, but its grazing method is different and the plants are not grazed to such a low level. The amount of food eaten, weight for weight, by a kangaroo is rather similar to that eaten by sheep. The gestation period is about one month and the young are in the pouch for 9 or 10 months. Breeding is continuous throughout the year, but it is

throughout the year, but it is probable that differences in male fertility occur in different

Acrial surveys are showing that the number of kangaroos in western New South Wales is not as great as has been imagined: an average density over a thousand square miles of one animal to 100 acres is about average, although within this area local concentrations of animals frequently occur.

Mr. W. Sloan (Advisory Coun-cil), Mr. G. Fethers (Australian Woolgrowers' Council), Mr. W. Strutt (Wool Research Committee) and the Chairman.



## TECHNICAL ASSOCIATION NEWS

Another New Branch

The Northern Territory Branch of the C.S.I.R.O. Technical Association is be-ing formed with members from Alice Springs, the Kimberley Research Station, the Katherine Research Station and the Coastal Plains Research Station.

Twenty - three members have intimated their willing-ness to form the branch, and already a provisional Committee and Executive has been elected. The formation of new

The formation of new branches in Queensland and the Northern Territory calls for new proxies to represent them. Any member willing to act as a proxy for either of these branches will be most cordially received.

#### Activities

A pamphlet outlining the activities and objects of the Technical Association will be issued to every member of the C.S.I.R.O. Technical Staff

Difficulties of distribu-Difficulties of distribu-tion, especially in outlying stations and sections, may cause some delays, but we hope that, with the co-operation of Chiefs and Officers-in-Charge, we wi overcome these difficulties. we will

Council Meeting Subjects for discussion at the recent Council Meeting included the Pastoral award (N.S.W.) Overtime (W.A.); 40 hour working week (Vic.); Reclassification (N.S.W. and Vic.); Per-manency clauses (N.S.W.); Retrenchments (Vic.); Junior rates of pay, and Study Fees. In addition, three con-

In addition, three con-stitutional amendments have been forwarded to the Industrial Registrar for ratification.

The number and variety of subjects discussed show why the Council Meeting ended at midnight.

Our Man on the Spot

Our Federal President, Geoff Richards, is stationed at the Division of Meteoroat the Division of Meteoro-logical Physics at Aspendale. Being in that Division, he will have first hand knowl-edge of the reactions to the M e g at on blasts being recorded in Australia. It will be interesting to read his views on this very topical subject.



The immune reactions or sheep to worm parasites have been studied at the McMaster Laboratory for some years, and much has been learned of the mechanisms involved.

But the treatment of infec-tive larvae with X-rays impairs their development and reduces their pathogenic effect upon the host, but the larvae may still retain their power to immunize.

This method has been used with some success by workers at the University of Glasgow to immunize against lung-worm infection in calves.

worm infection in calves. Laboratory experiments have led the Division to hope for success with one parasite, while results with another have been discouraging. A field experi-ment now in hand may confirm impressions that the technique could be used to protect sheen could be used to protect sheep from the black scour worm.

#### Kangaroos

Kangaroos Mr. H. J. Frith, Officer-in-Charge of the Wildlife Survey Section, discussed the work which has been done on the red kangaroo during the last eighteen months. The study, being made in western New South Wales, is designed to collect data on red kangaroo reproduction and breeding potential, population density, movements and food habits. This work is very ex-tensive in nature and results are not rapidly collected. Already it is plain that the red kangaroo is rather nomadic,

**Council Meeting** 



# **Advisory Council Discusses Secondary Industry Research**

The twenty-fourth meeting of the C.S.I.R.O. Advisory Council was held at I.C.I. House in Melbourne on Thursday, 16th November.

A considerable part of the day's discussion was devoted to the subject of research for manufacturing industry.

industry. It was explained to the Council that the Executive is con-tinuously confronted with the problem of how C.S.I.R.O. secondary industry research can be developed to be of the maximum value to industry. Where it has appeared prac-ticable without interfering with the basic research programme, it has for many years been the practice of C.S.I.R.O. laboratories to provide assist-ance with the day-to-day tech-nical problems of manufactures. In many cases, a satisfactory

In many cases, a satisfactory reply can be given from ac-cumulated knowledge and in-volves no more than sending a copy of a publication or the writing of a letter.

#### Consulting

Acceptance of this "con-sulting" responsibility, particu-larly by some Divisions, has been considered necessary because

- No other source of tech-nical advice has been available to the industry.
- Such help establishes the confidence of the industry
- confidence of the industry in C.S.I.R.O.
  Without such help, lack of technically trained men in the industry will prevent the adoption of new tech-nology arising from re-search.
- Because such industrial contacts have often led to the development of worth-while research projects.

Some people have contended that "consulting" activity by C.S.I.R.O. has made it difficult for the private consultant to be established.

established. Where capable consultants are available, as in some fields of chemistry and engineering, C.S.I.R.O. has always referred enquiries to them, since all C.S.I.R.O. research groups would agree that the growing needs of industry would be better served if competent con-sulting services were more sulting services freely available. were more

It is in the engineering in-dustries, which constitute a very important section of Aus-tralian manufacturing activity, that technical help and con-sulting services are most con-spicuously lacking.

Advisory work, on a very limited scale, is undertaken by units of C.S.I.R.O. such as the Division of Tribophysics, the Engineering Section, or the Applied Mechanics Section of the Division of Metrology.

the Division of Metrology. In all these cases, quite apart from questions of policy, limitations of staff would pre-vent help being given to the engineering industry on the scale that it is necessary to have a profound effect on the level of technology.

#### **Co-operative Research**

There are several research programmes in progress in C.S.I.R.O. which receive substantial financial support from individual manufacturers or industrial associations.

dustrial associations. In these co-operative research programmes, C.S.I.R.O. under-takes research for an industry on a programme determined by C.S.I.R.O. in consultation with the firm, or group, providing the support. The results of the research are made freely avail-able for use by the industry.

Co-operative programmes like these have several ad-vantages. They tend to bring about close contacts betwee the research group and th sponsoring industry. the

Further, the results of the research are more likely to be adopted by firms that have given financial backing to the programme and have had some part in its formulation.

#### Sponsored Research

C.S.I.R.O. has, in appropriate cases, been willing to inder-take research on problems sub-mitted by individual manufac-turers when the firms have met the full cost of the work.

the full cost of the work. Such a sponsored project in-volves an agreement between C.S.I.R.O. and the firm. The agreement usually provides for the sponsor to have a con-siderable influence in the formulation of the programme, and to be placed in a position of advantage in relation to patents arising from the re-search. C.S.I.R.O. does, how-ever. share royalities with the ever, share royalties with the sponsor.

It is always a condition that the scientific results must be available for publication, but it may be agreed that publication will be delayed for a period. Sponsored projects are only acceptable when a problem falls within the general field of interest of the division or section, when it is considered that the project is of national importance and, of course, when staff and facilities can be assembled without prejudicing the general research pro-gramme. gramme.

#### Patents

In general, it is the practice to patent inventions arising from C.S.I.R.O. research that show promise of successful industrial development.

An important reason for patenting is to protect the pub-lic interest in inventions, which might otherwise be covered by patent applications filed by others.

In the licencing of C.S.I.R.O. inventions the principal ob-jective is to ensure that these result in maximum benefit to Australia and in particular to Australia industry.

Australian industry. The full exploitation of C.S.I.R.O. inventions is of course only a small part of what C.S.I.R.O. has to offer Australian secondary industry. There is just as much scope for increase of general indus-trial efficiency in secondary as for increase of general indus-trial efficiency in secondary, as there is in primary, industry by the more rapid and wide-spread adoption of new tech-nology arising from research. There is just as much need for contact between the in-dustrialist and the research worker.

worker.

#### Reappraisal

Mr. L. W. Weickhardt, a member of the Advisory Council, suggested that C.S.I.R.O. might make a reappraisal of its patenting policy with a view to providing more assistance to Australian industry. He finds it disturbing that Australia is becoming increasingly depend-ent on foreign patents and know-how

know-now. Mr. Weickhardt sata man an ever increasing degree patents the world over repre-sent high asset value, and the need for greater contributions to Australia's inventory of in-ventions, both from industry 20 should be a ventions, both from indus and C.S.I.R.O., should be matter of national concern.

# High Hopes

Newest member of the staff of the Division of Meteorological Physics is one of Australia's most promising young athletes.

He is Ross Filshie, a science student from the University of Melbourne. He has joined the Division for three months as a vacation student, to assist with the final development of the "evapotron".

Ross holds the Australian residential record for the pole vault at 14 ft.  $0\frac{1}{2}$  in.

For years the pole-vault has been the "cinderella" event of Australian athletics. But critics think that young Ross is likely to put an end to that. He may even bring Australia a gold medal at Perth next year.

Ross trains at Melbourne University each evening under coach Franz Stampfl.

The world's record is 15 ft. 104 in., set in Colorado, U.S.A., by American George Davies last May. But 15 ft. is expected to be the winning height at the Commonwealth

Games at Perth, and that what Ross is aiming at now. and that's

He trains at 13.11 — only 14 in. below his national record — and clears it consistently with ease.

With ease. Recently he bettered his national record with 14.4<sup>1</sup>/<sub>2</sub> at Stawell, Victoria, but recog-nition of this vault as a record is being withheld pending a report on whether there was too much drop in the ground. Ross iso't concerned about

Ross Filshie practising the pole vault in the backyard of his home.

Courtesy of the Herald and Weekly Times





**Radio Station** 

The C.S.I.R.O. Division of Fisheries and Oceanography has been given permission by the Postmaster-General's Department to operate a radio station.

The station, which will have the call sign VL2CO, will be operated from Eden, New South Wales, and will be used by shore-based officers to com-municate with fisheries research vessels engaged in tuna fishing.

An essential component of An essential component of modern fisheries research is the establishment and maintenance of a fisheries intelligence ser-vice calling for a high degree of co-operation between fisher-men and officials responsible for research and for manage-ment of the resources.

This type of co-operative effort is now being organized in connection with the tuna fisheries off the south coast of New South Wales.

# SYME PRIZE TO TRIBOPHYSICS



The University of Melbourne's David Syme Research Prize, one of the major awards for scientific achievement in Australia, has been awarded this year to Drs. L. M. Clarebrough and M. E. Hargreaves and Mr. M. H. Loretto, of the Division of Tribophysics.

The three officers presented a collection of scientific papers which throw new light on the knowledge of imperfections in watch exceeds metal crystals.

The papers also give more knowledge on how these im-perfections affect the mech-anical and physical properties of the metals of the metals

Their experiments on coppe nickel, brass and theoretical deductions on atomic mech-anisms of plasticity and order-ing in metallic materials, have brought them international recognition.

Drs. Clarebrough and Har-greaves are graduates in metallurgy of the University of Melbourne

#### Soils Conference

The Division of Soils will be host organization at a confer-ence on geochronology being arranged by the Academy of Science for 5th, 6th and 7th December.

The conference will be con-cerned specifically with the quarternary landscape and soils in Australia. It will be financed by the Academy and the Com-monwealth Bank.

The symposium will be a closed one with invitations re-stricted to about 40. Several scientists are coming from overseas to attend the conferDr. Hargreaves has a Ph.D. from Cambridge University, and Dr. Clarebrough has a doctorate from Birmingham.

Mr. Loretto is a graduate in metallurgy from Sheffield Uni-versity. He has been with Tribophysics since his arrival in Australia six years ago.

Rockefeller

Travel Grant

study spectroscopic techniques and their application in bio-logical research.

Before taking up the grant, which is for three months' travel, he will spend three months at the University of California, Berkeley, working on techniques in X-ray fluores-

He will contribute to the Pittsburgh Conference on Analytical Chemistry and Ap-

cence.

Left to right, Mr. M. H. Loretta, Drs. L. M. Clarebrough and M. E. Hargreaves, winners of the 1961 Syme. Prize of the University of Melbourne.

## HONOUR FROM NEW ZEALAND The Chairman, Dr. White, has been elected to an Honorary Membership of the Royal So-ciety of New Zealand. This honour is confined to

only thirty eminent scientists throughout the world.

# **New Appointees**

bourne.

Mr. J. W. Bloodworth, a graduate of University College, London, has joined the staff of the Chemical Engineering Section. He was for four years with the U.K. Atomic Energy Commission at Harwell, and for two years with I.C.I.A.N.Z. in Melbourne.



#### Mr. J. W. BLOODWORTH

Dr. R. L. Davidson has joined the Division of Plant Industry and will be stationed at Armidale. Since 1952 he has been in charge of the Frankenwald Field Research Station of the University of the Wit-watersrand, South Africa.

Dr. R. De Deurwaerder, a graduate of the University of Liege, Belgium, has been appointed to a three-year postdoctoral research fellowship at the Division of Protein Chemistry. istry. He will carry out physico-chemical research on wool and other proteins.

Mr. J. S. Field has been ap-pointed to the staff of the Applied Mechanics Section, Division of Metrology. He



was for a number of years on the staff of the Sigma Instru-ment Co. in England. Since coming to Australia in 1959 he has been with Electronic In-

dustries (Imports) Ltd. in Mel-

and C.S.I.R.O. Overseas Studentship.



Mrs. C. M. SCHREGER

Mrs. C. M. Schreger has been appointed to a temporary position in the Translation Sec-tion, and will be stationed in Sydney. She has studied at the Universities of Warsaw, Cracow, and Sydney. Mrs. Schreger translates Polish, French, German and Russian.



Mr. J. G. SPEIGHT

Mr. J. G. Speight has joined the Division of Land Research and Regional Survey, and has been posted to the New Guinea Survey team. A geomorph-ologist, Mr. Speight recently completed his M.Sc. degree at the University of Canterbury, New Zealand.

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Mr. D. J. David, of the Divi-sion of Plant Industry, has been awarded a grant by the Rockefeller Foundation for travel in the United States to **Ergonomics for Australia?** 

Dr. C. H. Wyndham, Director of the Applied Physiology Laboratory of the Chamber of Mines of the Transvaal and Orange Free State, paid a short visit to Australia in November.

His visit was sponsored by a number of industrial firms, and an itinerary was arranged for him by C.S.I.R.O.

The purpose of Dr. Wyndham's visit was to explore the possi-bilities for establishing ergo-nomics research in Australia.

Ergonomics, or "human engineering", is the study of the basic physiology and behaviour of man in relation to his working environment.

Dr. Wyndham, in an address to the Advisory Council, told the Council that the economic prosperity of Australia depends upon the successful exploitation of its natural resources, biological and physical, and the marketing of the products at prices which are competitive in world markets.

One of the important bio-logical resources is the country's manpower. It is the key and indispensable source of mental and physical energy in induced and physical energy industry.

In contrast to the other natural resources, a negligible natural resources, a negligible amount of the country's appro-priation for research is spent in obtaining new scientific priation for research is spent in obtaining new scientific knowledge of the physiology, psychology and sociology of man in the work situation and in applying available knowl-edge.

Dr. Wyndham said the aim Dr. Wyndham said the aim of ergonomic research was to obtain new scientific knowledge on the physiology, psychology and sociology of man in his work situation and to apply it

in industry through the established practitioners, viz., the industrial medical officer, the work-study engineer and the industrial psychologist for the mutual benefit of employee and employer.

The henefit to the employee is that his health and safety are ensured because production standards are set in relation to modern knowledge of mental, perceptual and physical capacifies.

His job satisfaction, said Dr. Wyndham, is enhanced through optimum design of machines optimum design of matchines and organization of work which allows him to produce quality goods at a high level of production without strain.

The employer's interests are safeguarded because production standards can be set on a proper scientific appraisal of proper scientific appraisal of the employees' capacities and abilities; the design of machines and the method of work can be improved and therefore ensure maximum efficiency with least strain to the employee; a high level of external motivation can be provided by eliminating frus-trations in the employees' social - psychological relations and by providing adequate and positive psychological incen-tives. tives.

Dr. Wyndham, in a crowded itinerary, travelled widely in the eastern states, and con-ferred with mining and other companies, and university physiologists and psychologists.