142##1971 ORFSFARC FOR CIRCULATION AMONG MEMBERS OF CSIRO STAFF - NUMBER 142 MELBOURNE, JANUARY, 1971

Design Award For Spinning Machine

A self-twist spinning machine manufactured by Repco Ltd., under licence from CSIRO has won the 1970 Prince Philip Prize for industrial design.

The Prince Philip Prize, or-ganized by the Industrial Design Council of Australia, aims to recognize products whose basic design qualities are such that they are likely to make substan-tial economic contributions to Australia's industrial advance.

The spinning machine uses the The spinning machine uses the self-twist process, which was invented by Mr. D. Henshaw of the Division of Textile In-dustry, and is the result of several years of close collabora-tion between design and de-velopment teams from CSIRO and Repco led by Mr. G. Walls, Assistant Chief of the Division of Textile Industry, and Mr. L. Stern of Repco Research. At a ceremony in Svdney last

At a ceremony in Sydney last November, Mr. Walls and Mr. Stern were presented by the Attorney-General, Mr. T. E. F. Hughes, with a certificate signed by Prince Philic

Hughes, with a certificate signed by Prince Philip. Commenting on the Repco-Spinner, the judges said: "The spinning machine is as revolutionary in design as is the process that it employs. "The designers have pro-

"The designers have pro-duced a compact piece of equipment of first class finish, legant and aesthetic in appearance, incorporating en-gineering principles not pre-viously applied in the textile machinery field.

"Particularly notable is the mounting of the self-twist rollers on an air cushion which allows almost frictionless motion both of rotation and reciproca-

tion. "Equally ingenious is the ac-tuating mechanism which pro-

Our picture shows model Sue Williams, the Federal Attorney-General, Mr. Hughes, and Mr. K. J. Griffith, a director of Repco examining a Repco-Spinner. Miss Williams is wearing an outfit made from yarn spun by the machine. By courtesy of "The Australian".

duces both these motions through the one linkage. In fact, great ingenuity has been displayed in design details throughout the machine." Repco Sales Manager, Mr. C. Burton, has described the spin-ner as the best thing that has happened to the textile industry since it changed from man-power to machine.

MONEY WANTED

Over the past few weeks there has been an unprecedented de-demand for loan money from the CSIRO Co-operative Credit Society.

New investment in the Society is now urgently required.

is now urgently required. Attractive rates of investment are available — 6% a year for periods not exceeding 12 months, $6\frac{1}{2}$ % a year for periods of more than 12 months, and 7% a year for periods of more than five years. Money may also be deducted

Money may also be deducted from your salary for invest-ment in the Society and interest at the rate of 6% a year is paid from the date of the first deduction.

duction. Application forms for both types of investment — term or deduction from salary — are available from Mr. J. Belkin, Manager, CSIRO Co-operative Credit Society, Regional Ad-ministrative Office, 314 Albert Street, East Melbourne, or from your Divisional Admini-strative Officer. Due to his impending transfer

strative Officer. Due to his impending transfer to Canberra, Mr. R. McVilly, a foundation Director of the Society, has resigned from the Board of Directors of the Society. Mr. J. F. Nicholas of the Division of Tribophysics has been appointed to the Board to fill the vacancy caused by the resignation of Mr. McVilly. by the McVilly,



Dr. Ratcliffe retired from the position of Assistant Chief of the Division of Entomology early in 1969, after an association of nearly forty years with CSIRO.

DEATH

OF

died in Canberra last month after a short illness.

One of the pioneers of Australian wildlife research, Dr. F. N. Ratcliffe,

Dr. Ratcliffe, who was Scienti-fic Secretary of the Australian Conservation Foundation, was a member of the original com-mittee which organized the establishment of the Founda-tion tion.

At the time of his death he was scientific consultant to the House of Representatives Select Committee on Wildlife Con-servation.

His interest in conservation was a natural outcome of his early introduction to the prob-lems of a dry country and of a lifelong interest in animals.

A fitter graduating with first class honours in Zoology from Oxford University, Dr. Rat-cliffe spent a year at Princeton University as a Proctor Fellow before coming to Australia to work for CSIRO in 1929. He first studied the eight

He first studied the giant fruit bats of the eastern sea-board, then went on to study soil erosion in the inland.

These two subjects formed the basis of his now classic book, "Flying Fox and Drifting the book, Sand".

Sand". As a member of the Division of Entomology from 1937 to 1949, he worked on termites and pests of stored wheat. He also served for some time with the RAAMC as a malariologist investigating mosquito control techniques. techniques.

In 1949 the Wildlife Sec-tion (now the Division of Wild-life Research) was established under his leadership.

In the next 10 years he col-laborated with Professor Fenner of the Australian National Uni-versity to achieve spectacular success in the control of rab-bits by myxomatosis.

In 1961 Dr. Ratcliffe returned to the Division of Entomology as Assistant Chief.

as Assistant Chief. He was awarded an O.B.E. in 1957 and an honorary de-gree of Doctor of Science by the Australian National Uni-versity in 1968. Mr. C. S. Christian of the Executive described Dr. Rat-clifle as a pioneer of the prac-tical application of biological theory to the serious study of

Retirement

Mr. F. V. Gray retired from the Division of Nutritional Bio-

the Division of Nutritional Bio-chemistry last month. Before joining the Division in 1940, Mr. Gray was a holder of CSIR junior and senior studentships. After serving with the A.I.F. from 1940 to 1944 he returned to the Division to begin investi-gations into the fermentation processes within the runnen of the sheep.

In sheep. He became an active leader in this area of research, his work over the years being centred on the nature of diges-tion products formed in the rumen and absorbed from it or passed on to lower levels of the digestive tract.



DR RATCLIFFE

Dr RATCLIFFE

wildlife resources in Australia and the world. and the world. "He recognised", Mr. Chris-tian said, "the need to go into the field to study the living animal in its wild habitat, rather than merely in the laboratory." "His studies of the Queens-land flying for of arid land

and flying fox, of arid land erosion and the Australian rab-bit problem were examples of this practical philosophy."

"He was both a creator and disseminator of ideas concern-

ing the need for natural re-source understanding and con-servation and he combined a rare sympathy for wild animals with a practical recognition of the community's need for the rational utilisation of resources."

"The present consciousness of the Australian community on tion is very largely due to his quiet, unassuming teaching of all with whom he came in contact."

POSITIONS VACANT

The following vacancies for professional appointment are currenf:

BIOLOGIST (ECTOPARASITES) (EO 1/2) - Division of Animal BOROGIST (ECTOPARASTIES) (EO 1/2) — Division of Animal Health — 202/354 (15/1/71).
 EXPERIMENTAL OFFICER (EO 1/2) — Division of Applied Physics — 750/459 (15/1/71).
 EXPERIMENTAL OFFICER (EO 1/2) — Division of Entomology BAPERIMENTAL OFFICER (EO 1/2) — Division of Applied Physics — 750/459 (3/1/71).
 BAPERIMENTAL OFFICER (EO 1/2) — Division of Textile In-distry = 164/300 (5/1/71).
 BASI (5/1/71).
 CEREAL FUMIGATION RESEARCH (RS/SRS) — Division of Entomology — 180/566 (15/1/71).
 LEADER — BIOLOGICAL AND ENVIRONMENTAL STUDIES (SRS/PRS) — Division of Fisheries and Oceanography — 320/443 (15/1/71).
 BIOCHEMIST (MEAT RESEARCH) (PRS/SPRS) — Division of Food Preservation = 300/529 (15/1/71).
 RESEARCH SJEINTST (RS/SRS) — Division of Mathematical SESEARCH SJEINTST (RS/SRS) — Division of Mathematical SCORROSION SCIENTIST (RS/SRS) — Division of Mathematical SIST (5/1/71).
 BIOLOGIST (SSO 2/3) — Agricultural and Biological Sciences Branch, Head Office — 117/127 (20/1/71).
 BUDOGIST (SSO 2/3) — Division of Food Preservation = 300/540 (15/1/71).
 EXPERIMENTAL OFFICER (EO 2/3) — Division of Food Preservation = 300/540 (21/1/1).
 EXPERIMENTAL OFFICER (EO 2/3) — Division of Food Preservation = 0.00/540 (21/1/1).
 EXPERIMENTAL OFFICER (EO 2/3) — Division of Textile Physics — 465/44 (22/1/11).
 CHEMICAL ENGINEER (GROUP LEADER) (PRS/SPRS) — Division of Mineral Chemistry = 60/1/42 (22/1/71).
 CHEMICAL ENGINEER (GROUP LEADER) (SRS/PRS) — Division of Textile Physics — 465/44 (22/1/11).
 CHEMICAL ENGINEER (RS/SRS) — Division of Mineral Chemistry — 60/1/42 (22/1/71).
 CHEMICAL ENGINEER (RS/SRS) — Division of Mineral Chemistry — 60/1/42 (22/1/71).
 CHEMICAL ENGINEER (RS/SRS) — Division of Dairy Research -410/210 (29/1/71).



A Scientific Dissection of Sherlock Holmes

Does the year 1853 mean anything to you? Probably not — few of us have much of a memory for historic events. Yet in that year there came into being what must surely be the two greatest forces for law and order that the world has ever known, one on each side of the Atlantic. In 1853, in America, was founded Pinkerton's Detective Agency: in 1853, in Britain, was born Mr. Sherlock Holmes.

It is true that Mr. Holmes never visited Australia, and perhaps we should congratulate ourselves on never having had to call on his services; but a great country can always hope to learn something from the life of a great man.

Yet how much do we really know about Holmes? Almost nothing of his own writing has survived.

Title-pages of three of his monographs, found in Denmark, were exhibited at the Sherlock Holmes Exhibition in London in 1961; but even in these cases the monographs themselves have been lost.

All we have is the records of his cases. Sixty of these were published. Fifty-six as short accounts and four in fulllength novel form; and, of these, all but three were written up by his faithful friend and colleague, Dr. John H. Watson.

Two, "The Lion's Mane" and "The Blanched Soldier", purport to be written by Holmes himself; but the style is so unmistakably Watson, and the faults of which Holmes frequently complained so much in evidence, that we can't help suspecting that Watson, probably short of money in his declining years, hoped they would bring him in that bit extra if he wrote them up as if by Holmes.

The third, "The Mazarin Stone", is the only case written in the third person, but it is so muddled, and shows so little knowledge of the geography of the famous sitting-room at 21b Baker Street, that it is almost certainly spurious; we suspect that it was written by the second Mrs. Watson at a time when she, too, was tired of trying to live on her husband's wound-pension.

In those last sad years after the first world war, when Holmes had retired and was keeping bees on the South Downs, Watson must often have envied Australia for its formation of the R.S.L.

So really all we know about Holmes is due to Watson; and this immediately raises the question — how reliable was Watson as diarist?

We have, after all a personal interest in this, since part of Watson's early boyhood was spent in Australia.

Well, he certainly showed a slight tendency to exaggerate. When, in "The Sign of Four", he first met Miss Mary Morstan, later to become his first (and some say his only) wife, he remarks, "In an experience of women which extends over many nations and three separate continents, I have never looked upon a face which gave a clearer promise of a refined and sensitive nature".

Mr. S. C. Roberts (as he then was), a distinguished scholar and sometime Vice-Chancellor of the University of Cambridge, has examined this remarkable statement. He has shown conclusively that the first of the three continents was Australia, which Watson left at the age of 13; however precocious the lad might have been, one feels that the experience of women he could acquire before he was 13 was bound to be a bit limited.

The second continent was India. Here he spent only six months, nearly all of it in hospital recovering from his wounds in action, where all he would have met would be staff nurses.

Not that I intend any criticism of staff nurses; but the opportunity of gaining experience of women under these circumstances must surely have been restricted. We are told that Dr. Roylott had trained the snake to respond to his "low clear whistle" by giving it a saucer of milk when it got the routine right. Unfortunately, snakes are deaf to ordinary sounds, and don't like milk — which (at least in the London Zoo) they will only drink if they can't get water. Since we know that Dr. Roy-

Since we know that Dr. Roylott had successfully disposed of one step-daughter, it seems unlikely that he summoned his snake by a signal it couldn't hear, and rewarded it with something it didn't like.

Still, one hope remains. Watson, after all, was a doctor; he took his M.D. in London in 1878. Even this has been disputed, notably by Dr. R. P. Graham in the American Journal of Surgery for 1946; but it is still generally accepted,

This article is based on a talk given some time ago by Dr. W. T. Williams of the Division of Tropical Pastures on the A.B.C. radio programme "Insight".

But perhaps we may forgive Watson his romantic nature, and enquire about more mundane problems.

How was he, for example, on places? The case of "Silver Blaze" took place at the King's Pyland Racing Stables, near Winchester, in the south of England.

Holmes and Watson get in a train to return to London, Later, Holmes remarks, "This is Claphan Junction, if I am not mistaken, and we shall be in Victoria in less than ten minutes".

Perhaps, at this distance, this sounds plausible; but I must assure you that not only is it not now possible to get in a train at Winchester and emerge at Victoria, it never was.

Trains from Winchester go to Waterloo, and always have done.

And if he was a bit hazy about places, what about dates? The case of the "Red-headed League" took place on a Saturday; we know it must have been a Saturday, since the whole action of the case depends on it,

We are told, in fact, that it happened on Saturday, 9th October, 1890; and it's just a little unfortunate that 9th October, 1890, was a Thursday.

The problem isn't made any easier by his having remarked a few minutes before, that a newspaper advertisement appeared "just two months ago" — dated 27th April.

Nor do we gain much comfort when Watson becomes involved with natural history.

In "The Speckled Band", a certain Dr. Roylott had devised an ingenious — if complicated — way of disposing of step-daughters.

A snake was pushed into a ventilator in a communicating wall, and was then required to climb down a bell-rope and bite the occupant of the bed immediately underneath.

The problem was to persuade the snake to climb back up the bell-rope and through the ventilator again, so that it could be retrieved and returned to the iron safe which was its rather improbable home. We might therefore expect any medical details in the caserecords to be completely reliable.

Dr. Maurice Campbell, of Guy's and the Heart Hospital, London, has examined all the cases from this point of view, and reports that, in three aspects of medical science, Watson's knowledge is excellent.

His understanding of the cases in which death was virtually instantaneous could not be bettered today; his understanding of heart and vascular conditions was such that the medical details in some of the case-records are more detailed and more accurate than in many standard text-books; and his knowledge of tropical diseases was unusually sound. He was obviously a good

doctor. Even in medicine, though, there are one or two points on which we might have mis-

givings. For example, it is remarkable how often Watson's patients faint almost immediately they meet him. Looking rather casu-

Don't Shelve It

and similar items.

tually full lock.

SAFETY NOTES

The smooth flat top of the dashboard of many cars

is used as a convenient shelf for books, clipboards

The benefits of padding and a black non-reflective surface are appreciably reduced by this habit.

The following incident illustrates a potentially dangerous situation arising from such a practice.

and jammed, the steering wheel while the car was on vir-

Fortunately, the board was freed just in time, and no accident resulted, but the incident could have been duplicated in many circumstances where there was less room for error and where vehicles are travelling at a higher speed.

Don't shelve potential missiles on either the dashboard or rear window shelf.

ing a pad of notes on the dashboard in front of him. As the well-loaded car swung into a drive across a cattle grid, the clipboard skidded across and a hectic moment ensued as it touched the windscreen and then dropped into,

A passenger in the front seat placed his clipboard carry-

5

ally through the records, I counted 21 cases of fainting a really careful search might well produce more. Thirteen of these cases were

Thirteen of these cases were men, and one of them was Watson.

In every case except one, Watson administers brandy. The exception was the two occasions on which his fiancee, Miss Mary Morstan, fainted; all she got was water.

Another oddity in Watson's practice was the frequency with which his patients contracted a curious malady called "brain fever".

When Mrs. Barclay, in "The Crooked Man", was suspected of killing her husband, the shock sent her temporarily insane.

When an important document was stolen from Percy Phelps, in "The Naval Treaty", Percy had "a fit and nine weeks' brain fever".

When Sarah Cushing, having, in "The Cardboard Box", received two ears through the post, realised that her sister had been murdered, she has "brain symptoms of great severity and was not allowed to see anyone".

was not allowed to see anyone". When Sir Henry Baskerville, in "The Hound of the Baskervilles", was frightened — not even bitten, by the hound, and when he also realised that the lady he loved was married to his would-be murderer, "the shock of the night's adventures had shattered his nerves, and before morning he lay delirious in a high fever".

When Alice Rucastle, in "The Copper Beeches", was pestered by her father over her money, he worried her until "she got brain fever, and for six weeks was at death's door".

She got better at last, we are informed, but "all worn to a shadow and with her beautiful hair cut off".

If Watson's diagnoses are sometimes strange, so, it must be admitted, are some of his methods of treatment.

methods of treatment. It is not usual, as in "The Stockbroker's Clerk", to continue artificial respiration after the patient has begun to breathe; it is not usual, as in "The Greek Interpreter", to prescribe ammonia for carbon monoxide poisoning; and it's not usual, as with "Lady Frances Carfax", to inject ether as an antidote for chloroform poisoning. Dr. Pennell, in a recent article, states that Watson's

Dr. Pennell, in a recent article, states that Watson's treatments show "a fearless versatility and a readiness to try anything once.

It is possible, of course, that even Watson's patients became aware of this in time; and this may be the explanation of how Watson came to have, at different times, three different practices — in Paddington, in Kensington and in Queen Anne Street.

But there is one case in which we have a right to expect Watson to be completely accurate; I refer, of course, to his own wound. He mentions it many times; but only in three cases does he give explicit details.

The first is in "A Study in Scarlet". He says, "I was struck on the shoulder by a Jezail bullet which shattered the bone and grazed the subclavian artery".

At one time it was considered that a bullet could not do this without demolishing the brachial plexus; but, in an article published in the U.S.A. in 1947, Dr. Roland Hammond has shown that it is in fact just possible; and, after all, these near-miraculous misses do occur.

The second reference to the wound is in "The Sign of Four". It runs, "I... sat nursing my wounded leg. I had had a Jezail bullet through it some time before, and, though it did not prevent me from walking, it ached wearily at every change of the weather".

Later, in the same case, he refers to himself as, "a half-pay officer with a damaged tendo Achilles".

It is inconceivable that the bullet, having entered his shoulder, should have ultimately emerged just above his heel; there are too many important organs in between for him to have survived.

Mr. W. H. Bell has attempted to evade the problem by suggesting that Watson was wounded twice.

Current medical opinion, however, inclines to the view that the bullet, having entered the shoulder, shattered the clavicle, and grazed the subclavian artery, emerged again into the air and, continuing on its course, caught Watson a second time in the back of the heel.

This has led, in medical circles, to speculations as to the attitude that Watson must have been in when he was hit; and I feel obliged to say that these speculations have reflected little credit on Watson, and even less on those so uncharitable as to make them.

charitable as to make them. Nevertheless, I fear we must all admit that Watson had scrious shortcomings as a diarist; and it is one of the tragedies of Western history that all our knowledge of the life and work of Sherlock Holmes comes to us by way of so inaccurate a reporter.

However, let us remember that, were it not Watson, many — perhaps most — of us might never have heard of Holmes at all.

Let us in Australia be proud to have nurtured Watson's early childhood; and, of course, to have provided him with onethird of his experience of women.

J. W. Hallam, Safety Officer,

News In Brief

Japanese Award

Japanese Award Mr. O. G. Ingles of the Divi-sion of Applied Geomechanics has been awarded the Japanese Government Research Award for Foreign Specialists for 1970 and leaves this month for Tokyo where he will spend seven months at the Public Works Research Institute of the Japanese Ministry of Con-struction studying soil and rock grouting methods.

SEATO Fellowship

Dr. J. Hawker of the Division of Horticultural Research, has been awarded a South East Asia Treaty Organization (SEATO) Fellowship for re-search on sugar production in cleante plants.

plants. Dr. Hawker will work in the Department of Biochemistry and Biophysics at the Univer-sity of California at Davis, and at the Queen Elizabeth College, London London.

Bowls Teams Clash

Last month a CSIRO bowls team took part in the annual Commonwealth versus State Bowling Club, Windsor. The team, consisting of Jack Weymouth (Applied Minera-logy), Bob Venn (Chemical Physics), and Wal Revell and John Little (Applied Chemistry), won two of the four games and finished six shots down for the day.

day. Overall, however, the State produced the stronger teams and once more won the perpetual trophy.

Quotes for the Month

"The humanization of mankind was the flowering of reason. As reason falls asleep or be-

comes intoxicated, monsters take command of civilization and man loses his humanity, even though he may gain wealth and power."

R. Dubos. Dreams of Reason: Science and Utopias.

"Put simply, equalisation con-sists in making reclamations on manufacturers whose returns, based on market values for equalisation purposes deter-mined by the Company, exceed the average rate so as to bring them to such average, and mak-ing payments to other manu-facturers to bring their realisa-tions at equalisation values up to the average." "Equalisation - the corner-

Equilisation — the corner-stone of the dairying industry in Australia" — Aust. J. Dairy Technol. Vol. 25 No. 3, p.169 (1970).

Deadline

Contributions to the February issue of Coresearch should reach the Editor at P.O. Box 225, Dickson, A.C.T. 2602, by Tuesday, 12th January.

D-Day Approaches

D (for Departure) Day is fast approaching for Head Office. The Office will move from Mel-bourne to Canberra on 7th January and reopen there on 12th Lerurer 12th January.

The Central Library and In-formation Services, the Works and Buildings Section, and the Film Unit will, however, re-main at 314 Albert Street, East Melboures Melbourne.

A feature of the new Head Office building in Limestone Avenue, Campbell, will be the entrance foyer which will house a reception desk built at the Division of Forest Products.







The foyer will be curtained with woollen fabric woven at the Division of Textile Indus-try and the floor will be tiled with a special basalt ceramic tile developed by the Division of Building Research.

Above: The reception desk built at the Division of Forest Products for the new Head Office building in Canberra "would make a great bar" ac-cording to Les Ball (left) and Cliff Rice (right), two of the Division's skilled tradesmen in-volved in the project. Work-mates Jack Lyons, Frank Levens and Jock Hebron agree whole-heartedly.

and Jock Hebron agree whole-heartedly. The desk is built of select "Tasmanian Oak". Original 6" χ 1" boards were sawn to $2\frac{1}{4}$ " χ $\frac{1}{4}$ " slats which were glued to-gether after careful matching. The finish is oil stain, and the unit will rest on brick piers.

Right: Syd Smith, former care-taker at Head Office, poses out-side 314 Albert Street before setting out for Canberra where he will be Assistant House Manager of the new building.



NEMATODES NEW FILM ON

A new research film "The Life Cycle of the Root Knot Nematode" had its premiere in Adelaide last November at a meeting of the South Australian State Committee.

The film which lasts eighteen minutes, was produced by the Film Unit in collaboration with the Division of Horticultural Research to inform agriculturalists and viticulturists on the problem of nematode control.

Nematodes are minute worm like organisms, many of which attack the roots and other tis-sues of plants.

The root knot nematode (Meloidogyne javanica) is considered to be one of the most destruc-tive of these parasites. It pro-duces no obvious visible symptoms above the ground; stunted growth is the only hint of the damage below.

The root knot nematode is one of the most difficult nema-todes to control. As well as causing severe damage in vine-yards it affects many vegetables, pastures, orchards and tobacco cross crops.

The Division of Horticultural Research has been building up a picture of the biology, behaviour and ecology of the nematode to strengthen re-search into methods of control. A promising development has

been the improvement in growth and yield achieved by grafting vines to nematode-resistant root stocks.

The film uses phase contrast, time-lapse cine-micrography and animation to show the complete life cycle of the parasite. This still from an animated sequence shows a female nematode laying eggs and the distorted root growth resulting from her presence.



APPOINTMENTS TO STAFF

Dr. T. C. Cetas has been appointed to the Division of Physics where he will work on the development of the temperature



Dr CETAS

scale in the low temperature region. Dr. Cetas graduated B.A. from Hope College in 1963 and recently obtained his Ph.D. from Iowa State University.

Dr. A. F. Egan has joined the Division of Food Preserva-tion. He will be stationed at the Meat Research Laboratory, Brisbane, where he will study mechanisms of growth and cell division in micro-organisms. Dr. Egan graduated M.Sc. from the University of Sydney in 1962 and Ph.D from the Uni-versity of Melbourne in 1967. In 1968 he worked at the De-partment of Pharmacology at the University of Wisconsin and since then he has been a research fellow in biochemistry at Harvard University.

Dr. J. R. Garratt has joined the Agricultural Meteorology Group at the Division of Me-teorological Physics and will carry out research on energy balance and water exchange at the Earth's surface with parti-cular reference to the use of water by crops. Dr. Garratt graduated B.Sc. from the Uni-versity of London in 1966 and Ph.D. from the same university in 1969. Since then he has been lecturing in the Depart-ment of Meteorology, Imperial College, London.

Mr. H. S. Kanost has been appointed to the Division of Applied Mineralogy to develop the use of refractory oxides for hot metal forming tools. Mr. Kanost graduated B.Sc. in cera-mic engineering from the Uni-versity of Illinois in 1963 and for the last five years has been a development engineer with the Zirconium Corporation of America. America.

Dr. D. J. Laing has joined the Division of Food Preserva-tion to study the contribution that isolated components make to the overall flavour of food. Dr. Laing graduated B.Sc. with honours from the University of New South Wales in 1965 and Ph.D. from the same uniof New South Wales in 1965 and Ph.D. from the same uni-versity in 1968. Since then he has been a postdoctoral fellow in the Department of Organic Chemistry at the University of Oxford.

Dr. L. M. Leslie has been appointed to the Common-wealth Meteorology Research Centre where he will work on the general circulation of the atmosphere. This work will include the formulation and testing of numerical hemi-spheric models and the model-ling of circulations of a more regional type. Dr. Leslie grad-uates M.Sc. from the University of Sydney in 1967 and recently obtained his Ph.D. from Monash University. obtained his Pr Monash University.

Dr. R. S. McCredie has joined Head Office and will take part in the administrative activities of the Industrial and Physical Sciences Branch. Dr. McCredie graduated M.Sc. from the University of Sydney in 1965 and Ph.D. from the same university in 1969. Since then he has been a research asso-ciate in the Department of Chemistry and Chemical En-gineering at the University of Illinois.

Dr. H. Nieuwenhuijzen has been appointed to the Division of Physics to take part in the Division's Fabry-Perot interferometry programme including



Dr NIEUWENHUIJZEN

that part of it concerned with the development of narrow band filters for solar research. Since graduating in science

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Enjoying themselves at last month's Division of Animal Health Christmas barbecue at the Maribyrnong Field Station are (standing) Mr. and Mrs. Maurie Rolfs and Mr. and Mrs. Kevin Hodges, and (seated) Mr. and Mrs. Jack Lavery.

from the University of Utrecht in 1963, Dr. Nieuwenhuijzen has been working at the Utrecht Astronomical Institute on ex-perimental optical problems re-lated to astrophysics. He re-cently obtained his Ph.D. from the University of Utrecht.

Miss Jennifer North has joined the Division of Mineral Chemistry where she will be concerned with keeping industry informed of the results of mi-neral research. Miss North gra-duated B.Sc. with honours from the University of Sussex in 1965 and before coming to Australia last year worked with Wilkin-son Sword Ltd., British Drug Houses (International) Ltd., and Briger Products Co.

Dr. A. J. Pryor has been ap-pointed to the Molecular Bio-logy Unit of the Division of Plant Industry where he will study chromosome behaviour, enzyme structure, molecular



Dr PRYOR

mechanisms of adaption, and genetics of regulatory processes. Dr. Pryor graduated B.Sc. with honours from the University of Adelaide in 1963 and re-cently obtained his Ph.D. from the University of Indiana.

r. Shirley Rodwell has ed the Division of Animal lth to study the structure functions of biological Dr. joined Health and



While taking this picture of Miss Judith Walters of the Divi-sion of Animal Health, Coresearch photographer Eric Smith suddenly felt inspired to pen the following vorse which he has called "The Song of the Secretary Bird".

I work in the office, I busily hammer Translating my squiggles and dots, Correcting the spelling, improving the grammar Of all you illiterate clots

membranes using strains of Mycoplasma as experimental material. Dr. Rodwell gra-duated M.A. from the Univer-sity of Cambridge in 1948 and Ph.D. from the same university in 1949. For the last three years she has been working at the Medical School at Monash University.

Mr. B. J. Woodruff has been appointed to Head Office to assist in the administrative ac-tivities of the Agricultural and

Biological Sciences Branch and to prepare articles for "Rural Research". Mr. Woodruff gra-dualed B.Sc. (For.) from the University of Melbourne in 1960 and obtained his Diploma of Agricultural Extension from the same university in 1966. For the last seven years Mr. Woodruff has been a research officer with the State Rivers and Water Supply Commission of Victoria and before that he spent five years with the Vic-torian Forests Commission.

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143##1971

) R E S E A R C FOR CIRCULATION AMONG MEMBERS OF CSIRO STAFF --- NUMBER 143 MELBOURNE, FEBRUARY, 1971

People in the News

Radiophysics Chief Retires

One of the pioneers of radar, Dr. E. G. Bowen, retired on 14th January after 24 years as Chief of the Division of Radiophysics,

physics. Dr. Bowen has gained an in-ternational reputation as a re-sult of the achievements of his Division and for his personal research in cloud physics. Under his leadership, the work of the Division has brought Australia to the fore-front in important areas of radio astronomy, cloud physics and weather modification.



Dr BOWEN

Division's 210 ft. radio telescope at Parkes, commis-sioned in 1961 and still one of the two leading instruments of its kind in the world, owes its existence largely to Dr. Bowen's vision, enterprise and en-thusiasm. Dr. Bowen

vision, enterprise and en-thusiasm. Dr. Bowen came to Australia to join the Division of Radio-physics in 1945 and became Chief of the Division in the following year. He was awarded the honorary degree of D.Sc. by the Uni-versity of Sydney in 1957 and was elected to the Australian Academy of Science in the same year. In 1962 he received a CBE in recognition of his outstand-ing contributions to the de-velopment of science in Aus-tralia since World War II. Dr. Bowen is a Fellow and past president of the Australian Institute of Navigation; Fellow of the American Geophysical Union and one of only eight Honorary Foreign Members of the American Academy of Arts and Sciences. Dr. Bowen was born in Wales

and Sciences. Dr. Bowen was born in Wales in 1911. He gained a B.Sc, with first class honours in physics at Swansea University in 1930, a M.Sc. at the University of Wales in 1931 and a Ph.D. at the University of London in 1934 the 1 1934.

1934. In 1935 Dr. Bowen worked with Sir Robert Watson Watt and A. F. Wilkin in England to build the first experimental air warning radar in the world. He was also in charge of the team which developed the first airborne radar as used in air interception and sea search dur-ing the night battles over Britain and in the Battle of the Atlantic.

Britain and in the battle the Atlantic. He fitted the first experi-mental radar equipment to be installed in any aircraft in the United States. The honours he received for

his radar work included an OBE in 1941, an award from the Royal Commission on Awards to Inventors in Britain in 1951, and the United States

Government's Medal for Free-dom in 1947.

New Chief for Radiophysics

Dr. J. P. Wild has been appointed Chief of the Division of Radiophysics following the retirement of Dr. E. G. Bowen. Dr. Wild, who joined the Division in 1947, has achieved a world-wide reputation in radiophysics for his studies of solar astronomy and for his development of the radioheliograph at Culgoora. He has been in charge of the

He has been in charge of the solar radio astronomy pro-gramme at Culgoora since its operations commenced in 1967.

operations commenced in 1967. This work has revealed valuable and previously unsus-pected phenomena which are undergoing detailed studies. In 1949 Dr. Wild invented the "Dynamic Radio Spectro-graph" for studying disturb-ances at radio wave lengths in the solar corona at heights far above the visible surface of the sun. sun.



Dr WILD

He showed that the sun intermittently ejects streams of elec-trons approaching the speed of light

light. He found that these large dis-turbances give rise to shock waves which travel outward from the sun at speeds of about 1,000 miles per second. Dr. Wild identified these shock waves as the then hypo-thetical agent which causes magnetic storms and aurorae in the earth's atmosphere. Dr. Wild, who was born in England in 1923, obtained his B.A., M.A., and Sc.D. at Cam-bridge University.

6 Canberra

January saw the move of Head Office from 314 Albert Street, East Melbourne, to this five-storey building in Limestone Avenue, Canberra. Further story and pictures on pages 2 and 3.

After serving from 1943 as a Radar Officer with the Royal Navy he came to Australia to join CSIRO in 1947.

join CSIRO in 1947. In 1958 he was awarded the Edgeworth David Medal given for distinguished contributions by scientists under the age of thirty-five. He was elected Honorary Foreign Member of the American Academy of Arts and Sciences in 1961 and of the American Philosophical Society in 1962.

American Philosophical Society in 1962. In 1969 Dr. Wild was pre-sented with the Henryk Arc-towski Gold Medal by the National Academy of Sciences of the United States and the International Union of Science and Badio

International Union of Science and Radio. He is a Fellow of the Royal Society, Fellow of the Aus-tralian Academy of Science, Fellow of the Australian Insti-tute of Physics and President of the International Astronom-ical Librio (Compission 40) on ical Union (Commission 40) on Radio Astronomy.

Dairy Chief Retires

Mr. G. Loftus Hills retired last month as Chief of the Division of Dairy Research.

of Dairy Research. After graduating B.Agr.Sc. from the University of Mel-bourne in 1930, Mr. Loftus Hills undertook chemical and bacteriological investigations of dairy manufacture in Victoria. In 1932 he joined the Vic-torian Department of Agricul-ture where he continued this work.

During 1934 and 1935 he visited dairy research institutes overseas and studied at the National Institute of Research in Dairying at Reading, England, and at Iowa State College.



Mr LOFTUS-HILLS

Mr. Lofus Hills left the De-partment in 1937 to work on the "new way" continual butter making process and over the next few years he furthered his experience in the technical and commercial operations of the dairy industry at the Longwarry and Maffra Co-operative Dairy Companies. Companies.

In 1940 he joined the C.S.I.R. Division of Industrial Chem-istry as a member of a small group concerned with chemical engineering aspects of dairy manufacture.

When this group became the Dairy Research Section in

1947 Mr. Loftus Hills was ap-pointed Officer-in-Charge. The Section later moved to its present location at Highett and in 1962 became the Divi-sion of Dairy Research with Mr. Loftus Hills as its Chief.

Mr. Loftus Hills as its Chief. Under his direction the Divi-sion has carried out valuable work for the Australian dairy manufacturing industry, par-ticularly in the fields of mech-anised cheese and casein manufacture, new product de-velopment, and recombination of dairy products. The Division has also under-taken fundamental research on the chemistry of milk proteins and the flavours of dairy pro-ducts.

ducts

Mr. Loftus Hills has been

Mr. Loftus Hills has been particularly active in the Aus-tralian Society for Dairy Tech-nology. He was its gold medallist in 1954 and was Federal President in 1964-65. He played a major role in the XVIIIth International Dairy Congress held in Australia last year, and the amount of de-tailed effort undertaken by him as Congress Director, Chair-man of the Editorial and Tech-nical Committee, and member nical Committee, and member of numerous other committees represents a tremendous contribution.

New Year Honours

Mr. C. S. Christian of the Executive has been created a Companion of the Order of St. Michael and St. George for his services to agricultural science. Mr. W. H. Hartley, special assistant to the Interim Coun-cil of the Australian Institute of Marine Science, and former Scientific Attache to the Aus-tralian Embassy in Washington, has been created an Officer of the British Empire for public service service.

Dr. R. II. Laby of the Division of Animal Physiology has been created a Member of the British Empire for his work on the development of anti-bloat de-vices for use in cattle.

Assistant Chief

Dr. D. Lafeber of the Division of Applied Geomechanics has been appointed Assistant Chief of the Division.

Doctorate

Dr. G. Winter of the Division of Mineral Chemistry has been awarded the degree of Doctor of Science by the University of Melbourne Melbourne











TRANSPORTED FOR LIFE

It's happened at last. The long awaited move of Head Office to Canberra has taken place. On these two pages Coresearch has attempted to chronicle some of the incidents associated with this historic event.

 No attempt was spared to make sure that the new building would aspire to all that was best by modern architectural standards. This preliminary design, favoured by several members of the Executive, was subsequently rejected by the National Capital Development Commission. It combines a subtle blend of neo-colonial baroque and Queen (B) Anne rococo.

2. Every care was taken to ensure that the interior furnishings would be in keeping with the restrained and dignified lines of the exterior. This view of part of the tastefully appointed Executive suite shows how successfully the architects have achieved their aim. The exquisite bric-a-brac and objets d'art should counter any criticism that scientists are lacking in aesthetic discrimination.

3. Regretfully the move created hardships for many members of the Head Office staff, some of whom left CSIRO or found employment in other parts of the Organisation, Nevertheless, means were found to persuade a number of those who might otherwise have had difficulty in making up their minds that the move was in their best interests.

4. As work proceeded at Limestone Avenue the Executive went to great personal trouble to guard against any untoward incidents that might have arisen as a result of public confusion over the purpose of the site.

5. At last the fatal day arrived for the long awaited exodus to begin. The farewell barbecue organised by the Head Office Social Club was an occasion of considerable sadness and poignancy, of moist eyes and sodden handkerchiefs. It was littlie wonder that much of the beef so generously donated by the Infectious Diseases Unit of the Division of Animal Health remained barely tasted.

 For most, the worst job was packing — compiling inventory after inventory and checking again and again to make sure that no family treasures, however small, were overlooked.

7. In a move such as this, communications play a vital role. Our picture shows the small but dedicated band of switchboard operators at the new Head Office building, who, with little thought of personal comfort, have been striving to keep the lines of communication and our links with the outside world open at all times.

8. By land and air our bold new breed of 20th century pioneers set forth on their journey into the interior unmindful of the hazards lying in wait ready to claim the unwary traveller on the lonely stretches of the Hume Highway.

9. By far the largest single item transported in the move was the tons of files seen here being carefully sorted into convenient piles after arrival in Canberra.

10. Every new building has its teething problems. Some difficulties were encountered in the initial stages with the air conditioning system but the situation is now understood to be well under control.























CHRISTMAS PARTIES

Top Left: The best balloons at the Entomology children's party were just out of reach for Melanie Whittle and Craig Atkinson.

Centre Left: Dora Romano, Judy Kimpton, and Thelma Perry enjoying the Melbourne sunshine at the Chemical Phy-sics Christmas party.

Bottom Left: There was no need to ask Michael Eastmore what he thought of the Build-ing Research children's party.

Top Right: Santa receives an enthusiastic welcome as he arrives at the Wildlife Research children's party with his bundle of goodies.

Centre Right: Head Office children were kept entertained by Bobo alias Fern Mathews.

Bottom Right: Father Christ-mas's splendid beard and whi-skers came in for considerable admiration at the Building Research children's party.

Won by a Whisker

Geoffrey Crapps of the Divi-sion of Radiophysics' Culgoora Solar Observatory is the proud winner of the coveted award of the 1970 Narrabri Festival.



Mr. CRAPPS Starting from "clean-shaven" six weeks prior to judging, Geoff was able to grow the "beardiest beard" to take out the honours in this event. Geoff claims it was his first-ever beard and also the first time he ever won a prize.

DEADLINE Contributions to the March issue of Coresearch should reach the Editor at P.O. Box 225, Dickson, A.C.T. 2602, by Wednesday, 10th February.









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144##1971 ORESEARCH FOR CIRCULATION AMONG MEMBERS OF CSIRO STAFF -- NUMBER 144 MELBOURNE, MARCH, 1971

CHANGING RESEARCH PATTERNS

'Scientific research is an occupation which provides optimum opportunity for change, and consequently the minimum of routine and the maximum of interest and excitement', the Chairman, Dr. J. R. Price, told a staff meeting at the Division of Entomology last month.

Dr. Price was speaking on the changing patterns of research in CSIRO.

'In research there shouldn't be a dull moment,' he continued, laboratory such as one of our Divisions, or a substantial or-ganization such as CSIRO always undergoing change; change in respect of approaches to problems, change in respect of tools and techniques, changes in knowledge and ways of thinking, but particularly changes in objectives.

This is inevitable in any suc-cessful research organization, if only because having solved one problem or group of prob-lems, we move on to others.

lems, we move on to others. 'It has been true of CSIRO, and before it CSIR, since it came into existence. In the earlier postwar years the more obvious changes were the com-mencement of major new ac-tivities; we saw, for example, the establishment of new divi-sions such as Meteorological Physics, Coal Research and the three Wool Research Divisions.

Physics, Coal Research Divisions. We also saw the growth and sub-division of other groups such as Industrial Chemistry which became six separate divisions.

'These were gross changes which reflected continuing change in programmes and changes in objectives to meet

changes in objectives to meet changes in objectives to meet changes in objectives to meet changing needs. "Such changes have been go-ing on all the time; they are still going on but I think that external circumstances are changing more rapidly today than in those earlier postwar years so that now our research objectives need even more criti-cal scrutiny, and this scrutiny may well result in an even greater rate of change than in those earlier years. "The earlier postwar years were essentially years of growth -years of expansion at a rate which permitted many of the demands for new areas of re-search to be met by the pro-vision of new resources. "I would suggest, however, the tet the scrutine orbits

'I would suggest, however, that at the present time, while we have of course been get-ting additional resources from government each year, the rate at which we have got these new resources in relation to the at which we have got mess in the second seco

In other words, I think that more and more — for the next few years anyway — we will have to terminate existing ac-tivities in order to undertake new and more pressing ones.' Referring to the part played by the Executive in bringing about these changes, Dr. Price said that it was the custom of the Executive to review the activities of individual divi-sions from time to time. These reviews were under-taken whenever a Chief retired and also at intervals deter-

taken whenever a Chief retired and also at intervals deter-mined by external factors. For example, the review of CSIRO's minerals research had been undertaken because of the rapidly growing importance of the minerals industry as an earner of export income.

Dr. Price then described some of the changes which the industrial and physical sciences Divisions had undergone in the last few years following re-views of their research programmes.

These changes included the recent re-grouping of minerals research, the incorporation of the Division of Organic Chem-istry in the Division of Applied Chemistry, of the Division of Coal Research in the Division of Mineral Chemistry and of of Mineral Chemistry, and of

Ore Dressing Investigations in the Division of Chemical En-gineering: and the proposed incorporation of the Physical Metallurgy Section in the Divi-sion of Tribophysics.

sion of Tribophysics. He went on to say that al-though reviews of the agricul-tural and biological divisions had been more limited in the past, the Executive was now initiating a major review partly because of the current state of agricultural industry and partly because of its own needs. needs

(Continued on page 4)



Dr. J. A. Allen, Professor of Chemistry and Deputy Vice-Chancellor of the University of Newcastle, has been appointed Executive Officer of CSIRO. He will take up his new position

Executive Officer of CSIKO. He will take up his new position at the end of May. Dr. Allen will be responsible for short and long term plan-ning activities at Head Office and for a continuing examination of the Organization's technical advisory and related activities. He will also be responsible for overall co-ordination of the work of Head Office.

or Head Office. Dr. Allen, who is 46, has held the Chair of Chemistry at the University of Newcastle since 1961. His research experience has been related mainly to thermodynamics, solid state and surface chemistry, and polymer chemistry. He has also been actively interested in the economic impact of research, develop-ment and innovation on the process industries in Australia and overseas.

overseas. Dr. Allen graduated B.Sc. with honours and gained the University Medal from the University of Queensland in 1948. He obtained his M.Sc. from the same university and his Ph.D. from the University of Bristol. For some years Dr. Allen was Leader of the Inorganic and Physical Chemistry Sections of the Melbourne laboratories of ICIANZ. Before that he was Senior Lecturer in Physical Chemistry at the University of Tasmania and Senior Scientific Officer at the National Chemical Labora-tories of the Department of Scientific and Industrial Research in Britain. Britain.

In his earlier years Dr. Allen was awarded the Masson Medal In his earlier years Dr. Allen was awarded the Masson Medal and held consecutively the Masson Scholarship, a CSIR Re-search Studentship and an Australian National University Over-seas Research Scholarship. In 1963 he received the Wolskel Award of the Royal Australian Chemical Institute, in 1965 a Simon Senior Research Fellowship at the University of Man-chester, and in 1966 a Shell British Association Award. During the war Dr. Allen served as aircrew with the RAAF.

Divisions Reorganized

The Executive has re-organized those Divisions concerned with research for the mineral and food industries.

MINERALS RESEARCH

Mr. I. E. Newnham, formerly Chief of the Division of Min-eral Chemistry, has been ap-pointed Director of the CSIRO Mineral Research Laboratories, a complex comprising the Divi-sions of Mineral Chemistry, Chemical Engineering and Mineralogy.



Mr NEWNHAM

Mr. Newnham will be lo-cated at 314 Albert Street, East Melbourne, for the time being. Dr. D. F. A. Koch will be Acting Chief of the Division of Mineral Chemistry pending the appointment of a new Chief.

Chiel. Mr. A. J. Gaskin is Chief of the new Division of Mineralogy which will have its headquar-ters at Floreat Park, Perth, where a new laboratory is now under construction.

under construction. Although research groups from a number of Divisions have been stationed in Wes-tern Australia for many years, the Division of Mineralogy will be the first one based in thet State

that State. The Division of Mineralogy will consist of the following groups:

b the group from the former Division of Applied Miner-alogy laboratory located in Western Australia;
b the staff at the Baas Becking laboratory from the former Division of Applied Miner-alogy:

 a small number of stalf who have been engaged primarily in mineralogical research in Mel-bourne with the former Divi-sion of Applied Mineralogy and with the Division of Build-ing Research. The remaining staft of the former Division of Applied Mineralogy will be relocated as follows: a small number of staff who

follows:

Mineralogy will be relocated as follows: • The Engineering Ceramics group, the Refractories group, the Foundry Sands group, and appropriate technical services personnel are to be transferred to the division of Tribophysics. This group will be formed into an Inorganic Materials Re-search group headed by Dr. N. A. McKinnon and will con-tinue to be located at Fisher-men's Bend until additional accommodation is available in the Division of Tribophysics. • The Cement groups from Fishermen's Bend and Sydney will be located at Highett. A small microscopy group will be formed in the Division of Mineral Chemistry by trans-ferring ampropriate staff from

of Mineral Chemistry by trans-ferring appropriate staff from

the Division of Building Re-search to the Mineral Chemis-try laboratory at Garden City. The reorganisation is de-signed to co-ordinate the Or-ganization's growing minerals research programmes more ef-fectively, to promote inter-Divisional collaboration, and to improve communications with the industry.

Divisional collaboration, and to improve communications with the industry. The Chairman, Dr. J. R. Price, said that the new min-erals research complex will en-able the best use to be made of the resources of finance and scientific manpower available to the Executive for minerals research. research

research. He said that the Divisional re-grouping was the latest move in a series of develop-ments that had been initiated in CSIRO over the last few years to meet the changing re-quirements of Australia's ex-panding mineral industries.

FOOD RESEARCH

FOOD RESEARCH The Executive has decided that the dairy manufacturing indus-try and other food processing industries will be served most effectively if all laboratories concerned with this work are grouped in a Division of Food Research. The new Division of Food Research Laboratory in Mel-bourne, formerly the Division of Dairy Research; the Meat Research Laboratory in Bris-bane; and the Food Research Laboratory at Ryde. It will also embrace the other activities formerly covered by the Divi-sion of Food Preservation.



Mr TRACEY

The Dairy Research Labora-tory and the Meat Research Laboratory will each be ad-ministered by an Assistant Chief of the Division of Food Research under the general di-rection of Mr. M. V. Tracey, who will be Chief of the new Division. Mr. Tracey will be assisted by Dr. J. H. B. Christian, who has been appointed Associate Chief. Mr. J. F. Kefford will con-

Mr. J. F. Kefford will con-Mr. J. F. Kefford will con-tinue his present duties as As-sistant Chief located at Ryde, and Dr. W. J. Scott will con-tinue as Officer-in-Charge of the Meat Research Laboratory and Assistant Chief. Dr. J. Czulak will be Acting Officer-in-Charge of the Dairy Research Laboratory and Act-ing Assistant Chief, Division of Food Research.

ing Assistant Chi of Food Research.

Quote for the Month ... the transfer of 150 mem-bers of the CSIRO headquar-ters staff to Canberra this year has presumably gone too far to be reversed."

FIFTY YEARS OF RESEARCH

During an unusually wet spring in the Murray Valley district of northwestern Victoria in 1917, local vineyards were devastated by the fungus disease black spot.

A public meeting was called to discuss the prob-lem in November and at the meeting the growers formed the Mildura and District Research Committee.

The Committee undertook to carry out investigations and give advice on vine problems. It collected funds from far-mers by imposing a voluntary levy of 1s, on each ton of dried fruit mechanicat fruit produced.

Mr. A. V. Lyon, a teacher in agricultural science at Mil-dura High School, obtained 12 months' leave of absence from the Education Department to work full time for the Com-mittee on fungus diseases of the vine.

work full time for the Com-mittee on fungus diseases of the vine. His studies produced such worth-while results that grow-ers decided to increase their levy from 1s. to 2s. 6d. a ton to support further work. An area of land near Mer-bein, about 10 miles west of Mildura, was made available by the State Rivers and Water Supply Commission in 1919 for field work and the Advisory Council of Science and Indus-try, forerunner of CSIRO, granted a subsidy of 10s, for every S1 raised locally. By the end of that year Mr. Lyon and the growers had put the funds to good use in de-veloping the site, planting 15 acres of vines for 7 different trials, and building and equip-ping their first laboratory. In October 1920 the Mildura and District Research Commit-tee formally amalgamated with the Mildura Vineyards Protec-

tion Board which had been set up by the Victorian Govern-ment with legal power to im-pose a levy on growers to sup-port research work undertaken on their behalf. The placing of the Merbein Station under the control of a body with statutory powers as-sured its continued develop-ment and 1920 has been taken as the Station's foundation date. date.

The opening of a new library and administrative building at the Merbein Laboratory of the Division of Horticultural Re-search last month coincided with the jubilee of the estab-lishment of the Merbein Field Station. This article describes how the Station came to be established and how it deve-loped and became part of the Division of Horticultural Re-search. search. ****

During the next few years copper-bordeaux sprays tested at the Station spearheaded the control of the fungus diseases black spot, downy mildew, and oidium; tests established the local fertilizer needs to pro-mote vine growth; improved dipping mixtures, particularly the cold dip, were formulated to accelerate the drying of grapes; and fumigation tech-niques were developed for use against the Indian meal moth and other insect pests that caused damage to dried grapes during storage.

By arrangement with the Victorian Department of Agri-culture, the Station conducted advisory work and held field days for vine growers.

When the Council for Scien-tific and Industrial Research was formed in 1927 it assumed control of the Station together with the responsibility for pro-viding the funds necessary for operating it. The Station was renamed the Commonwealth Research Station, Murray Irrigation Areas.

Areas.

Areas. Mr. A. V. Lyon was ap-pointed Officer-in-Charge, and investigations were initiated in the adjoining States of New South Wales and South Aus-tralia tralia.

tralia. Research on a wide range of practical problems continued and a number of new projects, including studies on the root system and fruitfulness of the sultana vine, were undertaken. The main problem during the 1930s was soil salinity and this was studied in all Murray River districts. The Station's findings on irri-gation, drainage and salting led to improved irrigation prac-tices and to the installation of community drainage systems. These findings are now the basis of current practice in vir-tually all the Murray Irrigation Areas and have assured the survival of these areas. By the 1930s the research programme had expanded to such an extent that existing facilities were no longer suffi-cient, and a new laboratory, library and administrative block was built in 1937. This building still houses the greater part of the laboratory space of the Station. Between 1940 and 1945 the research programme was inter-upted by the war and the em-Research on a wide range of

space of the Station. Between 1940 and 1945 the research programme was inter-rupted by the war and the em-phasis shifted to the production of special crops, including drug plants and vegetables. Attention was also given to finding suitable substitutes for those fertilizers and chemicals used in the dried fruits indus-try which were in short sup-ply or unavailable. The Station's normal re-search programme was resumed and expanded after the war. In 1950 Mr. Lyon retired and was succeeded as Officer-in-Charge by Mr. F. Penman. In the years that followed, studies in field hydrology were

eft: Miss Leona Jones un masks the plaque comme-morating the official opening. Below: The main laboratory building (right) and the new library and administrative build-ing (left) at Merbein.



Dr. J. V. Possingham (left), Chief of the Division of Horticultural Research, and Senator R. C. Wright, who opened the new library and administrative building at the Division's Merbein Laboratory, examine the minute book of the Mildura District Research Com-mittee. This Committee founded the Merbein Research Station mittee, in 1919.

mittee. This Committee found in 1919. expanded to cover the region from Kerang in Victoria to Remark in South Australia and work was started on the effect of plant parasitic nema-todes on vines. Research on vine physiology and nutrition continued and added considerably to know-ledge of the way seasonal fac-tors and management practices, particularly pruning, influence vine production. A technique of forecasting potential yields of sultana vines was also developed. When Dr. J. V. Possingham was appointed Officer-in-Charge in 1962 it was decided after discussion with State in-strumentalities that the hydro-logical work might best be undertaken by them. This left the Station free to concentrate on the biological aspects of grape growing, par-ticularly vine physiology, nematology, and breeding of vine varieties and rootstocks. In addition, research was ex-tended to include some investi-gations on citrus and apples. The Station was re-mamed the Horticultural Research Sec-tion and in 1963 a laboratory was built at Adelaide on land next to the Waite Agricultural Research Institute to provide headquarters accommodation

for the Section and to house a newly-formed plant physi-

for the Section and to house a newly-formed plant physi-ology group. In 1967 the Section became the Division of Horticultural Research with Dr. Possingham as its Chief. The research programme of the Division now embraces viticulture, plant physiology and biochemistry. Iruit pro-cessing, fruit trees, and nema-tology, and the work is divided between those projects which require extensive field facilities and which are based on Mer-bein and those in which a laboratory and glasshouse ap-proach is primarily used and which are based mainly on Adelaide.

which are based mainly on Adelaide. Today, some 50 years after the foundation of the Merbein Research Station in October 1920, the Division of Horti-cultural Research has a staff of nearly 70, including 20 pro-fessional scientists, and an an-nual budget of more than \$500,000. \$500.000.

In addition to the money provided by the Common-wealth Government, the Division has over the years re-ceived substantial funds for specific projects from the Aus-tralian Dried Fruits Association and the Australian Wine Board.





SAFETY NOTES

Blow-up

It's happened again! Another explosion caused by storing flammable solvents in a domestic type refrigerator.

refrigerator. The first incident merely blew the door off. The latest episode caused a fire as well, which could have been more serious except for the fact that the building was protected by a thermal alarm system and the Fire Brigade was in a titendance within minutes. If you must store flammable materials in a refrigerator, have it modified so that the thermostat contacts are located outside the unit, and disconnect the interior light circuit. Unmodified domestic-type refrigerators should carry a clearly printed sign in large letters warning that they must not be used for the storage of volatile flammables. Those laboratories not equipped with a fire warning system (and some of our older buildings are not) should reasses the situation. It could be money well spent to avoid loss of equipment, records and interruption to research projects.

avoid loss of equipment, records and avoid loss of equipment, records and the above incident occurred in one of our laboratories which pays better than average attention to safety matters, so don't think that "It won't happen to us". Incidentally, our last four major fires all started during the week-end. What insidious little time bomb are you going to leave running over next week-end? J. W. Hallam, Safety Officer.

Agricultural Research Still Important

CSIRO would have to continue to adjust the pattern of its research in the years ahead in order to meet the new and unexpected challenges and problems that must inevitably arise, the Chairman, Dr. J. R. Price, said in Merbein, Victoria, last month.

Dr. Price was speaking at the Merbein Laboratory of the Division of Horticultural Re-search where a new library and administration building was opened by the Minister for Works, Senator R. C. Wright. Works, Senator R. C. Wright. Dr. Price went on to say that while CSIRO might have to expand its activities into a number of new areas in the years ahead, it did-not-follow that the resources put into re-search by the Organization in the interests of our primary industries would be decreased, although there might well be a need for reorientation from time to time. 'At a time when many pri-

ume to time. At a time when many pri-mary producers are facing diffi-culties in disposing of their produce,' he continued, 'there are many people willing to write off our primary indus-tries as being no longer of importance.

'Moreover, some of these critics are only too ready to

attack agricultural research as something which can aggravate our current problems by en-couraging greater production of commodities which may be difficult to sell.

difficult to sell. There is, I suppose, an ele-ment of truth in this — it is seldom possible for the scien-tist to show how a commodity can be produced more effici-ently and more economically without also pointing the way to how it can be produced in greater abundance. But of course this is an

'But of course this is an oversimplification of the situaoversimplification of the situa-tion and I suspect that the critics do not fully understand the objectives of agricultural research and the contribution it can make.

'Scientists do not claim to be able to find the answers to for the simple reason that many of these are not scientific or technological problems; they are political, sociological and



On his retirement as Chief of the Division of Radio Physics last January, Dr. E. G. Bowen was presented by the National Aeronautical and Space Administration of the United States with a certificate of appreciation for his contributions to the American space programme. Our picture shows from left to right: Mr. Nigel Bowen, Minister for Education and Science; Dr. E. G. Bowen; Mr. Wilson Hunter, NASA representative in Australia, and Dr. J. P. Wild.

economic problems which can only be solved by political and economic measures.

'Nevertheless, no matter what measures are adopted by governments in respect of a particular primary industry, it

is in the best interest of the country as a whole that those engaged in that industry should be enabled and assisted to produce their particular commod-ity as efficiently and as cheaply as possible. It is here that the scientist and technologist can contribute.

'Agricultural research workers of course, are not only con-cerned with finding out how to keep costs of production down and how to make production

Syme Prize

Australia.

ep.

Fellows

Doctorate

The 1970 David Syme Research Prize of the University of Mel-bourne has been awarded jointly to Mr. J. R. Egerton of the Division of Animal Health and Dr. J. H. Bradbury of the Australian National University, Evolo will recourse a medal

Each will receive a medal and share a \$250 cash prize.

The Syme Prize is awarded each year for original research of value to the industrial and commercial development of

Mr. Egerton's research has been directed towards control-ling infectious foot diseases in

Dr. K. G. McCracken of the Division of Mineral Chemis-try, has been awarded the de-gree of Doctor of Science by the University of Adelaide for his work on cosmic radiation.

F CHOWS Mr. M. V. Tracey (Chief), **Dr. J. H. B. Christian** (Associate Chief), **Mr. P. W. Board, Dr. A. Howard and Dr. June Olley** of the Division of Food Re-search have been admitted as Fellows of the Australian In-stitute of Food Science and Technology.

The 1968 Mercer Award of the

The 1968 Mercer Award of the Ecological Society of America has been awarded jointly to **Dr. A. J. Wapshere** of the Division of Entomology and Dr. E. Broadhead. Dr. Wapshere is working in France on the biological con-trol of skeleton weed.

Mercer Award

more efficient; they are also concerned with improving the quality of their product for the benefit of the home consumer and so that it can compete more successfully on world markets.

'In many instances agriculthat in the search can help in yet another way by assisting diver-sification within an industry and by aiding in the develop-ment of new markets.

CSIRO'S BUDGET CUT

Towards the end of last month, the Federal Cabinet reviewed the state of the National Economy and, subsequently, the Prime Minister instructed all Ministers to cut back expenditure in those Departments and Instrumentalities under their control.

As a result of discussions between the Minister for Education and Science, Mr. Nigel Bowen, and the Chairman, the following telegram was sent by the Chairman to all Chiefs and Officers-in-Charge.

Following Cabinet consider-ation of the state of the econo-my and the Prime Minister's recent announcement, the Min-ister has instructed me to in-troduce immediate economics in CSIRO. Each Chief will be advised sequently about enectadvised separately about speci-fic economies relating to his Division.

'In the meantime the following stringencies will apply throughout CSIRO immediately.

Inrougnoit CSIKO immediately, 'No action should be taken to fill existing or new vacant positions irrespective of the source of the financial support unless a commitment has al-ready been entered into with an individual. For the remain-der of the year all vacancies will revert to a positional pool and requests relating to urgent staffing needs only should be referred to -Head Office for consideration by the Executive. 'In relation to non-salary Treasury expenditure it will be necessary to impose an immedi-ate cut (to be notified) on all Divisions. I must rely on you to limit expenditure to ex-tremely urgent requirements only and to keep your expendi-

tremely urgent requirements only and to keep your expendi-ture within your reduced allocation.

'No new overseas visits pro-posals will be approved for the

H'mm

The following passage is taken from an advertisement for a translator gazetted by the Cen-tral Library.

"Applications quoting refer-ence number 114/38 and stating full name, place, date and year of birth, nationality, marital experience . . ."

remainder of the current finan-cial year. Proposals already notified for the current finan-cial year are also being re-viewed with a view to ascer-taining whether any can be deferred. 'No new financial commit-

'No new financial commit-ments should be entered into in the expectation that they might be met out of the fol-lowing year's estimates.

lowing year's estimates. 'I urge on you all to exer-cise the greatest discretion in making any financial commit-ments within your existing delegation. I would ask you to ensure that all senior staff, par-ticularly those away from Di-visional Headquarters, are aware of these instructions, that the general situation is drawn to the attention of the staff and that they be directed to economise wherever pos-sible, for example, in relation to economise wherever pos-sible, for example, in relation to telephones, postage, over-time, long distance travel and

'I should say that the Execu-tive must take these matters

into account over the next few months when considering your proposals for next year's estimates. 'I regret there has not been

I regret there has not been an opportunity to consult you about these matters as they affect your Division but the urgency of the situation has made that impossible.' Since the telegram was sent, the Executive has been in touch with each Chief about the overall impact of the Prime Minister's instructions on di-visional activities. Dr. Price has pointed out that although a number of vacant positions would remain unfilled, there would be no retrenchment of staff. He said that the immediate

He said that the immediate effect on staff of the budgetary cuts would be to place some restrictions on their activities. Of greater significance, how-ever, was the possible limita-tions that might be imposed on

the estimates positions for the next financial year, Dr. Price added.



Although Lord Casey is no longer a member of the Executive, he still maintains a keen interest in CSIRO. Lord Casey is seen here being shown some aspects of the work of the Division of Animal Health by the Chief of the Division, Dr. A. E. Pierce.

News In Brief Leighton Address

Senior Lecturer Leighton Address Dr. A. L. G. Rees, Chief of the Division of Chemical Physics and winner of the Royal Aus-tralian Chemical Institute's Leighton Memorial Award for 1970, will deliver the Leighton Memorial Address during the 8th Australian Spectroscopy Conference at Monash Univer-sity next August.

Dr. M. Anson of the Division of Building Research has been appointed Senior Lecturer in Civil Engineering at the Uni-versity of Lancaster.

Plant Physiology Unit

Plant Physiology Unit The Plant Physiology Unit of the Division of Food Research, which was established in 1952 and until now has been located at the University of Sydney, moved to Macquarie Univer-sity last December. The move brings the Plant Physiology Unit closer to the headquarters of the Division. The Unit will continue to be led by Dr. R. M. Smillie; staff will consist of six research scientists and supporting staff. University staff working in as-sociation with the Unit will comprise Prof. F. V. Mercer, a former joint leader of the Unit, Prof. F. L. Milthorpe, three senior lecturers, and two lec-turers. turers.

Note For File

"This file was sent to you by mistake. Please erase your initials and initial your erasure."

Note on a Government Department file.

Fellow Traveller

'Mr. John Combe, of Bacchus Marsh, has been travelling to Melbourne on the 7.14 up and returning by the 5.25 p.m. for the past 25 years; which repre-sents about 350,000 miles of rail travel.

'Mr. Coombe, an Assistant Secretary with CSIRO, has been transferred to Canberra.

been transferred to Canberra. 'Fellow commuters on the Bacchus Marsh train have writ-ten to the Railways, both to draw attention to Mr. Coombe's record for travelling and to express regret at the loss to the company of a rail patron, who enlivened the journey with a seemingly in-exhaustible supply of lively anecdotes.'

Victorian Railways News Letter.

New Appointees

Miss Kristine Barlow has been appointed to the Wheat Re-search Unit at North Ryde to assist in studies of grain mor-phology and characterisation of components within the wheat endosperm. Miss Barlow completed a B.Sc. in Biochem-istry at the University of Syd-ney in 1970.

ney in 1970. Dr. P. M. Barrer has been appointed to the Division of Entomology to carry out re-search into the behaviour and biology of insect pests of stored grain and to investigate possible physical methods of their control. Dr. Barrer gradu-ated B.Sc. with honours from the University of London in 1964 and Ph.D. from the same University in 1969. Since then he has been a research fellow at the University College of North Wales. Miss Indith Eroblich has

Miss Judith Frohlich has been appointed Press Informa-tion Officer at Head Office to assist the Press Officer in pro-viding information for the Press and general public on

CHANGING RESEARCH PATTERNS

(Continued from page 1)

The broad review of which an examination of the Division of Nutritional Biochemistry was the first step would get into its stride shortly. Also, as a result of changes in the Wool Industry Act, the Executive had another review committee, the Weickhardt Committee, which was exami-ning a limited area of CSIRO's agricultural activities as well as its wool textile work. Apart from these, the Execu-tive had also initiated specific reviews of the Division of Plant Industry; of the Division of Building Research prior to the retirement of Mr. I. Lang-lands as Chief in May; of the Division of Fisheries and Oceanography, and of the Cloud Physics Section of the Division of Radiophysics. "Apart from the impact which the current problems of the agricultural industry and the growing importance of the mineral industry are having on our research programme," Dr. Price continued, 'our future re-search is going to be consider-ably influenced by the need to that all-embracing problem of environmental quality. "The environment is, how-ever, by no means the preserve of the biological divisions. "A good deal of the research in the Division of Meteorologi-cal Physics is relevant to at-mospheric pollution and its lisposal, valuable work is be-ing undertaken by the Division of Auglied Chemistry on water purification, while the National Standards for noise pollution. "Some of our more import-ant activities in the future will be those of the Division of Building Research with all the incocastarily be involved. It is the job of the Executive to en-courage or otherwise bring and exciting—let us not be afraid of the changes as are needed to achieve new objec-tives as these become evident." Dr. Price concluded by re-peating that we can't always pet additional resources to do the things we know we have to do the separities can be met.

CSIRO research. Miss Froh-lich completed a B.A. at Uni-versity of Queensland in 1968 and before joining CSIRO worked with the Department of Foreign Affairs.

of Foreign Affairs. Dr. G. R. Germaine has joined the Division of Food Research to study the chemical composition and structure of bacterial spores in relation to their resistance to radiation and other agents. Dr. Germaine graduated M.S. from the Uni-versity of Minnesota in 1966 and Ph.D. from the same uni-versity in 1968. Since then he has been a research micro-biologist with the North Star has been a research micro-biologist with the North Star Research and Development In-stitute, Minneapolis, Minnesota.

sola. Dr. P. H. Gordon has been appointed to the Division of Protein Chemistry to study breakdown of proteins during irradiation in relation to wool yellowing. Dr. Gordon gradu-ated B.Sc. from the University of New England in 1961 and Ph.D. from the University of Melbourne in 1966. Since 1968 he has been a visiting lecturer at the Imperial College of Science and Technology in Britain.

Britain. Mr. R. G. Heydon has been appointed to the Division of Applied Physics where he will work on the dielectric, optical and related properties of solids. Mr. Heydon obtained his As-sociateship in Applied Physics from the West Australian Insti-tute of Technology in 1967. Since qualifying as a teacher in 1968, Mr. Heydon has been teaching in Western Australia. Mr. E. H. Jones has ioined

teaching in Western Australia. Mr. E. H. Jones has joined the Division of Fisheries and Oceanography to assist with the collection of field data on northern prawns. Mr. Jones graduated B.Sc. from the Uni-versity of Melbourne in 1967 and until recently was a biolo-gist with ANARE. Miss Elizabeth Parkes has

gist with ANARE. Miss Elizabeth Parkes has joined the Division of Land Research to assist with the editing of the Division's scien-tific papers and reports. Miss Parkes graduated B.A. with honours from the University of Tasmania in 1965 and



Apart from being something of a baseballer and a former husband of Marilyn Monroe, Joe Di Maggio is also a cousin of Maria De Maggio seen here at the Division of Animal Health Laboratory, Parkville. Maria is Chief Assistant to Professor G. Furness of the New Jersey College of Medicine and they are spending a few months at Parkville studying the replication of Mycoplasma and they mycoides.

gained a Diploma of Educa-tion from the same University in 1967.

Mr. H. J. Pepplinkhouse has been appointed to the Division of Building Research to assist in the development of new ceramic materials. Mr. Pep-plinkhouse recently obtained his Diploma in Applied Chem-istry from the Ballarat College of Advanced Education.

of Advanced Education. Mr. A. M. Perriman has joined the Division of Physics to design and develop elec-tronic instruments for studying collision processes in low pres-sure gases. Mr. Perriman ob-tained his Diploma of Applied Physics from Melbourne Tech-nical College in 1953 and since then has been with the Weapons Research Establish-ment in South Australia.

Dr. R. R. B. Russell has been appointed to the Meat Re-search Laboratory of the Divi-sion of Food Research to work sion of Food Research to work on the mechanism of growth and cell division in micro-organisms. A graduate of the University of Dublin, Dr. Rus-sell obtained his Ph.D. degree from the University of Mel-bourne recently. Mr. M. Sarwar has joined the Division of Applied Phy-sics to work on magnetic measurements and on the mag-netic properties of rare earths.

measurements and on the mag-netic properties of rare earths. Mr. Satwar gained his Science Diploma at the New South Wales Institute of Technology in 1968 and has been working there while undertaking fur-ther studies in electronics en-gineering.

gineering. Mr. F. J. Taubman has been Mr. F. J. Taubman has been appointed to the Common-wealth Meteorology Research Centre where he will assist in the preparation of scientific material for both general and scientific publication. Mr. Taubman graduated B.Sc. from the University of New England in 1969. Mr. P. L. Thomas has been appointed Liaison Officer to the Meat Research Laboratory of the Division of Food Re-search. Mr. Thomas obtained his B.Sc. at the University of London in 1952 and since 1965 has been officer-in-charge of the Monsanto Animal Re-search Unit at Petrie, Queens-land.

Mr. M. R. Wadsley has been appointed to the Division of Mineral Chemistry to assist in studies on modern methods of extraction of metals from their ores. Mr. Wadsley graduated B.Sc. from the University of Tasmania in 1968 and since then has been working with the Tasmanian Department of Mines.

Dr. C. L. Watson has joined the Division of Soils to work on clay and clay soils. Dr. Watson graduated Ph.D. from watson graduated Ph.D. from the University of California in 1969 and was until recently a Research Officer with the South Australian Department of Agriculture.

cards.

Springbank Island in Lake Burley Griffin may not be everyone's idea of a sun-drenched Pacific paradise but hula girls Rosemary Groser (left) and Christine Videan and chef Napier Mitchell helped provide an Hawaiian atmosphere at an "Aloha" held on the island at the end of January by Canberra Divisions to meet and welcome Head Office staff.

CHRISTMAS CONTEST

"I am a poor man, but I would gladly give ten shillings to find out who sent me the insulting Christmas card I received this morning." So wrote George and Weedon Grossmith in The Diary of a Nobody.

Rumour has it that such a reaction is not unknown among recipients of CSIRO Christmas

cards. Towards the end of each year, skilled Head Office watchers notice that one or two of its inmates undergo a strange metamorphosis.

Normally sociable, out-going types, they become cringing whimpering shadows of their former selves, hiding in dark corners, shunning all contact with their fellows.

Pity them, for theirs is the thankless task of trying to pro-duce an official Christmas card that will please everyone — a task that has made strong men weep and quenched the flame of many a rising Head Office star. star.

This year, however, goaded beyond endurance by their critics, exhausted by their Sisyphean labours, our Christ-mas card designers have estab-lished their own liberation front front.

From some clandestine cell in the corridors of power they

have emerged defiant and after a brief card burning ceremony in Limestone Avenue have be-gun scrawling their revolu-tionary messages on the walls of CSIRO establishments to the effect that anyone who thinks he can do better should speak now or for ever after hold his peace. Moved by their tragic plight Coresearch has decided to sponsor a Christmas card competition. Even if your ability as an

Even if your ability as an artist is severely limited and you feel reluctant to submit a complete design, you might at least like to suggest a suitable matif motif.

motif. Entries should be sent to the Editor, Coresearch, P.O. Box 225, Dickson, A.C.T. 2602, be-fore May 31, 1971. The judging panel, although composed of men of unques-tioned ability and impeccable taste, has, no doubt for reasons of modesty, requested that it remain anonymous.

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The News In Brief

New Minister

New Minister Mr D. E. Fairbairn has been appointed Minister for Educa-tion and Science. He succeeds Mr Nigel Bowen who has been appointed Attorney-General. Mr Fairbairn has been the Liberal Member for Farrer, New South Wales, since 1949. He was Minister for Air from 1964 to 1969. He was a member of the Aus-tralian delegation to the 13th Session of the U.N. General Assembly, New York, in 1958; member of the Joint Parlia-mentary Committee on Foreign



Mr FAIRBAIRN

Affairs 1960-1962; Chairman of the Commonwealth Immigra-tion Planning Council 1960-1962; member of the Joint Parliamentary Committee on the Australian Capital Ter-ritory in 1961; Leader of the House of Representatives in 1966, and Leader of the Aus-tralian delegation to the Water for Peace Conference in Wash-ington in 1967. Mr Fairbairn was educated

ington in 1967. Mr Fairbairn was educated at Geelong Grammar and the University of Cambridge where he gained his M.A. During the war he served with the RAAF and was awarded the D.F.C. He runs a large grazing property near Albury.

ECAFE Meeting

It was wasteful to use man-

It was wasteful to use man-power, brains and money work-ing on a building problem that had already been solved by a neighbour country, the former Minister for Education and Science, Mr Nigel Bowen, told an ECAFE meeting of Direc-tors of Building Research in Melbourne on 3rd March. He said that time was the most important single factor and that in the six or seven months it could take for a paper to be submitted, refereed, edited, published and distribu-ted, the number of people to be housed in India alone would increase by about six and a half million. million.

million. The meeting was organized by the United Nations Econ-omic Commission for Asia and the Far East in co-operation with the United Nations In-dustrial Development Organiza-tion, the United Nations Centre for Housing, Building and Planning and the Government of Australia. It was chaired by Mr J.

of Australia. It was chaired by Mr I. Langlands, Chief of the Divi-sion of Building Research. The meeting's main resolu-tion was the setting up of a number of working groups for the interchange of detailed in-formation between countries and in specific fields.

Communication Services

Mr G. R. Williams, formerly Assistant Secretary (Canberra), has been re-designated Assist-ant Secretary (Communication Services). He will be responsible for

He will be responsible for the administration and co-ordination of matters related to the Organization's public rela-tions activities, using that term in a broad sense to include communication of information through the mass media, publi-cations of a general nature, films and speeches. He will also be involved in some aspects of the work of the Advisory Council and State Committees and in the organ-ization of functions such as the opening of buildings and film premieres.

premieres.

Assistant Secretary

Assistant Secretary Mr K. L. Avent has been ap-pointed Assistant Secretary, Agricultural and Biological Sciences Branch, Head Oflice, to take part in the management of research in the agricultural and biological sciences and to foster liaison between CSIRO and other research bodies. He will have a general over-sight of "Rural Research in CSIRO", and will take an in-terest in some of the industry fund programmes.

terest in some of the industry fund programmes. Mr Avent graduated B.Agr.Sc. from the University of Melbourne in 1948. Before joining CSIRO, he had worked with the Victorian Department of Agriculture in research and research management. research management.



Mr AVENT More recently, within the Commonwealth Department of Primary Industry, his interests were in the regional research activities of State Departments of Agriculture and the means by which the Commonwealth could assist in the further strengthening of these through Commonwealth Extension Ser-vices Grant funding and through co-ordinative and liaison functions.

Professor

Professor Dr T. G. Chapman of the Division of Land Research has been appointed Professor of Engineering at the Royal Military College, Duntroon. Mead Johnson Award

Dr F. J. Ballard, a Queen Elizabeth II Fellow at the Divi-sion of Nutritional Bio-chemistry, has been named a joint recipient of the 1971 Mead Johnson Award for re-search in nutrition awarded by the American Institute of Nutrition.

Doctorate

Mr R. K. Tume of the Meat Research Laboratory, Division of Food Research, has been awarded the degree of Ph.D. by the University of Adelaide.

Credit Society Deposits

Pass \$2 Million Mark

Pass \$2 Million Mark The CSIRO Co-operative Credit Society has reached another milestone. The total amount of money now de-posited with the Society has passed \$2,000,000. This money is currently all on loan and there is a strong demand for further loans. New investment in the Society is urgently required. Four classes of investment are available. Lump sum de-posits for periods under twelve months earn 6% a year in interest, investments for periods between one and five years earn 64% a year, and investments for periods over five years attract 7% a year in interest. Money deduced from your salary for investment in the Society earns at the rate of 6% a year and interest is paid from the date of the first deduction. Application forms for both methods of investment — lump sum or deduction from salary— are available from Mr J. Bel-kin, Manager, CSIRO Co-operative Credit Society, Re-gional Administrative Office, 314 Albert Street, East Mel-bourne, Victoria, or your Divi-sional Administrative Office,



The Narayen Research Station of the Division of Tropical Pastures covers 22,500 acres and lies 30 miles west of Mundubbera, Queensland. The station has in residence 10 families and 8 single staff. The main access to the station is by a low level concrete crossing over the Auburn River.

The following extract from the diary of Mr D. B. Coates, Officer in Charge of the station, covers the period of February 1st to 18th, when major flooding occurred.

Monday, 1st. Auburn river crossing at Narayen open; all roads clear. Received food order from Mundubbera.

Tuesday, 2nd. Mundubbera road cut at Burnett and Boyne rivers.

Wednesday, 3rd. Auburn river crossing closed. Mundubbera road cut at Burnett, Boyne and Flagstone crossings. Peter road cut at Burnett, Boyne and Flagstone crossings. Peter Grant and self took Roy Am-brose to Mundubbera for medical attention across Chelt-nam Creek; parted company with Roy at Flagstone Cross-ing. Cheltnam Creek up on re-turn, so left Land Rover in cutting and walked home. Four vabules bacard on acetern ide cutting and walked nome. Four vehicles bogged on eastern side. Don Crane mustered Reserve Paddock; cattle and horses bogging; cattle held in Spear-grass holding paddock. Big rain Wednesday night.



WINEMAKER

WINEMARER Dr Helmut Becker, Head of the Institute for Vine Breeding and Vine Selection of the Hessische Lehr-und Forschungs-anstalt für Wein Obst und Gartenbau at Geisenheim, Rheingau, West Germany, is spending two months at the Merbein Laboratory of the Division of Horticultural Research as part of the Division's programme of small scale wine making with hybrid grapes. The Laboratory is breeding, selecting and introducing grapes for table, drying and wine making.

STOCKTAKER

Senior stocktaker from Melbourne RAO, Alan Cross, with lan Cook of Yalanbee Experiment Station, Baker's Hill, Western Australia, locating a vibracorder fastened to a sheep's back. The recorders, which work on a pendulum, are operated every time the sheep lower their heads to graze and measure the time spent on grazing.



Thursday, 4th. Auburn River at 19 feet in morning; pumps submerged. Cheltnam Creek flooded; Land Rover sub-merged. Heavy storm in early afternoon; 175 points in just over ten minutes; power and telephone cut by lightning strikes. Auburn at 26 feet Thursday evening. Howard Crozier and John Warwick from Head Office strongly ad-vised to defer their visit to Narayen scheduled for to-morrow. morrow

Morrow. Friday, 5th. Auburn at 29 feet Friday morning. All hands help to bring generator and en-gine across from Brigalow depot; set up outside single quarters to run four fridges. Self motorbiked 8 miles to Van de Have's to try telephone; out of order. Party out to Cheltnam Creek to service Land Rover. Auburn at 39 feet Friday even-ing: power service poles and

suburn at 39 leet Friday even ing; power service poles and switch gear under water. Saturday, 6th. Auburn at 37 feet. Cover set up for generator in morning.

in morning. Sunday, 7th. Auburn at 24 fect. Doug. Peake and self motorbiked to Van de Have and then 16 miles to Sujeewong to try for phone; phones out of order at Hawkwood exchange, Verilla and Sujeewong. Killed steer Sunday afternoon. Further work on flooded Rover; rope set across Cheltnam Creek to facilitate boating across. Monday. 8th. Auburn un to 26

facilitate boating across. Monday, 8th. Auburn up to 26 feet. Cut up steer and re-frigerated in morning. Peter and three others made bid for town using Land Rover and motorbike; phone calls made from Peterson's (Flagstone) on Monday afternoon to Cunning-ham Laboratory and Wide Bay Regional Electricity B o ard (W.B.R.E.B.). Self to Van de Have to arrange for milk. Don Crane yarded Africanders for milking. Tuesday, 9th. Auburn at 26

milking. **Tuesday, 9(h.** Auburn at 26 feet. Self to Van de Have to pick up milk; 2½ gallons. Trip to Flagstone to pick up John Davies from W.B.R.E.B.; power reconnected at 1.30 p.m.; power to building site again failed at S.30 p.m.—blown transformers. Don Crane milked Africanders; about 3 gallons.

Wednesday, 10th. Auburn down to 17 feet. Air drop of supplies from Brisbane.

Thursday, 11th. Auburn at 18 feet. Trip to Flagstone to order milk and chemist supplies.

Friday, 12th. Auburn back up to 23 feet. Andrew Smith to town with appendicitis—in-volved ferrying across the Auburn (twice), Boyne and Burnett rivers. Milk and b h a m ict surplice collocated Burnett rivers. Milk and chemist supplies collected. Phone reconnected in after-noon. Repairs to fences on western side commenced.

Saturday, 13th. Auburn down to 13 feet. Fencing repairs. Monday, 15th. Auburn down to 4 feet 6 inches. Fencing repairs.

Tuesday, 16th. Auburn down to 3 feet 6 inches. Supplies collected at Flagstone. Fencing repairs.

Wednesday, 17th. Auburn crossable by Land Rover. Flagstone open to light traffic. Thursday, 18th. Partial power to headquarters.



RECENT APPOINTMENTS TO STAFF

Dr A. A. Auff has been appointed to the Division of Chemical Engineering to study gas-solid fluidization in large scale equipment. Dr Auff graduated M.Sc. from the Uni-versity of Alexandria in 1959 and was awarded his Ph. D. by the Technological Institute, Leningrad in 1966. Before joining CSIRO, Dr Auff worked with the Maritime Ser-vices Board of New South Wales.

Mr A. Cabelli has joined the Division of Mechanical En-gineering to investigate human thermal comfort in air-condi-tioned buildings. Mr Cabelli graduated B.E. from the Uni-versity of Adelaide in 1965,



Mr CABELLI

M.Eng.Sc. from the University of New South Wales in 1968 and is currently completing work for his Ph.D. at the Uni-versity of New South Wales.

Dr H. J. Banks has been appointed to the Division of Entomology to carry out re-search on the biology and con-trol of insects, mites and moulds of stored products. Dr Banks graduated B.A. from the Uni-versity of Cambridge in 1966 and M.A. and Ph.D. from the same university in 1969. Since then Dr Banks has been work-ing in the Department of Organic Chemistry at the Uni-versity of Melbourne.

Dr R. J. Batterham has joined the Division of Chemical Engineering to study the appli-cation of process control theory to real processes. Dr Batterham graduated B.Sc. from the Uni-versity of Melbourne in 1964 and Ph.D. from the same uni-versity in 1968. Until recently, Dr Batterham worked with the I.C.I. Central Instrument Re-search Laboratory, Reading, search Laboratory, Reading, Britain, under a CSIRO Divi-sional Postdoctoral Studentship.

Mr A. W. Charles has been Mr A. W. Charles has been appointed to the Agricultural and Biological Sciences Branch of Head Office to assist with research liaison, both within CSIRO and with other research bodies. Mr Charles graduated B.Sc.Agr. from the University of Sydney in 1947 and M.Sc.



Mr CHARLES

from the University of Cam-bridge in 1953. Before joining CSIRO he was Assistant Director (Research and Surveys) in the Department of Agriculture, Stock and Fisheries, Territory of Papua and New Guinea. Mr N. Bignell has been ap-pointed to the Division of Applied Physics to carry out research into techniques and standards for the measurement of force, pressure and hardness. Mr Bignell graduated B.Sc. with honours from the Uni-versity of Queensland and re-cently submitted his Ph.D. thesis to Monash University.

Mr P. Davis has joined the Division of Animal Genetics to conduct research on the genetics of reoviruses. Mr Davis qualified as a Member of the Institute of Biology, Britain, in 1968. Since then he has been working in the Biochemistry Department of the University of Queensland.

ot Queensland. **Dr T. A. A. Dopheide** has been appointed to the Division of Protein Chemistry to study the chemical reactivity of par-ticular groups in the molecules of keratins and other fibrous proteins. Dr Dopheide grad-uated B.Sc. from the University of Auckland in 1960, M.Sc. from the University of Mel-bourne in 1962 and Ph.D. from the same university in 1965. Since 1968 Dr Dopheide has been lecturing in biochemistry at the University of Melbourne. **Dr Lounifer Hawkins** has

Dr Jennifer Hawkins has been appointed to the Division of Animal Physiology to in-vestigate the activity and mode of action of growth substances in the circulation as the result



Dr HAWKINS

ot the action of pituitary growth hormone. Dr Hawkins graduated B.Sc. from the University of Sydney in 1966 and Ph.D. from the University of Cambridge in 1970.

Dr D. M. Eagles has been appointed to the Division of Applied Physics where he will Applied Physics where he will provide theoretical support for several projects involving quan-tum electronics. Dr Eagles graduated B.A. from the Uni-versity of Cambridge in 1956, M.A. from the same university in 1960 and Ph. D. from the University of London in 1965. Before joining CSIRO Dr Eagles worked at NASA Elec-tronics Research Institute, Cam-bridge, Massachusetts.

Mr E. D. Edwards has been Mr E. D. Edwards has been appointed to the Division of Entomology to carry out taxo-nomic research on the Aus-tralian Lepidoptera. Mr Ed-wards graduated B.Sc.Agr. from the University of Sydney in 1967 and since then has been with the New South Wales De-partment of Agriculture.

partment of Agriculture. **Dr J. M. Floyd** has joined the Division of Chemical En-gineering to work on improved processes for the extraction of metals from their ores by pyro-metallurgical means. Dr Floyd graduated M.Sc. from the Uni-versity of Melbourne in 1965. He then worked with the Divi-sion of Chemical Engineering for one year before taking up an appointment to the Imperial College, London, where he gained his Ph.D. degree in 1970.

Miss Pamela Hore has joined the Division of Animal Health to study the immunity and

pathogenesis of mycoplasma infections of farm animals. Miss Hore graduated M.Sc. from the



University of Melbourne in 1968 and since then has worked at Zurich University, Switzer-land, and at the Royal Child-ren's Hospital, Melbourne.

Mr T. S. Grove has been ap-Mi 1. S. Grove has been ap-pointed to the Division of Soils to investigate the relationship between soil factors and plant growth. Mr Grove graduated B.Sc. (Agric.) with honours from the University of Western Australia in 1970.

Australia in 1970. Dr J. A. Hallberg has been appointed to the Division of Mineralogy to study nickel iron sulphide mineralisation in the Archaean of Western Australia. Dr Hallberg graduated B.Sc. from the University of Wiscon-sin in 1964 and M.Sc. from Stanford University in 1970. He recently obtained his Ph.D. from the University of Western Australia. From February 1966 to September 1967 Dr Hallberg worked as a research geologist with the North American Rock-well Corporation. Mr S. Y. In has joined the

Mr S. Y. Ip has joined the Industrial and Physical Sciences Branch of Head Office where he will take part in the general administrative work of the Branch with particular refer-ence to techno-economics. Mr Ip obtained his Diploma of



Mr IP

Applied Chemistry from Swin-burne Institute of Technology in 1962, his Diploma of Chemi-cal Engineering from the same Institute in 1964 and B.Ec. from Monash University in 1970. Before joining CSIRO, Mr Ip worked as a chemical engineer with the Victorian Department of Agriculture.

of Agriculture. Mr A. L. Henzell has joined the Division of Computing Re-search to investigate new tech-niques for using the Division's computing equipment and to act as consultant to computer users in the Brisbane area. Since graduating B.Sc. from the University of Queensland in 1967, Mr Henzell has been a biometrician with the Queen abiometrician with the Queensland Department of Primary Industries.

Dr B. N. Hoschke has been appointed to the Division of Textile Physics to carry out research into the properties of wool/synthetic blends. Dr Hoschke graduated B.Sc. from the University of New South Wales in 1963 and Ph.D. from the same university in 1968. the same university in 1968. Since then Dr Hoschke has

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worked with the Celanese Re-search Company in the United States.

Dr M. B. Jackson has joined Dr M. B. Jackson has joined the Division of Protein Chemis-try to study the chemical re-activity of particular groups in keratins and other fibrous com-pounds. Dr Jackson graduated B.Sc. with honours from the University of Adelaide in 1965 and Ph.D. from the same uni-versity in 1969. For the last year he has worked in the De-partment of Chemistry at the University of Queensland.

Dr R. J. Milner has joined the Division of Entomology to undertake research on microbial agents affecting pasture scarab populations. Dr Milner grad-uated B.Sc. from the University of Newcastle-on-Tyne in 1967 and Ph.D. from the same uni-versity in 1970.

Mr K. G. Newton has been appointed to the Meat Research Laboratory of the Division of Food Research to assist in work on the microbiology of



meat and meat products. Mr Newton graduated B.Sc. with honours in 1966 from the Uni-versity of Queensland and since then has been working towards his Ph.D. at the same uni-versity. versity.

Dr D. F. Parkhurst has joined the Division of Meteoro-logical Physics to investigate the detailed physical processes in the air around plants and plant communities. Dr Park-hurst graduated B.Sc. from the University of Colorado in 1965, M.Sc. from the University of Wisconsin in 1968 and was re-cently awarded his Ph.D. by the same university.

same university. Dr G. I. Pearman has joined the Division of Meteorological Physics to take part in agricul-tural meterological research. Dr Pearman graduated B.Sc. in 1964 and Ph.D. in 1968 from the University of Western Aus-tralia. During 1970 Dr Pear-man worked in the Soil Physics Department of the University of Wisconsin under a CSIRO Postdoctoral Studentship.

Postdoctoral Studentship. Mr D. G. Phillips has joined the Division of Textile Industry to evaluate and develop yarn structures using the self-twist spinning principle. Mr Phillips graduated B.Sc. from Monash University in 1967 and M.Sc. from Macquarie University in 1970. While studying for his M.Sc. degree, Mr Phillips worked at the AWA Physical Laboratory, New South Wales.

Miss Angela Pritchard has joined the Division of Animal Physiology where she will assist in investigations of the physi-ological role of pituitary hor-mones and of the endocrine control of reproduction. Miss Pritchard completed her B.Sc. with honours in 1970.

Dr T. L. W. Rothwell has been appointed to the Division of Animal Health to carry out research into the immune re-actions of sheep to internal parasites. Dr Rothwell gradu-ated B.V.Sc. from the Uni-versity of Sydney in 1958 and

Ph.D. from the same university in 1969. Since gaining his Ph.D., Dr Rothwell has worked



Dr ROTHWELL

at the Department of Pathology, St. Bartholomew's Hospital, London, on a CSIRO Overseas Postdoctoral Studentship.

Postdoctoral Studentship. Dr M. E. Probert has been appointed to the Division of Soils to investigate the various factors affecting the chemical fertility of the soils of north Queensland. Dr Probert grad-uated B.Sc. from London Uni-versity in 1961 and Ph.D. from the same university in 1963. Since then Dr Probert has worked as a soil chemist with the Levington Research Station, Sufficient and Ph.D. for the same worked as a soil chemist with the Levington Research Station, Sufficient and Ph.D. for the same source of the same university in 1963.

Dr D. M. Robertson has been Dr D. M. Robertson has been appointed to the Division of Animal Genetics to investigate and characterize proteins and other substances exercising regulatory roles in growth and differentiation. Dr Robertson graduated B.Sc. from Queen's College, Dundee, and Ph. D. from the University of St. Andrew's, Scotland, in 1955. Before joining CSIRO, Dr Robertson lectured at Bedford College, London.

Mr J. A. Thurlby has been appointed to the Division of Chemical Engineering to work in the Process Design and Evaluation Group. Mr Thurlby graduated B.Eng, from the Uni-versity of Melbourne in 1961 and since then has worked with the Altona Petrochemical Com-pany. pany

Mr W. H. Winter has been appointed to the Division of Tropical Pastures to study animal production in 'a high rainfall monsoonal environ-ment. Mr Winter graduated B.Agr.Sc. from the University of Melbourne in 1967 and re-cently completed his studies for a Ph.D. from the same uni-versity. versity.

Dr Diane Wiskich has joined Dr Diane Wiskich has joined the Division of Horticultural Research to study the changes that occur in grapes as they ripen. Dr Wiskich graduated



Dr WISKICH

B.Sc. from the University of Adelaide in 1963 and Ph.D. from the same university in 1967. Before joining CSIRO Dr Wiskich worked in the Plant Physiology section of Long Ashton Research Institute in England. England.

146##1971 ORESEARCH FOR CIRCULATION AMONG MEMBERS OF CSIRO STAFF - NUMBER 146, MELBOURNE, MAY 1971

IN THE SEVENTIES CSIRO

'It is a truism to say that we are living in a world of change. But in no area has this statement greater validity than in science and technology, where every advance contains within itself the seed of further change,' the Chairman, Dr J. R. Price, said in Melbourne last month.

Dr Price was addressing the Royal Society of Victoria on the role of CSIRO in the seventies.

After describing a number of changes which had been made in the organization of CSIRO, in the organization of CSIRO, particularly in the last few years, in response to the chang-ing needs of the community, he went on to say that be-cause of the long term nature of research it might perhaps have seemed more appropriate for him to be talking about the role of CSIRO in the eichtics thecause anything we the role of CSIRO in the eighties 'because anything we plan or try to implement now won't be put into effect, or won't be significant until the eighting. eighties,'

'But,' Dr Price said, 'I believe that we must be able to change direction rapidly when the pressure is on — that is to say when a change in public needs which can be met in part or in whole by scientific effort be-comes evident comes evident.

'I believe such pressures are on us today and that we will find techniques that will enable us to respond quickly—far more quickly than in the past.

'This is not to suggest a capricious will-o-the-wisp pat-tern of research but rather a quicker recognition of those areas where science and technology can help, followed by a re-allocation of priorities and thus, a readier deployment of resources to those areas.

'The pattern of research you will see in CSIRO will be very different by the time this decade is over.

Referring to the role of CSIRO in relation to the uni-versities, Dr Price said, The considerable expansion in uni-versities and university research over the past fifteen years or so has made it even more neces-sary for CSIRO to re-examine and continue re-examining its programmes. programmes.

'While we have always been "mission oriented", as is clear from the terms of our Act, we have now, more than in the past, to underline that aspect of our activities our activities.

see CSIRO and the uni-A see CSIRO and the uni-versities as being comple-mentary to each other. The in-ternal organization of universi-ties, because of their teaching responsibilities, is necessarily on a disciplinary basis, although they do and are in-creasingly doing a certain amount of interdisciplinary research amount research.

'It is more difficult, however, though not impossible, for them to undertake multidisciplinary research activities.

'CSIRO, on the other hand, is responsible for work for specific industries and this, almost invariably, involves a multidisciplinary approach so that we have a vertical sub-division in universities into disciplines and a horizontal one in CSIRO cutting across disciplines.

State Departments of Agriculture are carrying out re-search relevant to the problems ists, and so on in their own States.

'Like the universities, the Like the universities, the State Departments' research activities have expanded in re-cent years and not only have they expanded but they have acquired much improved facili-ties and even more important, they have built up staffs of scientists of high calibre.

'This is no doubt partly a consequence of the growth of the universities which has made more well-trained men available.

While these changes have taken place there have also been parallel changes in CSIRO pro-grammes such that the two con-tinue to be complementary.

"CSIRO in the future, will therefore try to ensure that what it does in the agricultural field is the sort of research that cannot be done as well or better in regional laboratories operated by the State Depart-ments. Collaboration is needed — not competition.

This brings me to the ques-on of agricultural industry tion of funds.

These funds are provided by a levy on the sale of agricul-tural products to which is added a Commonwealth grant, which in general is on a one to one matching basis.

'These funds are a means by "These funds are a means by which the industry concerned can augment or supplement re-search already being done with government funds. In the case of the largest, the Wool Re-search Trust Fund, the Com-monwealth contribution was increased recently from a one to one, to a one to three and a half basis. half basis.

'If production or prices or both fall, then the money flow-ing into the Wool Research Trust Fund will fall and the level of research which can be supported will fall.

'At the present time the price of wool has fallen and the sales have fallen, in a period when the cost of maintaining a fixed level of research activity has increased very substantially.

The indications are, then, that in the seventies we will see a reduction in the level of re-search supportable from some of the agricultural industry funds, and this of course will pose a difficult problem.

'However, I am confident that ve will be able to cope with this.

Before finally leaving the subject of agriculture and to keep matters in perspective, let me add that agriculture in some form will be with us for as long for the agricultural industry will and must continue.

'Research is a continuing and often long-term activity and despite the current state of world markets I see merit, for example, if the funds were available, in a proposal we have before us to expand our agronomic research in tropical Australia — the time will event-ually come when the high rain-fall areas of tropical Australia must be used more effectively for crop as well as pasture pro-duction just as are the higher rainfall areas of the temperate regions.² regions

Referring to CSIRO's mineral research activities, Dr Price pointed out that Australia was now exporting considerable quantities of raw ores which were then processed in other now countries.

'It is to be hoped,' he said, 'that growth in such exports will be accompanied by the growth of industries processing these ores in Australia.

research is aimed at developing new techniques for processing our ores and this we hope will lead to new technologies that will tip the economic balance in favour of expansion of the Australian mineral processing industry.

'As far as the export of raw ores is concerned, we need to know a great deal more about the physical and chemical properties of these so that we have the information on which to negotiate the best price.

Work of importance to the minerals industry is going on in divisions other than those constituting the Minerals Research Laboratories, for example, the Division of Applied Ge omechanics, in collaboration with the Australian Minerals Industry Research Association, has commenced work in the field of rock mechanics.

'A further example of work supported by the industry is that in the Division of Mech-anical Engineering concerned with mine ventilation.

'Moreover, we have recently established a group rejoicing in the name of Mineral Physics, of which the major responsi-bility will be to carry out re-search on techniques for minardic evaluations. minerals exploration.

'Australia relies very largely on methods developed overseas, for use in very different condi-tions, in its geophysical prospecting.

'In view of the growing importance to our export income earnings of minerals we believe this step is overdue.

'Consequently, I can say with confidence that the seventies will see the growing importance in CSIRO of research for the minerals industry.

'But the real challenges fac-ing Australia today are the numerous aspects of what we call environmental quality.

'As far as the rural environnumber of people have pointed out, in a more fortunate position than many countries, in that we are still in a position to set aside very large areas as national parks or reserves for conservation and recreational purposes.

(Continued on page 2)

People in the News

Mr E. E. Adderley of the Divi-sion of Radiophysics has been appointed to the newly created position of Counsellor (Scien-tific) in Tokyo.

Mr Adderley graduated in mathematics and physics at Sydney University and com-menced his CSIRO career in 1941 after a period as Assistant Secretary at the Sydney Ob-servatory.

After some years in the Metrology Section of the National Standards Laboratory, he transferred to the Division of Radiophysics.



Mr ADDERLEY

Here he was responsible for design and analysis of con-trolled rain-making trials and for liaison with State and foreign governments on cloud seeding operations.

He has made two visits to Japan in recent years and has an extensive knowledge of Japanese history and culture.

He is, at present, attending a Japanese language course at Point Cook and expects to take up his appointment in August/ September after having visited as many CSIRO divisions as possible.

possible. As Counsellor (Scientific) in Tokyo, he will be responsible for the provision of scientific advice to the Ambassador and for reporting to Australia on aspects of Japanese research and development of interest to CSIRO and the Departments of Education and Science, Supply and Defence (Civil aspects). He will also be available to

He will also be available to assist Australian scientists visiting Japan and to facilitate re-quests for information and equipment

Professor

Dr H. R. Wallace of the Divi-sion of Horticultural Research has been appointed Professor of Plant Pathology at the Waite Agricultural Research Institute.

Gold Medal

Dr T. W. Scott of the Division of Animal Physiology has been awarded the 1970 Bond Gold Medal of the American Oil Chemists' Society.

Masters

Mr M. L. Rooney of the Divi-sion of Food Research has been awarded his M.Sc. by the Uni-versity of New South Wales.

Mr V. R. Squires of the Divi-sion of Plant Industry has been awarded the degree of Master of Arts by the University of New England.

Fellows

Mr E. G. Davis of the Division of Food Research has been elected a Fellow of the Aus-tralian Institute of Food Science and Technology.

Mr T. S. Holden and Mr J. J. Russell of the Division of Computing Research have been elected Fellows of the Aus-tralian Computer Society.

Doctorate

Mr R. B. H. Wills of the Divi-sion of Food Research has been awarded his Ph.D. by Mac-quarie University for his work on the relation between low temperature breakdown and volatiles of apples.

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Representative

Mr R. W. Hinde of the Divi-sion of Applied Chemistry has been nominated as CSIRO's representative on the Victorian Government's Environment Protection Council.

Mr Hinde was formerly an Assistant Secretary (Industrial and Physical Sciences) at Head Office and prior to this had 15 years' experience in the chemi-cal industry.

Divisional Changes

A number of changes in the organizational structure of the Division of Plant Industry were announced recently and will come into effect as from 1st July.

• The Agricultural Physics Section of the Division will be-come an independent Division with **Dr J. R. Philip** as its Chief. The name of the new Division is yet to be decided.

• The Riverina Laboratory will be transferred to the Divi-sion of Land Research and form part of the Rangelands Research Unit.

[•] The Tobacco Research In-stitute at Mareeba will be trans-ferred to the Division of Land Research.

• The Plant Industry group in Hobart, headed by Dr D. Martin, will be transferred to the Division of Horticultural Research. Dr Martin will con-tinue as Officer-in-Charge, Tas-manian Regional Laboratory.

• The Plant Industry staff associated with the Baas Beck-ing Geobiological Laboratory will be attached to the Division of Mineralogy.

A regrouping of CSIRO's build-ing research programmes in-volving the re-organization of three Divisions was announced last month,

Ast month. Research groups in the Divi-sion of Forest Products con-cerned with wood as a struc-tural material will be integrated with the Division of Building Research while groups carrying out research for the pulp and paper industries will amalga-mate with the Division of Applied Chemistry.

Both groups will continue to function for the foreseeable future in the present Forest Products Laboratory at South Melbourne,

The regrouping will take effect on the retirement this month of the Chief of the Division of Building Research, Mr I Langlands Mr I. Langlands.

The Chief of the enlarged Division of Building Research will be **Dr R. W. R. Muncey**, present Chief of the Division of Forgert Product. f Forest Products.

'Part of our current minerals

Counsellor

CSIRO IN THE SEVENTIES

'But we have to recognize that the changes which have taken place are largely irrever-sible and that change is taking place at an increasing rate.

'If we are going to manage our countryside effectively, in-cluding our native plants and animals, we have to learn a very animats, we have to learn a very great deal more than we know now, requiring for example a considerable expansion of both physiological and behavioural studies of our native fauna.

'Despite our relatively fortu-Despite our relatively fortu-nate rural position, the main centres of population in Aus-tralia are quite as polluted as large citics elsewhere — and are getting worse rapidly.

'We have here also a tremendous amount to do, a tremen-dous amount of application of plain commonsense but also a tremendous need for new information.

'It is in these areas of en-vironmental quality that I see the great challenge of the seventics to CSIRO research and, of course, to research by other bodies.

'Lest I give the impression that environmental research is something new to CSIRO, I should tell you that about two years ago we asked all our divi-sions engaged in work of rele-vance to environmental quality to send a representative to a meeting to discuss CSIRO's then activities in this field.

'Not surprisingly, people from some 29 of our divisions turned up.

But as far as the Organiza-tion is concerned, I see the needs, broadly, in three fields, which I will call for con-venience environmental physics, environmental biology — and the third — just by the name of one of our existing divisions — building Descent Building Research.

'We are currently giving a great deal of thought as to what we can best do and how to do it, and we have, in fact, already indicated to some of our staff likely to be affected that we may establish a Division of Environmental Biology within the pert year or tweer or the next year or two

'The whole matter is, of course, exceedingly complex; agricultural research is inex-tricably mixed up with environ-mental research and both have sociological interactions.

'There is no doubt, however, that to do much of this work effectively, the natural scien-tists will have to collaborate with social scientists.

'In the area I designated "en-vironmental physics", we already have three clearly de-fined groups — the Division of Meteorological Physics, the Cloud Physics section of the Division of Radiophysics, which is just in the process of being integrated with Meteoro-logical Physics, and the agricul-tural physics, activity of the Pye Laboratory, formerly in the Division of Plant Industry. 'In the area I designated "en-

'I have no doubt that the nature of their work should lead to these three groups be-coming more closely associated.

'But, of course, there are many other areas which could be classed within the broad u m b r ella of environmental physics.

To mention just two, there is the hydrological work in the Divisions of Soils and Land Research and, though strictly chemistry rather than physics, there is work on water purifica-tion, aimed at use, re-use and pollution prevention, in the Division of Applied Chemistry. This I believe to be of great importance. importance.

'I think you will appreciate that we are concerned here with a vast array of problems, and we have no intention of rush-ing too quickly into organiza-tional changes to cope with them

'I also referred to our Divi-sion of Building Research as becoming one of CSIRO's major contributions to the solution of problems of en-vironmental quality.

'I believe that the seventies will see a substantial expansion of the activities of that Division in relation to aspects of the urban environment.

-I see the development 'So 'So — 1 see the development of much more extensive, and I think more effectively planned and integrated, research into environmental problems as the major change in CSIRO during the seventies.

To sum up, there will be, inevitably, a change in the pat-tern and emphasis of research for agriculture, there will be further expansion of research for the minerals industry, there will be considerable emphasis on the problems of living which we associate with environassociate with environmental quality.

These gross changes, how-ever, will go hand in hand with many others — with attempts to develop more effective com-munication with industry, both primary and secondary, with more emphasis — much more

emphasis — on long and short term planning, on programme evaluation, on the techniques of innovation and on ways in which CSIRO might encourage more research in industry. "There will also be attempts to define more clearly the gaps in our national research pro-grammes and consideration given to ways in which CSIRO might either fill these gaps or encourage others to do so. encourage others to do so.

'I have in mind such areas as transport and communica-tions, and perhaps even such sociologically implicated mat-ters as the quality of consumer goods.

'Of one thing I am sure — there is never a dull moment in a research organization — not even in the administration of a dearth of stimulating prob-lems to cope with.

'And now, by contrast, may I conclude on a warning note. I have referred to our cautious optimism that CSIRO will continue to receive an increase in resources to enable it to under-take new work directly as well as by redeployment.

'But we have to recognize that there may be pressures, as there are in some other coun-tries, to reduce the level of research in the natural sciences.

'Thanks to science and tech-I names to science and tech-nology we live in an era which has more material advantages than any other in history, but in which, nevertheless, society has many more needs which it wishes to see satisfied through the use of science and tech-nology. nology.

To quote the Chairman of Britain's Science Research Council, Sir Brian Flowers, "It wants better transport, better communications, better hous-ing, better health, more and better food, more electric power; it wants to be defended, it wants more rewarding leisure, it wants more relevant educa-tion; it wants all these things at a reasonable price and in-creasingly it wants them not to intrude in unwelcome ways, not to pollute the environment with noise and filth or poison"

'There would be few people Incre would be few people in the world who do not share these aspirations. But Sir Brian continues, "None of these things is possible without science".

'Unfortunately many people today are becoming disen-chanted with science.

'In an age when so many of In an age when so many of our material comforts are taken for granted, it is all too easy to look at the problems that have sprung, however indirectly, from scientific and tech-nological advances and to over-look the very considerable benefits that these advances have brought have brought.

'But abandoning science and technology will not solve our problems, indeed to abandon science and technology would be to deprive ourselves of the very weapons with which these problems must be fought.

'Of course, science and tech-nology do not hold all the answers.

"Political, economic, sociological and psychological aspects have to be considered as well. But if we are to de-velop the means for predicting and preventing objectionable consequences of technological innovalions, we need more science, not less.

'Science has never been more relevant than it is today in the seventies.'

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New Appointees

Dr A. A. Barker has joined the Commonwealth Meteorology Research centre to study the distribution and variation of climate on the earth. Dr Barker graduated M.Sc. from the Uni-versity of Adelaide in 1964 and Ph.D. from the same university in 1968. Since then he has been et the University of Florida. at the University of Florida.

Miss Mary Lush has been appointed to the Division of Plant Industry where she will study the environmental control of flowering, photosynthesis and translocation of assimilates. Miss Lush graduated B.Agr.Sc. from the University of Mel-bourne in 1970.



Miss LUSH

Dr B. S. Chandler has been appointed to the Division of Animal Genetics to conduct biophysical research on macro-molecules and subcellular par-ticles and to develop new tech-niques in ultra centrifugation. Dr Chandler graduated B.Sc. with honours from the Uni-versity of Adelaide in 1963 and Ph.D. from the same university this year. this year.

Dr J. B. Cole has joined the Division of Applied Physics to study the development of lasers as absolute standards of length. Dr Cole graduated B.Sc. with honours from the University of Oxford in 1967 and recently completed his Ph.D. at the same university.

Mr D. J. Cooper has been appointed to the Division of Computing Research to investi-gate new techniques for using the Division's computing equip-ment and to act as consultant to computer users in the Mel-bourne area. Mr Cooper grad-uated B.Sc. from the University of New South Wales in 1966 and before joining CSIRO was a computer programmer with a computer programmer with the Australian Iron and Steel Corporation.

Mr J. E. R. Dennis has been Mr J. E. K. Dennis has been appointed to the Division of Plant Industry to study the nutrition of grazing animals. Mr Dennis completed his Bachelor of Agricultural Science degree at the University of Melbourne in 1970.

Mr K. W. Fincher has been MI K. W. FINCHER has been appointed to the Division of Protein Chemistry to work on the flammability of fabrics. Mr Fincher, recently completed his Diploma of Textile Chemistry at the Gordon Institute of Technology. Technology.

Dr A. M. Gill has been ap-Dr A. M. Gill has been appointed to the Division of Plant Industry to conduct plant ecological studies on the bio-logical effects of fire in the eucalypt forests of south-eastern Australia. Dr Gill graduated M.Sc. with honours from the University of Mel-bourne in 1964 and Ph.D. from the same university in 1966. Since 1968 Dr Gill has been a plant ecologist with the Fair-child Tropical Garden, Florida. Dr L. F. Le Jambre has

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Mr B. J. McAvaney has joined the Commonwealth Meteorology Research Centre to study the distribution and variation of climate on the earth. Mr McAvaney graduated B.Sc, with honours from the University of Adelaide in 1964 and since then has been study-ing for his Ph.D. at the same university. ing for his university.

Initial and the state of the

Mr P. M. Petrusevics has joined the Rangelands Research Unit to work on the mainten-ance and development of tele-metry equipment and the development of associated transducers. Mr Petrusevics sained his Bachelor of Tech. transducers. Mr Petrusevics gained his Bachelor of Tech-nology degree from the Uni-versity of Adelaide in 1967 and has since been working with the Commonwealth Department of Supply.

Dr A. D. McEwan has been appointed to the Division of Meteorological Physics to conduct and interpret modelling experiments designed to simu-late atmospheric phenomena. Dr McEwan graduated M.Eng.Sc. with honours from M.Eng.Sc. with honours from the University of Melbourne in 1961. After obtaining h is Ph.D. from the University of C am b ridge in 1966, Dr McEwan worked with the Aeronautical Research Labor-atories in Melbourne. More re-cently he has been working at the Division of Meteorological Physics under a Queen Elizabeth II Fellowship.



Dr McEWAN

Mr W. G. C. Raper has been appointed Technical Secretary to the Division of Chemical Engineering, Mr Raper gained his Diploma of Applied Chem-istry at the Royal Melbourne Institute of Technology in 1955 and since 1951 has worked with Monsanto Chemicals (Aust.) Ltd.

Mr D. M. Spratt has joined the Division of Mineral Chem-istry to study the pelletising of iron ores. Mr Spratt graduated B.Sc. with honours from the University of New South Wales in 1970. in 1970.

Mr J. G. Swift has joined the Division of Horticultural Re-search to study the ultra-structure of plant cells by freeze-etching. Mr Swift graduated B.Sc. from Monash University in 1969 and completed his B.Sc. from Monash University in 1969 and completed his M.Sc. at the same university in 1970.

DEADLINE

Contributions to the June issue of Coresearch should reach the Editor at P.O. Box 225, Dick-son, A.C.T. 2602, by Thursday, 12th May 13th May.

Printed by CSIRO, Melbourne

Credit Society Wants Money Now

In recent months the CSIRO Cooperative Credit Society has had an unprecedented demand for loans, to such a level that this has far outstripped the normal inflow of money on deposit.

This has caused a large build-up of loan applications and there is currently a waiting period of approximately six months for approved loans to be paid.

The Board has now decided that for the present it must greatly curb requests for new loans and limit its assistance to those of urgent personal necessity, e.g. hospital and medical expenses or to the few cases where the Board is aware of a special extenuating circumstance.

By and large, loans for housing, motor cars, furnishings, etc., cannot be considered, at least

for some months. If will be kept advised on Staff this position and in the interim should withhold their applications.

The Board is undertaking a re-examination of interest rates applicable to borrowers and depositors and the results of this will be notified in the next issue of Coresearch.

147##1971 RESEARC FOR CIRCULATION AMONG MEMBERS OF CSIRO STAFF – NUMBER 147, MELBOURNE, JUNE 1971



NEW BUILDING RESEARCH CHIEF

Five years ago, Mr I. Langlands farewelled Dr R. W. R. Muncey when he left the Division of Building Research to take up his appointment as Chief of the Division of Forest Products.

Last month Mr Langlands retired and Dr Muncey returned to Building Research as Chief.

Mr Langland's retirement comes at the end of forty-two years with the Organization.

with onours from the University of Melbourne in 1925 and M.Mech.E. from the University of Melbourne in 1925 and M.Mech.E. from the University in 1940. In 1929 and 1930 he studied in Britain and the United States under a CSIR Senior Research Studentship in Forest Products. On returning to Australia, Mr Langlands took up an appoint-ment as Officer-in-Charge of the Timber Mechanics Section of the CSIR Division of Forest Products. He continued in this position until 1944 when he became Officer-in-Charge of the

Quotable Quotes

On science and man

On science and man It is not enough that you should understand a bout applied science in order that your work may increase man's blessings. Concern for the man himself and his fate must always form the chief interest of all technical endeavours, concern for the great unsolved problems of the organization of labour and the distribution of goods—in order that the crea-blessing and not a curse to Mankind. Never forget this in the midst of your diagrams and the midst of your diagrams and equations.

Albert Einstein

On scientists

Without ambition and without vanity no one would enter a profession so contrary to our natural appetites

Charles Nicolle

newly created Building Materials Research Section.

Materials Research Section. In 1950 Mr Langlands was appointed Chief when the Sec-tion became the Division of Building Research. During his career, Mr Lang-lands has been active on a number of professional and academic committees and has represented CSIRO and Aus-tralia at various international conferences. He is a Fellow of the Aus-

He is a Fellow of the Aus-tralian Institute of Building and was President of the Institution of Engineers, Australia, in 1968. Mr Langlands was also the

first honorary secretary and honorary treasurer of the CSIRO Officers' Association in 1943/44.

1943/44. In a tribute to Mr Langlands, the Chairman, Dr J. R. Price, said that Mr Langlands had had a long and distinguished career with CSIRO. He had led the Organization's research for the building industry since its be-ginning as the Building Materials Research Section in 1944. Dr Price said that throughout the years the Divi-sion had, under Mr Langland's leadership, made noteworthy contributions to the efficiency of the Australian building in-dustry. dustry.

Dr R. W. R. Muncey, the new Chief of the Division of Build-ing Research, has also had a long association with CSIRO research for the building industry. industry.

industry. Dr Muncey transferred from the CSIR Lubricants and Bear-ings Section early in 1946 to the Building Research Section where he became Officer-in-Charge of the Architectural Physics Section. He acted as Chief of the Division during Mr Langland's absence out Mr Langland's absence seas in 1961 and 1965. ove

He succeeded the late Dr H. E. Dadswell as Chief of the Division of Forest Products early in 1966.

Dr Muncey graduated B.Eng.Sc. in 1942, B.E.E. with honours in 1943, M.E.Eng. in 1950 and D.App.Sc. in 1969, all from the University of Mel-

1950 and D.App.Sc. in 1969, all from the University of Mel-bourne. Dr Muncey is a member of the Institution of Engineers, Australia, and an Associate of the Institute of Physics. In 1968 he succeeded Mr W. Ives as Chairman of Directors of the CSIRO Co-operative Credit Society. As mentioned in last month's Coresearch, that part of the Division of Forest Products concerned with wood as a structural material has now been integrated with the Divi-sion of Building Research. The remainder of the Divi-sion of Forest Products which carries out research for the pulp and paper industry is now part of the Division of Applied Chemistry.

Above: Mr I. Langlands (left) and Dr R. W. R. Muncey wish each other well for the future.

ECONOMY CUTS

Who will feel these cuts the mostest? We who has the 'mostest' spent So he who would in research lead us

E. R. Watson Poet Laureate W.A. Labs.

News In Brief

Fellows

Three CSIRO scientists have been elected Fellows of the Australian Academy of Science.

They are Dr L. T. Evans of the Division of Plant Industry, Dr A. K. Head of the Division of Tribophysics, and Dr D. E. Weiss, of the Division of Weiss of the I Applied Chemistry.

Olle Prize

Dr D. E. Weiss of the Division of Applied Chemistry has been awarded the Archibald D. Olle Prize of the New South Wales Branch of The Royal Australian Chemical Institute.

Mr E. E. Bond, Director of the Mr E. E. Bond, Director of the Bread Research Institute of Australia and Officer-in-Charge of the CSIRO Wheat Research Unit, has been awarded the Farrer Medal for 1971 for his distinguished service to Aus-tralian agricultural science.

Honorary Associate

Health, has been appointed an honorary associate in the De-partment of Microbiology at Monash University.

Imperial Service

Miss F. E. Franz who retired from Head Office last Decem-ber after 24 years with CSIRO has been awarded the Imperial Service Model

Miss Franz was secretary to Mr M. G. Grace, Secretary (Finance and Supplies), for 15 years and to Mr R. W. Viney,

Finance Manager, for nine vears

Doctorates

Mr M. Kurzeme of the Divi-sion of Applied Geomechanics has been awarded the degree of Doctor of Philosophy by the University of New South Wales for his work on pavement materials materials.

Dr O. B. Slee of the Divi-sion of Radiophysics has been awarded the degree of Doctor of Science by the University of New South Wales for his pub-lished work on radio astronomy astronomy.

Definitions

Statistics: Statistics are like a bikini. What they reveal is suggestive. What they conceal is vital.

Psychoceramics: A study of crackpots.

Termite Film

I ermite Film A recent production of the Film Unit on termites was shown to the Advisory Council during its half-yearly meeting in Canberra last month. The film, entitled 'The Termite Colony — Its Structure and Function', is in colour and runs for thirty-three minutes. It discusses the functions of the variously shaped termite mounds, shows the different termite castes and explains why these insects are able to wreak so much devastation. so much devastation.

Deadline

Copy for the July issue of Co-research should reach the Editor at P.O. Box 225, Dick-son, A.C.T. 2602, by Tuesday, 15th June.

CSIRO Credit Society Raises Interest Rates

The CSIRO Co-operative Credit Society has increased the interest rates payable both on loans and deposits.

The increased rates were effec-tive from 1st June.

The increased rates of interest payable on deposits are as follows:

Lump sums deposited for periods of five years or more will now attract 71% a year interest. The previous rate was 7% a vear.

Lump sums deposited for periods between one and five years previously earning $6\frac{1}{2}$ % a year in interest will now earn 7% a year.

posited by fortnightly deduc-tions from salary and lump sums deposited for less than twelve months will continue to earn interest at the same rate of 6% a year. As a result of these increased payments on deposits, the Society has had to increase its rates on loans from the Society.

Interest rates on amounts de-

The new rate, also effective from 1st June, is 8% a year adjusted quarterly on the un-paid balance. The previous rate was $7\frac{1}{2}$ % a year.

This will mean an increased payment of 13 cents each fort-night on each \$1,000 on loan to the member.

Individual borrowers will be advised of their increased re-payments by the Society.

The increase in loan interest rate is the first since the Society was formed in 1957.

was formed in 1957. The Society feels that the new rate will not place an un-due burden on the borrower and that the scheme is still a very attractive one when com-pared with the rates of interest charged by other lending bodies bodies

Gone our days of gay abandon Gone our days of spending free Dismal gloom descends upon us

Must learn with nought to be content . .

Farrer Medal

Dr E. L. French, Assistant Chief of the Division of Animal

Medal

Service Medal.

New Appointees

Mr C. R. M. Butt has joined the Division of Mineralogy where he will be concerned with where he will be concerned with exploration geochemistry. Mr Butt graduated B.A. with honours in geology and chem-istry from the University of Keele, Britain, in 1967 and re-cently completed work for a Ph.D. degree at the Imperial College. College.

Dr J. H. Hodgkin has joined the Division of Applied Chem-istry to work on polymer syn-thesis. Dr Hodgkin graduated B.Sc. with honours from the University of Western Australia in 1960 and Ph.D. from the Australian National University in 1964. Before joining CSIRO, he worked with the Stanford Research Institute in California.

Dr R. A. Panter has joined the Division of Plant Industry to work on lipid metabolism.



Dr PANTER

Dr Panter graduated B.Sc. with honours from the University of Adelaide in 1965 and Ph.D. from the University of Cali-fornia in 1971.

Dr K. F. Langley has joined the Division of Protein Chem-istry to study the photo-chemistry of dyes. Dr Langley graduated B.Sc. with honours from Queen's University, Bel-fast, in 1967 and was recently awarded his Ph.D. degree by the same university.

Dr R. J. Mayfield has been appointed to the Division of Textile Industry to work on the chemical reactivity of wool in relation to the development of new textile finishing processes and new uses for wool. Dr Mayfield graduated B.Sc. with honours from the University of Adelaide in 1965 and Ph.D. from the same university in 1969. Since then he has been working at the University of Toronto as a Post-Doctoral Fellow of the National Re-search Council of Canada.

Dr W. T. Riley has been appointed to the Division of Animal Health to study the appointed to the Division of Animal Health to study the DNA sequence and virulence of viruses. Dr Riley graduated B.A. with honours from the University of Oxford in 1958 and has continued working there in the William Dunn School of Pathology since ob-taining his Ph.D. in 1962.

taining his Ph.D. In 1962. Dr A. Shneyour has been appointed to the Division of Food Research to study the properties of membrane pro-teins from the chloroplasts and mitochondria of chill-sensitive plants. Dr Shneyour graduated M.Sc. with honours from the University of Tel-Aviv in 1965 and recently completed his Ph.D. at the Weizman Institute of Science in Israel. From 1964 to 1967, Dr Shneyour lectured in microbiology at the Uni-versity of Tel-Aviv.



'Good morning, fellow ecologists.'

Death of Mr Gottstein

Mr J. W. Gottstein of the Divi-sion of Forest Products was killed in a timber felling acci-



Mr GOTTSTEIN

dent while at work in Ne Guinea on 25th March, 1971.

SAFETY NOTES

Sweet and Sour

So many of today's drugs closely resembled 'lollies' that it was imperative to keep them securely locked away, the A.C.T. Medical Officer of Health, Dr Michael Ryan, warned recently.

Tragedies or near-tragedies resulting from children obtain-ing such drugs were common, Dr Ryan said.

Drug companies made the drugs look — and taste — attractive and children could not distinguish them from a normal 'lolly'.

More drugs were used today than at any time in history. But it was not only precautions with drugs that was of very real concern.

This concern. This concern also extended to ensuring that safety pre-cautions were taken with normal household preparations. 'Any average household would probably have around enough preparations for the house and garden to kill a community, Dr Ryan said. At least 20 per cent of the children taken to hospitals having taken drugs or poisonous compounds were just at the 'fossicking-around age', he said. The majority of drug tragedies involving children usually involved pain-relieving drugs, aspirins, sedatives, tran-quillisers and anti-depresants. Bleaches, cleaners, disinfectants, detergents, pesticides and kerosene solvents were also dangerous. 'I urge parents to take the utmost precautions to ensure

'I urge parents to take the utmost precautions to ensure that these are always securely kept out of the reach of children, Dr Ryan said.

It is just as important to ensure that once the treatment is finished the drugs are not left around the house. Parents should make sure the containers are destroyed.

J. W. Hallam, Safety Officer.

Mr Gottstein began his career at the age of 17 with the Queensland Forest Service as a cadet wood technologist.

He joined the Division of Forest Products in 1945, start-ing as second-in-charge of the Seasoning Section.

In 1954, he was appointed section leader of Veneer and Gluing and in 1967 of Timber Conversion, a new section formed by the amalgamation of seasoning, utilization and plywood.

He was well known within the Australian timber industry and achieved an international reputation in his field. In recent years his services were increas-ingly sought by international agencies such as F.A.O.

RETIREMENT

Mr R. F. Turnbull retired on 10th May after thirty-nine years with CSIRO.



Mr TURNBULL

A graduate in engineering from the University of Western Australia, Mr Turnbull studied timber utilization research in forest products laboratories in Britain and the United States for two years under a CSIR studentship.

He joined the Division of Forest Products in 1932 and subsequently became Officer-in-Charge of its Utilization Section.

Since 1966, Mr Turnbull has e e n t h e Chief Scientific Scientific Liaison Officer in London.

Printed by CSIRO, Melbourne

CSIRO LOVER BOI

Courtesy 'Saturday Review'.

CSIRO has now become enshrined in the folksongs of the Buin people of Bougainville. The following poem, entitled 'My Lover Works for the CSIRO — A Modern Guitar Song, was published, along with several other poems col-lected by D. Laycock of the Australian National University, in Kovave, a Journal of New Guinea Literature, Volume 1, Number 1 (1969).

Number 1 (1969). The song dates from 1964 when a CSIRO zoological survey and collecting party led by Dr R. Schodde, then with the Division of Land Research and now Curator of Collec-tions with the Division of Wildlife Research, operated and employed local 'shoot bois' in the Buin area of Bougainville. The shooters personify 'lover boi' of the poem. CSIRO lover boi's fear of being fired was of course unfounded.

'Now leave off, my father is angry; he beats me, because you come and make me tired.

O man, what kind of thing are you, that makes me laugh so much?

O, they will see us, and your master will fire you!

- 'O woman, if they fire me I shall be happy, for one day the flood will come and drown me as I hunt the sandpiper that hides by the water's edge.'



This month we introduce Margaret Canny, a key member of that dedicated band who without fail bring you your favourite monthly publication — Coresoarch. Thanks to her unCanny skill in tiping and prufe reading, we are able to keep the number of our printing misteaks to an absolute minimum.



PEOPLE IN THE NEWS The Section's research pro-gramme will include work on borchole logging, geophysical techniques and rock physics.

Dr McCracken was ap-pointed as leader of the Section in June 1970. He graduated B.Sc. with honours in 1956 and Ph.D. in 1959 from the Uni-versity of Adelaide and in 1971 was awarded the degree of Doctor of Science by the same university.

After two years as a post-doctoral fellow at the Massa-chusetts Institute of Technology he became an Assistant Profes-sor in the Institute's Depart-ment of Physics.

From 1962 to 1966 he was Professor of Space Sciences at the South-West Centre for Ad-vanced Studies, Dallas, Texas, and from 1966 to 1969 Profes-sor of Physics at the University of Adoleside

He then went to the Physical Research Laboratory, Ahmeda-bad, India, as a visiting profes-sor and as adviser to the Indian Atomic Energy Commission.

Dr McCracken was awarded the Pawsey Medal of the Aus-tralian Academy of Science in 1969 for his work on X-ray astronomy.

Mr D. R. S. Craik, Treasury representative at Executive meetings, has been created an Officer of the Order of the British Empire.

Mr E. E. Bond, Director of the Bread Research Institute and Officer-in-Charge of the Wheat Research Unit, has been created a Member of the Order

Mr L. B. Graham of the Regional Administrative Office, Melbourne, has been awarded the British Empire Medal.

of the British Empire.

Queen's Birthday

university.

of Adelaide.

Honours

Officer-in-Charge

The Mineral Physics Section under **Dr K. G. McCracken** be-came an independent Section of CSIRO within the Mineral Research Laboratories this month



Dr McCRACKEN

The Section, which will be the fourth unit in the Mineral Research Laboratories, will be concerned with the application of physics to the problems of of physics to the problems of mineral exploration.

Cloud Physics

GIULLI FILYSIGS The former Cloud and Rain Physics Section of the Division of Radiophysics has become the Cloud Physics Section of Physics but will continue to be housed in its existing accom-modation at Epping. The new Section will be re-sponsible to the Chief of the Division of Meteorological Physics, Dr C. H. B. Priestley, through an Assistant Chief. Mr J. Warner, the present leader of the Cloud Physics Section, has been designated Acting Assistant Chief of the Division of Meteorological Physics.

Physics.

Assistant Chief

Dr D. E. Weiss has been desig-nated Assistant Chief of the Division of Applied Chemistry

Emeritus Professor

The New castle University Council has conferred the title of Emeritus Professor on the Executive Officer, Dr. J. A. Allen, Dr Allen was Deputy Vice-Chancellor of Newcastle University before he joined CSIRO in May this year.

Professor

Dr J. R. McWilliam of the Division of Plant Industry has been appointed Professor of Agronomy at the University of New England. Dr McWilliam expects to take up his appoint-ment in September.

Triumvirate

The election of Mr J. F. Kef-ford, Assistant Chief of the Division of Food Research, as President of the Australian In-stitute of Food Science and Technology for 1971-73 now brings the number of Presidents in the Division to three.

in the Division to three. The Chief of the Division, Mr M. V. Tracey, is currently President of the Australian Bio-chemical Society, while Dr J. H. B. Christian, Associate Chief, is President of the Aus-tralian Society for Micro-biology biology.

Masters

Mr V. R. Burgess of the Divi-sion of Physics and Mr T. F. Ghaly of the Division of Mech-anical Engineering have been awarded M.Sc. degrees by the University of New South Wales.

Mr P. Hyson of the Divi-sion of Meteorological Physics has been awarded the degree of Master of Philosophy by the University of London for his work in Space Physics.



Mr J. F. H. Wright, President of the National Standards Laboratory's Community Aid Abroad Group, hands a cheque for \$200 to Mr Adrian Harris of the Sydney Office of CAA. The NSL's Community Aid Abroad group was formed in March this year and has nearly 70 members. It aims to raise \$400 a year. This year the money is to be used for an engine room for an irrigation scheme in an Indian village and for a family planning project also in India. planning project also in India.

Overseas

Overseas Mr D. G. James of the Divi-sion of Food Research left Australia last month for Copen-hagen where he will work for a year in the Ministry of Fisheries Technological Laboratory-in the Technical-University at Lyngby. Mr James was invited by the Danish Government to assist in the preparation and teaching of an FAO Training Course in Quality Aspects of the Handling and Storage of Fish. Mr K. Myers of the Division of Wildlife Research has been ap-pointed Professor of Zoology, College of Biological Sciences, University of Guelph, Ontario, Canada.

Mr Myers, who is leader of the Division's rabbit biology research group, has been granted leave of absence from CSIRO to take up the three-year appointment. He will be leaving Australia in mid-July.

Mr Myers proposes to de-velop the University's ecology programme during his tenure and his own personal research will include studies of the snowshoe hare and other cycling species.

Retirement

Dr A. Howard of the Division of Food Research's Meat Re-search Laboratory at Cannon Hill, Brisbane, retired recently after almost forty years with CSURO. CSIRO

Dr Howard graduated B.Sc. in chemistry in 1926 and M.Sc. in 1928 from the University of Melbourne. In 1929 he accom-panied Sir Douglas Mawson to the Antarctic as a hydrologist with the British Australian New Zealand Antarctic Research Ex-redition pedition.

pedition. He joined CSIRO on his re-turn to Australia in 1931, work-ing first at the I r r i g a t j on Research Laboratory at Griffith. During the war he transferred to the Division of Food Preser-vation and Transport to work on the preservation of meat and vegetables by dehydration.

Later he moved to Brisbane where his work on the complex interrelation of chemistry and psychology in interpreting flavour differences led to the award of a Ph.D. degree in osychology in 1968.

Insights

A booklet 'The Four Prisons of Man and other Insights' by Dr W. T. Williams of the Division of Tropical Pastures has been published by the A.B.C.

The booklet is based on talks given by Dr Williams on the A.B.C.'s Sunday morning radio programme 'Insight' and is available from The Cashier, A.B.C., Box 487 G.P.O., Syd-ney 2001, for 60 cents plus 6 cents nostage

Copies may also be pur-chased at A.B.C. Offices in all capital cities and government bookshops in Sydney, Canberra and Melbourne.

CREDIT SOCIETY Money Still Wanted

Already there has been a favourable response to the in-creased rates which are now being paid for money deposited with the CSIRO Co-operative Credit Society, and the Direc-tors are again receiving appli-cations for loans.

tors are again receiving appli-cations for loans. Moreover, the previously announced limit of \$4000 will look of the second second second many people as possible, prefer-ence and priority treatment will be accorded to the smaller short-term loans of up to \$4000. This implies that although applications for larger long-term loans will be acceptable, considerable delays in their payment may be expected. Interest at the rate of 7% per annum is now paid for money deposited for periods of 12 months or more and 74% for periods of 5 years or more. The rate is 6% for money de-posited for less than 12 months and also for moneys deducted from salary and placed on de-posit of the secting. New forms setting out these interest rates and other condi-

posit with the Society. New forms setting out these interest rates and other condi-tions of investment are obtain-able from the Manager of the Society at 314 Albert Street, East Melbourne, or from your Divisional Administrative Officer Officer.



Dr A. E. Pierce (right), Chief of the Division of Animal Health, explains the intricacies of a model depicting molecules interacting in allergic reactions (such as hay fever) to the Chairman, Dr J. R. Price, and the Minister for Education and Science, Mr D. E. Fairbairn, during their recent visit to the Division of Animal Health.

a larger automated version of the model is to be installed in Churchill House, Canberra. It as designed by Dr S. H. Hogarth Scott of the Division and former CSIRO designer Mr Robert Ingpen.

Beating Pollution

Disposal of animal wastes at CSIRO's Long Pocket Laboratories at Indooroopilly, Brisbane, presents quite a problem.

Some 300 cattle, together with a number of other animals such sheep, rabbits and mice are maintained in animal pens and concrete yards on the laboratory site.

Each day these animals pro-duce 4 to 5 tons of solid waste and this must be washed down with 20 to 30,000 gallons of water.

To cope with this effluent, officers from the Common-wealth Department of Works and the Long Pocket Labora-tories designed a \$30,000 treat-ment plant which was completed in September 1970.

After various initial difficulties had been overcome, the plant has been operating con-tinuously since early this year.

Effluent from the animal pens is passed through a system of screens and rollers which separate the large solids from the liquids. These solids are the liquids. These solids are removed by truck by the Bris-bane City Council twice a week.

The liquids flow into oxida-The liquids flow into oxida-tion channels where air is incorporated by means of a rotor revolving at 100 revs per min. The rotor operates con-tinuously day and night and the digestible materials are broken down by aerobic bacteria so that the system is virtually odour free. odour free.

When fresh liquids are intro-uced into the oxidation d u c e d into the oxidation channels a corresponding quan-tity of liquid flows over a weir into a conical sedimentation tank via a stilling chamber which allows solids to settle and virtually clear fluid to pass into a reservoir. At present. treated

At present, treated water from the reservoir is discharged into the Brisbane River; how-ever, it is hoped eventually to use this water for irrigating the lawns and other areas surround-ing the laboratories.

Sludge which settles at the bottom of the sedimentation tank is continually pumped via a sludge return pipe to an oxi-dation tank, and acts as an activated sludge system.

SAFETY NOTES

It can grow on you

In England, the use in factories of certain strong chemical carcinogens is either banned or strictly controlled. However, in laboratories, chemists are often unaware of the potent carcinogens they are using.

Some of the more potent chemicals, frequently used in laboratories, are alpha-naphthylamine, beta-naphthylamine, benzidine, o-tolidine, and o-dianisidine.

The risk of a tumour developing is, in general, propor-tional to the length and frequency of exposure and the concentration of the chemical. Exposure can occur from inhalation of the dust and

Exposure can occur from inhalation of the dust and vapour, absorption through the skin, ingestion from con-taminated hands, absorption from contaminated clothing, or contact with contaminated benches, floors and apparatus. Wherever possible, other non-carcinogenic chemicals should be used, and young people should not be asked to use the carcinogenic substances. CSIRO laboratories handling these aromatic amines or similar chemicals can obtain more detailed information

from me.

J. W. Hallam, Safety Officer.

Anno manana mana a sa sa sa sa sa sa sa s



EXPEDITION

Dr K. E. Lee of the Division of Soils has been appointed leader of a scientific expedi-tion which will investigate the vegetation, soils and fauna of major islands in the New Wabridge aroun major islands Hebrides group.

The main party will consist of ten scientists from Britain, France, Australia and New Zealand; another nine will par-ticipate for shorter periods.

The expedition is being mounted by the Royal Society and the Percy Sladen Trust, with financial support from a number of government bodies and private organisations from four countries four countries.

Known as the Royal Society and Percy Sladen Expedition to the New Hebrides 1971, the ex-pedition will operate from the beginning of July until late in October.

Dr Lee was a member of the Royal Society Expedition to the Solomon Islands in 1965.

The expedition's research programme will concentrate mainly on selected areas of the islands of Efate, Erromanga, Malekula and Espiritu Santo.

In particular, the expedition will investigate the ecology of the kauri forests on Erromanga and the ecological conse-quences of timber milling.

The kauri pine on Erromanga is unique to the New Hebrides although it is related to the kauris of Queensland, New Zealand, Fiji and the Solomon Islands

The flora and fauna of the New Hebrides are not well known and the expedition aims to bridge a gap in knowledge of the biogeographical relation-ships between the flora and fauna of the Solomon Islands, Fiji and New Caledonia and their affinities with those of Australia and New Zealand.

DEADLINE

Copy for the August issue of Coresearch should reach the Editor at P.O. Box 225, Dick-son, A.C.T. 2602, by Wednes-day, 14th July.



this is not a Bacchanalian rite and Cheryl Rowntree and Susan Briggs are not two young sybaritic acolytes laying their votive offerings on a pagan altar. Adelaide residents will be relieved to learn that they are in fact merely placing fruiting grape vines into a growth cabinet at the Glen Osmond laboratory of the Division of Horticultural Research.

New Appointees

Miss Anne Fisher has been appointed to the Meat Research Laboratory of the Division of Food Research to work on the taste evaluation of meat and meat products and the relation-ship of this evaluation with various objective assessments of meat quality. Miss Teisher graduated B.Sc. from the Uni-versity of London in 1965 and before joining CSIRO worked in the Department of Medicine at the University of Queens-land. Miss Anne Fisher has been land.

Mr G. K. Hansen has joined Mr G. K. Hansen has joined the Division of Land Research where he will work on the measurement of responses to the transport of water in the soil/ plant system. Mr Hansen has worked at the Royal Veterinary and Agricultural University, Copenhagen, since his graduat-ing B.S.C.Ag, there in 1965. He obtained his Licentiate in agri-cultural science in 1969. Dr G. L. Jackson has joined

Dr G. L. Jackson has joined the staff of the Central Library to assist in the development and programming of a computer based information retrieval sysbased information retrieval sys-tem and current awareness ser-vice. Dr Jackson graduated B.Sc. with honours in 1967 and Ph.D. in 1969 from the Uni-versity of New South Wales. Since then he has been a Senior Teaching Fellow in Monash University's Department of Chemistry Chemistry.

University's Department of Chemistry. Dr G. J. Nelson has joined the Division of Physics as Resi-dent Astronomer at the Solar Observatory at Culgoora, New South Wales. Dr Nelson grad-uated B.Sc. in 1962, B.E. in 1964 and Ph.D. in 1968 from the University of Sydney. Until recently, Dr Nelson was Head of the Ionosphere Research Group of the Arecibo Observa-tory in Puerto Rico. Mr J. B. Shineberg has re-joined the Division of Plant Industry where he will work in the field of molecular genetics. Mr Shineberg graduated B.A. with honours in biology from the University of Sydney in 1950 and Diploma of Educa-tion from the University of Melbourne in 1955. He re-cently submitted his Ph.D. thesis to the A ust ra 1 i an National University, Mr Shine-berg worked with the Division of Plant Industry previously from 1966 to 1968.

Dr M. W. Silvey has joined the Division of Tropical Pas-tures for quantilative studies of the pasture-animal interactions in beef production. Dr Silvey graduated B.Sc. from the Uni-versity of London in 1963, Diploma of Tropical Agricul-ture from the University of the West Indies in 1964, and Ph.D. from the University of Florida in 1970. Between 1964 and 1967, Dr Silvey worked as a Research Agronomist in British Honduras. Honduras.

INFORMATION ENQUIRY

A Committee of Enquiry, known as the Scientific and Technological Information Services Enquiry Committee, has been set up under the sponsor-ship of the National Library to examine Australia's informa-tion needs in the fields of science and technology.

Members of the Committee have been chosen from in-dustry, universities, CSIRO, government departments and libraries.

They include **Mr V. D. Burg-mann** of the Executive and **Dr K. L. Sutherland**, Director of Research a n d Development, Colonial Sugar Refining Co., and a part-time member of the Executive.

Mr G. R. Williams, Assistant Secretary (Communications Ser-vices), has been appointed as a member of the four-man work-ing secretariat which will pro-vide the necessary support for the Committee.

the Committee. The Committee will examine the needs of individuals and organisations for scientific and technical information with a view to bringing forward pro-posals which will assist in the formulation of a national policy in this important area. It will assess the adequacy and availability of existing re-sources and the access to them. It will also study the use of computer-based information re-trieval systems drawing upon

trieval systems drawing upon overseas experience with such systems

19%) R F S F A FOR CIRCULATION AMONG MEMBERS OF CSIRO STAFF NUMBER 149, AUGUST 1971

149##1971

APPOINTMENTS SENIOR Dr L. T. Evans has been appointed Chief of the Division of Plant Industry.

He fills the vacancy caused by the death of Dr J. E. Falk last year.

Dr Evans has been Chairman of the Plant Physiology Section of the Division and also Officer - in - Charge of the Controlled Environment Research Laboratory (CERES), in Canberra.

He was recently elected Fellow of the Australian Academy of Science and is President of the Australian Society of Plant Physiologists. Dr Evans has an international reputation as an authority on environmental control of plant growth, development and yield. His main research interest has been the role of day length in the initiation and control of flowering in grasses and legumes legumes.

Dr Evans graduated from the University of New Zealand as B.Agr.Sc. (1948), B.Sc. (1949) and M.Agr.Sc. (1950).

Woodlands Ecology

A Woodlands Ecology Unit has been established as a first step in an expansion of research in this area by CSIRO. The nucleus of the new Unit, which will be attached to the Division of Land Research, is the former Woodland Ecology Section of the Division of Tropical Pastures.

Dr R. M. Moore, who was in charge of the section, will be leader of the Unit.

Dr Moore and his research group in Queensland have been working on the invasion of grazing lands by trees and shrubs for a number of years.

In particular, they have been studying the regrowth of woody to pasture in tropical and sub-tropical Queensland.

The work in Queensland will ontinue but some of the staff ill be located ultimately in Canberra.

In addition the Unit will commence plant ecological studies, in particular, woodland areas subject to damage from various forms of land use.

The new research will include long-term studies of vegetation communities in Army areas around Australia where long-term conservation management is an important consideration.

This work will be supported by resources made available by the Department of the Army.

the Department of the Army. Because of their wide climatic range, diversity of vegetation and the degree of control that can be applied, these areas are considered very favourable for research into conservation, regeneration and management management.

The move provides an opportunity for ecologists to study both the disturbed and undis-turbed facets of a wide range of Australian woodlands.

The work of the Woodland Ecology Unit will complement Ecology Unit will complement other plant ecological research carried out by the Divisions of Plant Industry, Land Research, Tropical Pastures and the Rangelands Research Unit. A Rhodes Scholar, he was awarded the D.Phil. degree from the University of Oxford in 1954.

He worked for the next two years as a Harkness Fellow under Professor Frits Went at the California Institute of Technology in the world's first phytotron, the Earheart Plant Research Laboratory.



Dr EVANS

After coming to Australia to join the Division of Plant In-dustry in 1956 he became heavily involved in the design and construction of CSIRO's phytotron, 'CERES'.

MINERAL CHEMISTRY

Dr D. F. A. Koch has been appointed Chief of the Division of Mineral Chemistry. Dr Koch has been Acting Chief of the Division since the appointment of Mr I. E. Newnham, the previous Chief, as Director of the Minerals Research Laboratories last January.

Dr Koch graduated B.Sc. in 1947, M.Sc. in 1953 and Ph.D. in 1958 all from the University of Western Australia.

He joined the Division of In-dustrial Chemistry in 1948 where he worked on the thermal decomposition of alunite with the object of ex-tracting aluminium and potassium.



In 1954 he transferred to what was later to become the Division of Mineral Chemistry where his work was mainly in the field of electrochemistry.

This included the develop-ment of fuel cells for use as a power source in such things as microwave repeater stations in remote areas

Dr Koch was made Assistant Chief of the Division of Mineral Chemistry in March 1969.

He is a Fellow of the Royal Australian Chemical Institute, and was Chairman of the In-stitute's Electrochemistry Divi-sion from 1966 to 1969 and a member of the Institute's Vic-torian Branch Committee from 1966 to 1968 1966 to 1968.

Dr Koch has represented CSIRO at international con-ferences on electrochemistry both in Australia and overseas in recent years.

DAIRY RESEARCH

Dr B. S. Harrap has been ap-pointed Officer-in-Charge of the Dairy Research Laboratory of the CSIRO Division of Food Research.

Dr Harrap, who will also be an Assistant Chief of that Divi-sion, is at present Leader of the Leather Research Section of the Division of Protein Chemistry.

Division of Protein Chemistry. The Dairy Research Labora-tory at Highett, Melbourne, was formerly the Division of Dairy Research. However, fol-lowing the retirement of Mr G. Loftus-Hills as Chief of the Division earlier this year, the Executive decided that the Division should become one of a group of CSIRO laboratories together constituting a single Division of Food Research.

After graduating B.Sc. from the University of Melbourne in 1945 and Ph.D. from the same university in 1949, Dr Harrap joined the Division of Indus-trial Chemistry to work on the adsorption of liquids by activated carbon.



Dr HARRAP

In 1950 he was awarded a In 1950 he was awarded a Z in c Corporation Research Scholarship and went to Britain where he gained a further Ph.D. at the University of Cambridge for his work on interactions between detergents and proteins.

He returned to CSIRO in 1952 and spent the next 14 years with the Division of Protein Chemistry studying the struc-ture of soluble wool proteins and working on a method of dyeing wool at low tempera-tures using formic acid as a dye solvent. solvent.

During this period he spent 12 months at Harvard Uni-versity carrying out research on muscle protein.

In 1966 Dr Harrap was ap-pointed Leader of the Division of Protein Chemistry's Leather Research Section.

News In Brief

Leighton Address

Dr A. L. G. Rees, Chief of the Division of Chemical Physics, will deliver the Leighton Mem-orial Address at the Alexander Theatre, Monash University, on Tuesday, 17th August, at 8.00 p.m.

The title of his address will be 'International Co-operation in Science — Its Contribution to Industry and the Community'.

Memorial Lecture

Professor J. Golson, Professor of Prehistor Research, School of Pracific Studies, Australian National University, will de-liver the Fifth David Rivett Memorial Lecture in Canberra next mouth

Memorial Lecture in Canberra next month. The lecture will be given in the Canberra Theatre on the evening of 8th September and will be on 'The Remarkable History of Indo-Pacific Man: Missing Chapters from Every World Prehistory'.

International Commission

Dr J. H. B. Christian, Asso-ciate Chief of the Division of Food Research, has been elected to the International Commission of Microbiological Specifications for Foods. The Commission, which has twenty-two members, is con-cerned with the microbiological quality of foods in international trade.

ENVIRONMENTAL PHYSICS

A new research group known as the Environmental Physics Research Laboratories has been established to unify all CSIRO r e s e a r c h concerned with physical processes controlling weather (both global and tocal), with the experimental modifica-tion of weather such as rain-making, and with the inter-action of plants with their surroundings.

The Laboratories will incorporate the Division of Atmos-pheric Physics based at Aspen-dale, Victoria, and the Division of Environmental Mechanics, Canberra.

The Division of Atmospheric The Division of Atmospheric Physics includes the former Division of Meteorological Physics and the Cloud Physics Group at Epping, New South Wales Wales

It also shares with the Bureau of Meleorology joint responsi-bility for the Commonwealth Meteorology Research Centre in Melbourne.

The Division of Environ-mental Mechanics was the former F. C. Pye Field En-vironment Laboratory group of the Division of Plant Industry, Canberra.

Canberra. Dr C. H. B. Priestley, Chief of the Division of Meteoro-logical Physics, will be Chair-man of the Environmental Physics Research Laboratories, and will act as Chief of the Division of Atmospheric Physics until a new Chief is annointed. appointed.

The Chief of the Division of Industry in charge of the Division of Environmental Mechanics is Dr J. R. Philip, former Assistant Chief of the Division of Plant Industry in charge of the F. C. Pye Field Environment Labora-

University

Appointment

Dr E. W. Radoslovich of the Division of Soils has been elected to the Standing Com-mittee of the Senate of the University of Adelaide.

Fellows

I'ellows Five members of the staff of the Division of Food Research were recently elected Fellows of the Australian Institute of Food Science and Technology. They are: Mr D. J. Casimir, Mr E. G. Davis, Miss Barbarn Keogh, Mr D. McG. McBean, and Dr K. E. Murray. Mr J. S. Armstrong of the Division of Computing Re-search has been elected a Fellow of the Australian Com-puter Society.

Lieutenant Colonel

Mr C. B. Wells of the Division of Soils has been appointed with the rank of Lieutenant Colonel in the Royal Australian Armoured Corps to command the C.M.F. Cavalry Regiment in South Australia.

Apprenticeship Awards

Awards Mr R. Mills and Mr P. Francis of the Division of Chemical Physics have won high Crafts-manship Awards from the Apprenticeship Commission of Victoria. Mr Mills was awarded a bronze medallion for a com-plete microscope objective with optical and mechanical tooling, and for an 8" optical flat. Mr Francis was awarded an Honourable Mention Certificate for a set of glass test plates, including a complete sphere. CSIBO Pault

CSIRO Balls

The CSIRO Ball in Melbourne will be held on 9th September at the Royal Ballroom. Tickets costing \$10 a couple are avail-able now from the Ball Com-

able now from the Ball Com-mittee. The Cauberra CSIRO Club has planned its 'Fireside Ball' for Saturday, 11th September. It will be held at the ANU Staff Centre, and tickets are available now from CSIRO Club representatives at a cost of \$10 per couple.

Good Year for Credit Union

Membership of the Labora-tories Credit Union Co-opera-tive Limited increased by 119 to a total of 1121 in the finan-cial year ending 30th June, 1971.

Total deposits now amount to more than half a million dollars and a record amount has been granted in loans.

granted in loans. The Union, which lends up to \$5000 to its members, reports that very few borrowers have to wait longer than four weeks for a loan.

to wait longer than four weeks for a loan. There is no fixed term for deposits with the Union and these deposits can be made by deduction from salary. Refunds are generally arranged with little delay. The Seventeenth Annual Meeting of the Union will be held on Wednesday, 22nd September, at the National Standards Laboratory at 5.30 p.m. The meeting will be fol-lowed by a film and refresh-ments.

lowed by a ments. Further information can be obtained from Mrs J. Ryan at the Regional Administrative Office in Sydney.

New Appointees

Mr J. F. Burdett has joined the staff of Head Office to assist with the administrative work of the Agricultural and Biological Sciences Branch with particular reference to fisheries and oceanography. Mr Burdett graduated B.Agr.Sc. from the University of Melbourne in 1959 and M.Ag.Sc. from the



Mr BURDETT

University of Adelaide in 1963 University of Adelaide in 1963. Before joining CSIRO, Mr Bur-dett worked with the Common-wealth Department of Primary Industry and more recently with the Conservation Secretariat of the Commonwealth Department of Deburging and Department of Education and Science.

Mr L. G. Alexander has joined the Division of Applied Geomechanics to evaluate exist-

ing techniques and develop im-proved or new techniques for the determination of stress and strain in rock masses in relastrain in rock masses in rela-tion to surface and subsurface constructions. Mr Alexander graduated B.Sc. in 1936 and M.Sc. in 1938 from the Uni-versity of Melbourne. Since 1953, Mr Alexander has been working with the Snowy Moun-tains Hydroelectric Authority.

working with the Snowy Moun-tains Hydroelectric Authority. Dr B. J. Austin has been ap-pointed to the Division of Computing Research for work on computer systems develop-ment with particular reference to the utilization of large machines in association with small remote computers. Dr Austin graduated M.Sc. from the University of Otago in 1960 and Ph.D. from the University of Cambridge in 1964. Follow-ing this, Dr Austin worked with the CSIRO Division of Com-puting Research for four years. During the past three years he has been with the General Electric Company, New York. Mr.D. Frazer has joined the

Electric Company, New York. Mr D. Frazer has joined the Division of Computing Re-search to act as a consultant in computing for research workers in other disciplines. Mr Frazer has worked at the University of Sydney as a Research Assistant and Teaching Fellow since graduating B.Eng.(Mech.) there in 1962. He is currently com-pleting work for a Ph.D. degree from the same university.



Injecting nitrogen-fixing bacteria from legume nodules into rabbits' ears is not exactly a common occupation, but then Cheryl Jager of the Division of Tropical Pastures is no ordinary kind of girl. Cheryl was recently presented with a Duke of Edinburgh Silver Award by the Governor of Queensland, Sir Alan Mansfield. The Award is designed to foster a spirit of adventure and community service in youth.

Mrs Judy Hawkes has been appointed to the Division of Radiophysics to write scientific computer programs for use on the CSIRO computer network. Following her graduation with a B.A. in mathematics from Susquehanna University, U.S.A., in 1964, Mrs Hawkes worked as a scientific pro-grammer at the Massachusetts Institute of Technology. Mrs Caroline Holpen has

Institute of Technology. Mrs Caroline Hohnen has been appointed to the Division of Horticultural Research to work in cytology. Since grad-uating B.Sc. with honours from the Australian National Uni-versity in 1969, Mrs Hohnen has been undertaking post-graduate studies at Flinders University, South Australia.

Mr I. D. Palmer has joined the Division of Radiophysics where he will undertake re-search in solar radio astronomy. Since graduating B.Sc. with honours at the University of Adelaide in 1965, Mr Palmer has been working towards his Ph.D. degree at the same uni-versity. versity.

versity. Dr M. Philpott has joined the Division of Animal Health to investigate the causes of lowered reproductive efficiency of cattle in northern Australia with particular emphasis on the role of infectious agents. Dr Philpott graduated M.A., Vet. M.B., from the University of Cambridge in 1959, Diploma of Tropical Veterinary Medi-

Compressed Gases

SAFETY

cine from the University of Edinburgh in 1965, and Ph.D. from the University of Bristol in 1968. Since January 1969, Dr Philpott has been a Veterin-ary Research Officer with the Ministry of Agriculture in Kenva. ary Resea Ministry Kenya

Mr D. Ratcliff has been appointed to the Division of Mathematical Statistics to carry out research on the theory of statistical distributions. Since graduating B.Sc. with honours from the University of Ade-laide in 1967, Mr Ratcliff has been working towards his Ph.D. at Flinders University under a CSIRO Postgraduate Student-shin out research on the theory of ship.

NOTES



Miss Flo Forrest, pictured above at her switchboard at the National Standards Laboratory in Sydney, retired last month after twenty-seven years with CSIRO.



DEADLINE

Contributions to the September issue of Coresearch should reach the Editor at P.O. Box 225, Dickson, A.C.T. 2602, by Friday, 13th August.

Considering the manner in which compressed gases are used and handled in some laboratories, it is surprising that there are not more serious accidents.

Surprising that there are not more serious accidents. In one of our laboratories, a gas cylinder broke loose from its cradle and shot down a flight of stairs. Fortunately, no one was using the stairs at the time.
In another Division, a cylinder fell off a truck, the bronze valve snapped at the neck of the cylinder, and the contents discharged unrestrictedly into the atmosphere — there was no way of stopping it. Fortunately, the cylinder contained acetylene, which discharges slowly, but had it been compressed air, the cylinder would have taken off like a rocket. In the laboratory, observe the following precautions:
Never connect a gas cylinder directly to glass apparatus;

- ressed air, the cylinder would have taken off like a rocket. In the laboratory, observe the following precautions: Never connect a gas cylinder directly to glass apparatus; always use a safety bottle or valve. Always use the correct gas regulators or fittings. Always open a cylinder slowly and release a little gas before connecting to the apparatus. Support cylinders in trolleys or stands or strap them securely to the bench. Remember, if a cylinder is knocked over, it will probably pull over the equipment to which it is connected. If a rapid gas stream is used, earth the cylinder against static electricity. Do not assume that a cylinder is empty because no more gas comes out of it. With gases such as sulphur dioxide, ammonia and carbon dioxide, ice formation can seal the outlet and release more gas later. Valves on these cylinders can also ice-up and prevent proper closing. Always turn the gas off at the cylinder valve, not the regulator valve. In the workshop, compressed air is sometimes used to remove metal chips and so on from machinery. Make sure you do not blow these chips at someone else. Watch your eyes!

- sure you do not blow these sure your eyes! Never direct a stream of compressed gas at any part of the body. It can be forced through the skin and produce 'deep-sea divers' bends', an excrutiatingly painful condi-tion which can lead to death.

Compressed gases are safe to use if handled properly. Take care and think. J. W. Hallam, Safety Officer.

Printed by CSIRO, Melbourne

150##1971

RESEARC FOR CIRCULATION AMONG MEMBERS OF CSIRO STAFF NUMBER 150, SEPTEMBER 1971

Budget Passes \$70,000,000 CSIRO's

Under CSIRO control:

Total under direct control of CSIRO

Under Department of the Interior control:

CSIRO will have a total budget for 1971-72 of \$70,910,700 for capital and non-capital expenditure of which \$57,267,600 will be provided directly by the Government, \$10,586,347 by Agricultural Industry Committees and \$3,056,753 by various other contributors.

Treasury Funds

Of the amount of \$57,267,600 Or the amount of \$57,267,000 provided by Treasury appro-priation, \$51,500,000 is for salaries and general running expensitive and \$620,000 for repairs to buildings.

The allocation for salaries and running expenses represents an increase of \$5,902,889 over the actual expenditure for 1970-71. This will cater for the follow-ing requirements:

- Increments, reclassifications, provision for an extra pay-day (27th) and salary adjustments arising from Arbitration Determinations will absorb \$4.614.000 \$4.614.000.
- The planned development of projects initiated in earlier years with Ministerial sup-port will absorb \$176,000. The most important activities in this category are mineral exploration, rock mechanics, northern prawn research, and grain storage problems.
- grain storage problems. Four new projects for which \$107,000 has been provided will be commenced during the year. They are water purification, tick resistance in beef cattle, noise standards and beef cattle fertility.
- and beef cattle fertility.
 An amount of \$471,000 has been provided to assist in the redeployment of 54 members of staff whose salaries in the past have been financed from wool and dairy funds. Both funds are no longer able to support the research work at the 1970-71 levels of activity.
 An amount of \$152,000 here
- Ine 19/0-71 levels of activity.
 An amount of \$152,000 has been set aside in increased grants for such bodies as the Standards Association of Australia and the National Association of Testing Authorities.
- To cope with rising costs, ad-ditional expenditure on com-puter processing, and extra service charges resulting from the occupation of new build-ings, a sum of \$383,000 has been provided for distribu-tion over a large number of tion over a large number of Divisions and Sections.



ments of Works and Interior. The first group of items totals \$1,600,000. This will be spent on developmental work at field stations, \$380,000; the purchase of major items of laboratory equipment, \$607,000; the ac-quisition of additional scientific commiting aquipment \$500,000

quisition of additional scientific computing equipment, \$500,000; and the development of the new area of the Ginninderra Field Station, \$113,000. Of the \$3,090,000 provided for building projects under the control of the Department of Works, \$2,500,000 will be needed for buildings under con-struction at the end of 1970-71, while the remaining \$590,000 will cover works to be com-menced during the current financial year. The major items in the cur-

The major items in the cur-rent year's new works pro-gramme are: extensions to main laboratory, Tropical Pastures, Townsville, \$600,000; extensions to laboratory building, Chemi-cal Physics, Clayton, \$370,000; modifications to laboratory, Animal Health, Parkville, \$122,000; Stage 2 of develop-mental laboratory, Mineral Chemistry, Port Melbourne, \$125,000; cockerel shed, Animal Genetics, North Ryde, \$106,000.

Other Funds

The joint Commonwealth/Agricultural Industry Research funds finance available to CSIRO from non-Treasury sources.

The Minister for Primary Industry has advised that \$8,000,000 has been allocated to



CSIRO from the Wool Re-search Trust Fund, comprising \$144,000 for capital items and \$7,856,000 for salaries and general running expenses. This is \$456,000 less than the amount sought by the Executive which was considered to be the minimum sum neces-sary to maintain the programme of work at the 1970-71 level. In view of this, the Executive has felt obliged to reduce its wool research programme by the redeployment of 50 mem-bers of staff to other activities. The principal capital items to

The principal capital items to be financed from wool funds are: textile processing plant, \$67,100, most of which is for Textile Industry, Geelong; graz-ing facilities (clearing, plough-ing facilities for Animal ing, fencing etc.) for Animal Physiology, Armidale, \$19,400; sewerage and water supply re-quirements for Animal Physio-logy, Prospect, \$30,000.

The Australian Meat Research Committee has agreed to pro-vide a total sum of \$1,679,700, comprising \$1,612,700 for salaries and general running expenses and \$67,000 for capital purposes.

••

Summary of Estimates of Expenditure for 1971-72

Estimates

1971-72 \$

51,500,000 1,600,000

53,100,000

312,600

145,000 620,000

3.090.000

57.267,600

12,985,000 658,100

70,910,700

The main capital items are a gas chromatograph for Entomo-logy, Brisbane, \$12,000; pre-fabricated building for dung beetle programme, Pretoria, South Africa, \$20,000; data acquisition system for Meat Research Laboratory, Cannon Hill, Qid., \$20,000. The Australian Dairy, Bro

The Australian Dairy Pro-duce Board also found itself in a difficult financial position for 1971-72 and was forced to make substantial reductions in the Organization's dairy research proposals.

proposals. Here again, the Executive has decided to transfer four mem-bers of staff previously engaged on dairy manufacturing prob-lems to work not directly con-cerned with the dairy industry. A budget of \$307,832 has been approved, of which \$200,832 is for dairy manufacturing re-search and \$107,000 for dairy farm research. farm research.

The funds provided by the Wheat Research Council total \$203,694, including \$600 for

CANBERRA

FIRE BRIGADE \$

2

E

capital expenditure, with the remaining \$203,094 being for salaries and general running ex-penses. Last year's allocation was \$233,109.

Expenditure 1970-71 \$

45,597,111

47.216.387

49.665

3,877,943

51,971,041

11,343,625

64,965,144

299,320 527,726

Increase or Decrease \$

5,902,889 --- 19,276

5,883,613

262,935

— 787,943 — 154,320 92,274

5,296,559

1,641,375 --- 992,378

5,945,556

The Tobacco Research Com-mittee has provided \$277,400 for 1971-72 which will maintain at a reasonable level the cur-rent programme of work at Marceba and Canberra.

The funds will be used en-tirely for salaries and general running expenses. The ap-proved allocation for 1970-71 was \$264,400.

The northern prawn research programme is now receiving financial support from the Fish-ing Industry Research Com-mittee. An amount of \$117,721 has been allocated for 1971-72, which will be used principally on the charter of fishing boats and light aircraft and for general running expenses. Provision has also been in-cluded in the 1971-72 Esti-mates for the expenditure of \$3,056,753 from miscellaneous grants and donations. The com-parable provision for last financial year was \$2,022,600. The northern prawn research

Credit Society Flush with Funds

The Directors are pleased to re-port that there has been a more than favourable response to the increase in interest rates for in-vestment with the Society which were announced recently. This has altered the situation

This has altered the situation with respect to loans quite con-siderably. Loans for amounts of up to \$8,000 are once more being considered. New loan application forms are available from your Divisional Admini-strative Office or from the Manager of the Society, Mr J. Belkin, 314 Albert Street, East Melbourne. Melbourne.

The Directors wish to point out that loan applications will be processed more rapidly if all relevant details indicated on the form are supplied.

DEADLINE

Contributions to the October issue of Coresearch should reach the Editor at P.O. Box 225, Dickson, A.C.T. 2602, by Monday, 13th September.



Mr J. D. Brooks of the Divi-sion of Mineralogy died last July at the peak of a distin-guished career.

Mr Brocks came to Sydney from Britain in 1952 to join the Division of Coal Research where he worked on many diverse aspects of the chemistry of coals, cokes and carbons.

Even before the Division of Even before the Division of Coal Research merged with the Division of Mineral Chemistry in 1967, he had become in-creasingly interested in organic geochemistry. During the past five or six years, his work was almost en-tirely in this field, the subject which occupied him most be-ing the origin of petroleum and natural gas.

natural gas.



Any members of Head Office who may once have been prone to panic are being conditioned to keep their cool by the fire alarm in the new Head Office Building at Limestone Avenue, Canberra. The alarm, which has an unnerving habit of going off two or three times a day for no apparent reason, can only be turned off by the Canberra Fire Brigade. Inured to the constant clangour of bells and alarms, the staff at Head Office now meet every challenge and crisis with an air of quiet unflappable sang froid.

The News In Brief

Visitor

Doyen of diffraction grating rulers, Dean Emeritus George R. Harrison of the Massachu-setts Institute of Technology, took part in the 8th Australian Spectroscopy Conference in Melbourne last month as the first Geoffrey Frew Fellow of the Australian Academy of Science

Geoffrey Frew Fellowships were established to enable out-standing scientists from over-seas to attend the biennial Australian Spectroscopy Conferences.

During a recent visit to the Division of Chemical Physics Dean Harrison was presented with a bound copy of a paper read to the Royal Society of Victoria in 1917 by Mr H. J. Grayson describing a ruling engine for ruling diffraction gratines. gratings.

Our picture shows Dean Harri-son (left) receiving the bound copy from the Chief of the Division, Dr A. L. G. Rees, while the Assistant Chief, Dr A. Walsh, looks on. The original Grayson ruling engine can be seen at left. seen at left.

Professor

Dr M. G. C. Mullins of the Division of Horticultural Re-search has been appointed to the newly created Chair of Horticulture at the University of Sydney.

Doctors of Science

Dr R. A. Durie, Assistant Chief of the Division of Mineral Chemistry, has been awarded the degree of Doctor of Science by the University of London for his contributions to spectro-scopy and fuel science.

scopy and fuel science. Dr M. F. R. Mulcahy of the Division of Mineral Chemistry has been awarded the degree of Doctor of Science by the Uni-versity of Oxford for his work on the mechanisms and kinetics of combustion and pyrolytic reactions. reactions

Mr E. F. Rick of the Division of Entomology has been awarded the degree of Doctor of Science by the University of Queensland.

Retirement

Mr E. T. Bailey retired from the Division of Plant Industry recently after 37 years with the Organization.



Mr Bailey has been respon-sible for introducing a number of important crop and pasture plants to Australia, and parti-cularly to Western Australia where most of his work has been carried out. He has also been on plant collecting expeditions to Chile and to Jordan, Israel and Turkey. For many years Mr Bailey

For many years Mr Bailey was Chairman of the Western Australian Branch of the CSIRO Officers' Association.

Doctorate

Mr G. E. Melville of the Divi-sion of Plant Industry has been awarded the degree of Doctor of Philosophy by the Australian National University for his work on the chemical nature of the organic sulphur compounds present in soil and their avail-ability to plants.

Master of Science

Mr J. W. Milne of the Division of Mineral Chemistry has been awarded an M.Sc. by Macquarie University for his work on the infra-red spectra of alkali sulphates.

Medal

Dr G. R. Jago of the Dairy Re-search Laboratory of the Divi-sion of Food Research has been awarded the Silver Medal of the Australian Society of Dairy Technology for his work on enzymology and bitterness in cheese. cheese

Prize

Mr R. N. Brown, an apprentice fitter and turner at the Dairy Research Laboratory of the Division of Food Research, has been awarded the third year fitting and machinery prize of the Caulfield Institute of Tech-values. nology.

Craftsmen Association

The CSIRO Laboratory Craftsmen Association has joined the Technical Association and the Officers' Association as the third CSIRO 'in house' staff association.

The CSIRO Laboratory Craftsmen Association was formed in Sydney in 1964 with



During the recent Apollo Fifteen Mission, the Parkes radio telescope, as in earlier Missions, had a key role to play in receiving signals transmitted by the Apollo crew. Mr Roy Stewart (contre), the Operations Supervisor heading the team of specialist N.A.S.A. technicians at Parkes, was joined by the Chief of the Division of Radiophysics, Dr J. P. Wild (left), and the leader of the CSIRO team, Mr J. G. Bolton, as telemetry data, television signals and voice were received direct from the Moon by the Parkes 210 foot radio astronomy antenna. The television picture as received at Parkes from the tiny high-gain S-band transmitter on the Lunar Roving Vehicle was remarkably good. As Mr Bolton was heard to remark, 'not bad from a gold-plated spiderweb'.



It's not every day that you find an anaesthetised circus elephant occupying your favourite lunch spot, but that's what happened to Lorraine Sheldon, Wendy Glasgow, and Elizabeth Swaddling of the McMaster Laboratory of the Division of Animal Health recently. The Laboratory is next door to the Veterinary School at the University of Sydney, and since the School's operating theatre was not designed for elephants to have their tumours removed in, the lawn outside seemed to be a suitable alternative. a suitable alternative.

the object of promoting the interests of the workshop staff in the Organization, particularly Craftsmen and Senior Labora-tory Craftsmen.

In 1968 the Association ap-plied to the Industrial Registrar for registration as an organiza-tion of employees under the Commonwealth Conciliation and Arbitration Act.

After a protracted series of hearings, the registration of the Association was announced on 15th July, 1971.

Positive Prose

This month's award for clarity of expression goes to Dr H. J. Frith, Chief of the Division of Wildlife Research.

Wildlife Research. Denying a Sydney newspaper report that CSIRO had been in-volved in aerial baiting of rab-bits with 1080-poisoned carrots in the Yass district of New South Wales, Dr Frith was quoted in the Yass Tribune as saying, *The Division has not, is* not and does not propose to

carry out any 1080 or other poisoning with or without car-rots — from the air or on the surface of the ground — any-where in the Yass district?

'Objective consideration of con-temporary phenomena compets the conclusion that success or failure in competitive activities exhibits no tendency to be com-mensurate with innate capacity, but that a considerable element of the unpredictable must in-variably be taken into account.'

I returned, and saw under the

Printed by CSIRO, Melhourne

Translation 'Objective consideration of con-

The above sentence is a trans-lation into modern academic jargon by George Orwell of the following passage from Ecclesiastes.

I returned, and saw under the sum, that the race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favour to men of skill; but time and chance happeneth to them all.

SAFETY NOTES

Kick Start

A hazardous condition was recently discovered in a wood planing machine.

wood planing machine. The machine is fitted with an Alan West type S.C.F. starter, and it was accidentally found that the machine could be started unintentionally by a light tap on the outer casing of the starter. This resulted from the fact that two screws were loose, allowing the inner assembly of the starter to move towards the push button. This was an extremely hazardous situation, as unexpected starting of the machine could cause hand injuries to the operator. The starter is so positioned that accidental opera-tion of the push button is almost impossible, but even so, a dangerous situation did develop.

Mouth Wash

One of our staff recently got a quantity of chromic acid cleaning solution in his mouth. The mishap occurred while

cleaning solution in his mouth. The mishap occurred while starting a syphon by mouth suction. Apart from the very corrosive nature of chromic acid, chromium compounds are highly toxic. Corrosive or toxic liquids, if they have to be transferred by syphon, should be so transferred using mechanical systems, and not by mouth.

J. W. Hallam, Safety Officer.

RESEARCH FOR CIRCULATION AMONG MEMBERS OF CSIRO STAFF NUMBER 151, OCTOBER -1971

151##1971

RIVETT LECTURE FIFTH

There was a place in CSIRO for trained archaeologists, Professor Jack Golson, Professor of Prehistory at the Research School of Pacific Studies, Australian National University, told an audience of 900 at the Canberra Theatre last month.

Professor Golson was delivering the Fifth David **Rivett Memorial Lecture** 'The Remarkable History of Indo-Pacific Man: missing chapters from every world prehistory'.

The Rivett Lectures were initiated in 1963 as a memorial to Sir David Rivet, formerly Chief Executive Officer and later Chairman of CSIR.

Having discussed recent dis-coveries relating to man's Having discussed recent dis-coveries relating to man's history in the Indo-Pacific re-gion, with particular reference to Australia, New Guinea, and the Pacific Islands, Professor Golson went on to say that man way both an environt and was both an ancient and integral factor in the environ-ment and a potent instrument of environmental change.

These circumstances,' Pro-fessor Golson continued, are surely relevant when environ-mental studies are taught and environmental research pursued.

On the one hand, they sug-gest the need for expanded teaching in Australian universi-ties to bridge the academic gap between the disciplines of man and the disciplines of nature.

"On the obscipines of nature. "On the other hand, they imply that archaeologists with the requisite interest and ex-perience might form most appropriate members of the scientific staff of CSIRO in its land research and ecological work. work.

In addition, archaeological information about past land use might be highly relevant to economic developmental pro-jects of the type now being im-plemented in New Guinea.

Developmental projects of this type are, furthermore, often h ighly destructive of the archaeological sites from which prehistory is written.

'Many countries have estab-lished the machinery for Many countries nave estab-lish ed the machinery for archaeological prospecting abead of such development and appropriate archaeological in-vestigation before destruction takes place.

The relevant agencies are often involved in maintaining files on archaeological sites in general as a means of record-ing those whose destruction is inevitable or supportable and of providing protection to others from interference or damage of any sort any sort.

The necessary legislation has The necessary legislation has recently been passed and the basic organization set up in four Australian States but the need for archaeological survey and for site excavation far out-strips the funds and personnel currently available. The situation is particularly urgent in New Guinea where, at a time of increasing economic development, no re-sources at all exist to imple-ment the legislative provisions for site protection and investi-gation.

for site gation.

'Another aspect of this issue is the creation of reserves on the score of their archaeological interest and importance. 'There have been significant ventures of this kind in recent verts, for example in western New South Wales and the Northern Territory, in respect of significant complexes of Aboriginal art.



Professor GOLSON

The issues of protection and conservation, however, have in our region wider connotations than they may have in some other countries.

'For we are in this part of the bor we are in this part of the world in a real sense cultural intruders dealing with the material relics of people other than ourselves whose descend-ants are, however, with us but vet participating in the exercise.

'Anyone who has excavated in Polynesia can testify to the resentment that can be caused

by failure to appreciate the reverence attaching still to all burials and some remembered places of the prehistoric period.

In New Zealand, as a result of a culture contact situation that has largely expropriated the indigenous population, all excavations, indeed much an-thropological activity of every kind, is likely to be regarded with suspicion by Maoris.

Over recent years similar self-consciousness h as de-veloped rapidly amongst Aus-tralian Aborigines and often takes the form of similar atti-tudes of suspicion and resent-ment ment.

'The remarkable spate The remarkable spate of literary self-expression that has followed the introduction of tertiary education in New Guinea is strongly charac-terized by attachment to tradi-tional life and values and hostility to European attitudes and adjudged interference with them.

'In neither country as yet, have the indigenous groups appealed to history as revealed by archaeology for the valida-tion of their positions, but it is probably only a matter of time before, ...like ...the ...American Indians they do so Indians, they do so.

But this prospective develop-ment could be a positive ele-ment in the situation that faces us, for, through a pride in past

(continued on next page)

Editor-in-Chief

Mr B. J. Walby has been appointed Editor-in-Chief of the Editorial and Publications Section. He succeeds Mr A. E. Scott who has been Editor-in-Chief for the past eight years.

ization.

A science graduate from King's College, London, Mr Walby was from 1951 to 1955 a mem-ber of the editorial staff of 'The Analyst' and 'Analytical Abstracts'.

For the next six years he worked in the chemical and plastics industry as a statis-tician and in the field of opera-tional research.



Mr WALBY

In 1961 he joined McMillan & Co Ltd, London, as Chief Scientific Editor and in 1968 he became Director of the Inter-national Text Book Co Ltd which publishes scientific and technical books at university and postgraduate level.

Assistant Secretary

News In Brief

Mr A. W. Charles has been ap-pointed as Assistant Secretary (Agricultural and Biological Sciences). He succeeds Mr B. F. McKeon who has transferred to the Dairy Research Labora-tory of the Division of Food Research Research.

Mr CHARLES

Assistant Chief

Dr A. J. Dyer has been appointed Assistant Chief of the Division of Atmospheric Physics.

David Syme Research Prize

Dr A. J. Dyer and Mr B. Hicks of the Division of At-mospheric Physics have been awarded the 1971 David Syme Research Prize of the Uni-versity of Melbourne for their research over the last two years on micrometeorology and stratospheric diffusion.

Award

Award Dr J. K. Raison of the Plant Physiology Unit of the Divi-sion of Food Research and Dr J. Lyons of the University of California, Davis, have been awarded the 1971 AIBS-Camp-bell Award for their paper 'Oxidative Activity of Mito-chondria Isolated from Plant Tissues Sensitive and Resistant to Chilling Injury'. The award carries a cash prize of U.S. \$1,500, which will be shared, and a bronze medal. Citotica

Citation

Mr G. Lorenz of the Division of Applied Chemistry returned recently from the United States where he received the 1971 En-gineering Citation of the So-ciety of Manufacturing Engin-ere at a tratimonial burguet in at a testimonial banquet in Philadelphia, Pennsylvania.

Masters of Science

Mr G. P. Gillman of the Division of Solis has been awarded the degree of Master of Science by the James Cook University. **Mr R. N. Smartt** of the Divi-sion of Physics has been awarded an M.S. by the Insti-tute of Optics of the University of Rochester for his work on optical interferometry.

Diploma

Mr D. E. Hollis, of the Divi-sion of Animal Physiology, has been awarded a Fellowship Diploma in Medical Laboratory Technology for his thesis on Langerhans cells in the skin and wool follicles of sheep.

Visitor

Dr Mary Tnylor, Associate Professor of Zoology at the University of British Columbia in Vancouver, Canada, is visit-ing the Division of Animal Physiology at Prospect for ing the L Physiology

about six months to work on the structure and function of the placenta of the long- and short-nosed bandicoot.

Dr Taylor is making her fourth visit to Australia to study the comparative biology of reproduction and evolution in naive Australian mammals.

In naive Australian mammals. Bandicoots are of particular interest because they appear to have a more specialized and elaborate placenta than other marsupials.



Dr TAYLOR

Dr Taylor will be joined on the project shortly by **Dr Helen Padykula** of Wellesley College, Massachusetts, who will work at Prospect for a few months.

Deadline

Contributions to the November issue of Coresearch should reach the Editor at P.O. Box 225, Dickson, A.C.T., by Thursday, 14th October.

Wine Bottlers

The Division of Fisheries and Oceanography at Cronulla has an active Wine Club which holds frequent tastings and which bottles quantities of bulk red and white table wines.

Some 500 gallons have been bottled in the last 18 months. The Club would be interested in contacting other Wine Clubs in CSIRO with a view to ex-changing ideas and information on wine geuerer and as on on wine sources and so on.

Would any interested clubs or persons please contact: The Secretary, CSIRO Wine Club, Division of Fisheries and Oceanography, P.O. Box 21, Cronulla, N.S.W. 2230.

OBITUARY

Dr J. M. Norris of the Division of Soils, Canberra, was killed in a motor accident near Wangaratta last August.

Norris, Dr graduate а of Durham and Birmingham Universities, came to Australia to join the Division in 1968.

His research activities con-cerned mainly the use and evaluation of multivariate methods in soil data analysis and during his short period with CSIRO he published a number of papers that will pro-vide an important basis for further development of this new further development of this new field.







of Industrial Chemistry as Assistant Technical Secretary in 1943 and, among his other

administrative duties, was re-sponsible for the internal refereeing of papers.

In 1955 he was appointed Assistant Editor of Publications at the Editorial and Publica-tions Section. He became Editor-in-Chief in 1963 follow-ing the retirement of Dr Noble.



NEW APPOINTEES

Mr A. S. Black has been ap-pointed to the Tobacco Re-search Institute of the Division search institute of the Division of Land Research to study time and rate of nitrogen availability in soils under a range of tobacco cropping practices. Mr Black recently completed his M.Agr.Sc. at the University of Queensland.

Rivett Lecture

(continued from page 1) (continued from page 1) achievements and their out-come in the present, self-consciousness may be trans-formed into self-respect. "We should foster this de-sirable process by the means within our power. The educa-tional system at every level can be utilized. "The materials to serve it are

be utilized. 'The materials to serve it are increasingly available in Aus-tralia, particularly as a result of the important work of the Australian Lettitute of Abaria Australian Institute of Aborig-Studies over the past ten inal

New Guinea. 'The purpose, in the one case, will be to present a minority culture to a dominant one and display it to value. 'In the other, to introduce a series of different cultures to each other and show their historical connections and re-buiconching

The aim in both cases will be to foster self-respect and mutual respect. The aim in both cases will be to foster self-respect and mutual respect. The social relevance of archaeological research rests precisely in its capacity to play such a humanizing role, a role for which it warrants a place, if not in every teaching uni-versity, at least somewhere in every university centre. For, prehistory has the unique ability to show the dis-tinctive history of each region in the context of, and without violence to, the common ex-perience of mankind.

Mr B. I. Cliff has joined the Division of Fisheries and Oceanography and will assist with the collection, checking and processing of data on northern prawns. Mr Cliff grad-uated B.Sc. from Flinders Uni-versity last year.

versity last year. Mr C. J. Gardener has been appointed to the Division of fropical Pastures to conduct field ecological studies of inter-actions of promising Stylo-santhes species and perennial grasses in north Queensland. He will also undertake glass-house studies of characteristics governing the adaptability of the vario us species. Mr Gardener gained his Diploma in Dairying from the Uni-versity of Nottingham in 1958 and his M.Sc. from the Uni-versity of Guelph, Canada, in 1966, Since then he has been studying at Guelph University for his Ph.D.



Dr N. R. Adams has been appointed to the Division of Animal Health to investigate reproductive losses in sheep in Western Australia with par-ticular reference to pathological aspects of clover disease and possible infectious causes of in-fertility. Dr Adams graduated B.V.Sc. with honours from the University of Sydney in 1965 and recently obtained his Ph.D. from Iowa State University.

Dr T. G. Hartley has joined the Division of Land Research as a plant taxonomist and will work particularly on plant families with economically im-portant representatives in the New Guinea area. Dr Hartley graduated B.Sc. from Wiscon-sin State College in 1955 and Ph.D. from the University of lowa in 1962. Between 1961



'What's this ear', quipped Trish Whitchead of the Regional Administrative Office as she posed for our Coresearch cameraman by this bronze sculpture, 'II Grande Ascotto' — the Great Listening. The sculpture, by Arnaldo Pomodoro of Italy, stands in the entrance courtyard of Head Office Head Office

and 1965 Dr Hartley led a sur-vey conducted in New Guinea by the Division of Organic Chemistry to find alkaloid-con-taining plants. Since 1965 he has been Associate Curator of Pacific Botany at Harvard Uni-versity. versity.

Mr R. L. Hobbs has been appointed to the Cloud Physics Section of the Division of Atmospheric Physics to take part in field experiments using the Division's research aircraft and to work on the design and development of suitable instru-mentation. Since graduating B.Sc. from the University of Western Australia last year, Mr Hobbs has been an instruc-tor at a Victorian flying school.

Mr R. R. Lamacraft has joined the Division of Mathe-matical Statistics to assist CSIRO staff in the Adelaide area in the design and analysis of experiments. Mr Lamacraft graduated B.Sc. from the Uni-versity of Adelaide in 1965 and for the last seven years has been a statistical consultant in the Biometry Section of the Waite Agricultural Research Institute.

Dr A. D. McEwan has been appointed to the Division of Atmospheric Physics to conduct and interpret modelling experi-

ments designed to simulate atments designed to simulate at-mospheric phenomena. Dr McEwan graduated M.Eng.Sc. from the University of Mel-bourne in 1961 and Ph.D. from the University of Cambridge in 1965. From 1961 to 1962 and 1966 to 1969 he worked at the Aeronautical Research Labora-tories of the Department of Supply. Since then he has held a Queen Elizabeth Research Fellowship at the Division of Atmospheric Physics.

Dr A. J. Miller has joined the Division of Mathematical Statistics to work on statistical aspects of research programmes at the National Standards Laboratory. Dr Miller grad-uated M.Sc. from the University versity of Manchester in 1958 versity in 1960. Since then he and Ph.D. from the same uni-has worked at the Universities of London, New South Wales, and Melbourne, and at North-western University in the United States, mainly in the fields of transportation and traffic research. traffic research.

Dr E. H. Nickel has been appointed to the Division of Mineralogy where he will study the nature and genesis of ore deposits, particularly in the pre-cambrian regions of

Western Australia. Dr Nickel graduated M.Sc. from McMaster University in 1951 and Ph.D. from the University of Chicago in 1953. For the next twelve years he was a ro-search mineralogist in the Mineral Sciences Division of the Canadian Department of Energy, Mines and Resources, and since 1965 he has been Head of the Mineralogy Sec-tion of that Division.

Dr J. H. Perry has been ap-pointed to the Division of Mechanical Engineering to work on the development of high efficiency short diffusers. Dr Perry graduated B.Sc. from the University of New South Wales in 1963 and Ph.D. from the University of Southampton in 1968. Since then he has been a Research Section Leader with Rolls-Royce Ltd.

Mrs Ame Spinkston has been appointed to the Division of Horticultural Research to work on DNA and chloroplasts in plant tissue. Mrs Spinkston graduated B.Sc. from the Uni-versity of Adelaide in 1969. During 1970-71 she worked for twelve months with the Divi-sion of Tropical Pastures at Townsville.

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J. W. Hallam, Safety Officer.

SAFETY NOTES

What Do You Think?





always reads: 'It's too late to save me, just save yourself'."

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RESEARC AMONG MEMBERS CSIRO FOR CIRCULATION OF STAFF NUMBER 152, NOVEMBER 1971

SCIENCE POLICY

Governmental scientists must undertake activities in the interests of the country and its industry which we could not expect individual firms to carry out themselves, the Chairman, Dr J. R. Price, told an audience in Melbourne last month.

Dr Price was addressing a meeting of the Victorian Society for Social Responsibility in Science.

bility in Science. The relative significance of the activities of the scientist in government, the scientist in the university, and the scientist in industry are a reflection of policies adopted by government, Dr Price continued. Such policies, providing resources and encouragement to be different sectors — or in the

Such policies, providing re-sources and encouragement to the different sectors — or in the opinion of some, not providing anything like enough resources and so being regarded as dis-couraging — are one aspect of what has become widely known as 'Science Policy'. The two words 'Science Policy' have been used together so extensively, in national and international circles, over the past several years and have given rise to so many meet-ings, conferences, symposia, in-quiries, so many misunder-standings and controversies, that it is essential to try to determine what the majority of people mean when they use them.

Some authors do not state what they mean; they merely use the words in the title of papers or documents, such as the Science Council of Canada's report, Towards a National Science Policy for Canada.

Others, however, do try to define what they mean and here are some examples:

Sir Alan Cottrell-now Chief Scientific Adviser to the U.K. Government:

Policy for the use and corres-ponding support of science as part of general national policy. Note the last phrase (... as part of general national policy,

of Dr Alexander King OECD:

OECD: 'A deliberate and coherent attempt to provide a basis for national or international de-cisions influencing the size, in-stitutional structure, resources and creativity of scientific re-search in relation especially to incondicion and public control its application and public consequences.'

UNESCO — as quoted in Volume I of the Lamontagne Report, A Science Policy for Canada:

'The sum of the legislative and executive measures taken to increase, organise and use the national scientific and techno-logical potential with the object of achieving the country's overall development needs and enhancing its position in the

world? Professor R. N. Robertson, President of the Australian Academy of Science, has, I be-lieve, summed the matter up effectively by saying: "The country's science policy should be to ensure that science is used whenever and wherever it can be used in the national

it can be used in the national interest.

This is similar to Sir Alan Cottrell's definition. Let us give a little more attention to definitions. First of all 'Policy'—what do we mean by thie? by this?

According to one definition in the Oxford Dictionary it is 'a course of action adopted by government'; according to the Science and Industry Forum of

Australian Academy of the Science 'In the government sphere "policy" may be defined as a "statement of objectives".

The two are not in conflict, and neither can be confused with the implementation of policy, that is, the steps taken to achieve stated objectives or to implement adopted courses of action to implen of action.

Science also should be de-fined, although we all think we know what we mean by it.

We can define it, as does the Lamontagne Report, as '... the rational and systematic under-standing of man and nature.' But this is not adequate for the

standing of man and nature.' But this is not adequate for the purpose in hand. The UNESCO definition of 'Science Policy' does one very important thing — it 1 in k s science with technology. Despite their limitations, each of the definitions of 'Science Policy' that I have quoted re-lates Science Policy to the use or application of Science, in other words, to its application through technology. 'Science Policy', then, should be miderstood as an abbrevia-tion for 'Science and Tech-nology Policy'; moreover, it is concerned with the social sciences. Insofar as policy is a state-ment of opicities of an

sciences. Insofar as policy is a state-ment of objectives or an adopted course of action, it must be recognised that gov-ernments have many policies — foreign policy, tariff policy, defence policy, economic policy and so on and so on.

and so on. By and large, these are all part of, or are determined by, one overall policy, or general political philosophy of the government. And science policy is, or should be, part of such a general national policy.

In the United States, the House of Representatives Com-mittee on Science and Astro-nautics set up a Sub-Committee under the chairmanship of Congressman Daddario, on n science, research and development.

The report of this sub-com-mittee sets out very clearly its views on the relation between science policy and national policy. policy:

policy: 'Any national science policy cannot be considered separate and apart from national policy itself. That is to say, science policy must be part of and blend readily with the overall goals, objectives and priorities which are established by the American public through its process. Each policy is de-pendent on the other.' A report issued by the

A report issued by the Science Council of Canada, en-titled 'Towards a National Science Policy for Canada', sets out several examples of national goals.

These are very broad indeed and are clearly approachable only in terms of a 'national policy' to which science policy would contribute to varying degrees, sometimes consider-ably, sometimes to a quite small extent.

Small extent. Clearly, then, 'Science Policy' cannot be separated in any pre-cise and detailed manner from overall government policy but has to be integrated with all kinds of activities.

Rinds of activities. But basically it is economic policy which provides the framework for governmental actions, and the major signifi-cance of 'Science Policy' lies in its integration with economic policy.

(Continued on next page)

W.A. Laboratory Opened

In spite of sixty-mile-an-hour winds and a power strike, some 700 guests attended the opening of the Perth Laboratory of the Division of Mineralogy by the Minister for Supply, Mr. R. V. Garland, on Friday, 24th September.

The Division of Mineralogy, which was formed earlier this year, will be the first CSIRO Division to have its head-quarters in Western Australia. The new laboratory is an ex-tension of the Western Aus-tralian Laboratories building in the Perth suburb of Floreat Park. It occupies an area of 13,500 square feet and will eventually house a total staff of 40 of 40.

It was designed by the Com-monwealth Department of Works and was built at a cost of some \$500,000 by Civil and Civic Div Ltd Civic Pty. Ltd.

An important part of the Division's work in Western Australia is concerned with using geochemistry to aid the search for minerals.

The basis of geological ex-ploration is an understanding of the association of specific minerals with certain rocks and of the factors that lead to their concentration in economic quantifier quantities.

quantities. A major activity of the new laboratory is the study, in col-laboration with mining com-panies, of the environment of nickel sulphide ores and of the chemical and mineralogical evidence of their origins.

Integral parts of this study are the simulation in the labo-ratory of the conditions of high ratory of the conditions of high temperature and pressure under which the process of ore forma-tion have taken place and the understanding of the relation between structure, composition, and properties of constituent ore minerals.

Substantial progress has been hade in interpreting the course f crystallization of the ores. made in of

This work has demonstrated the relevance of natural pro-cesses to extraction technology;

experiments on reactions be-tween nickel in solution and the mineral pyrrhotite have led to a patent application cover-ing the recovery of nickel. A second theme has been the study of rock alteration, that

is, the formation of alteration, that zones around ore bodies that may give evidence of the proximity of ore in drill holes that do not intersect the actual ore body, and the weathering of rocks to give the surface indi-cators that the prospector looks for.

A third programme recently commenced concerns the study of the particular difficulties of exploration based on soil analysis in the ancient arid landscape of inland Western Australia.

In Brief

Honours

Honours Macquarie University has con-ferred the title of Honorary Professorial Fellow on Dr R. M. Smillie, Officer-in-Charge of the Plant Physiology Unit of the Division of Food Research. Mr G. D. Hubble of the Divi-sion of Soils has been made a Fellow of the Australian In-stitute of Agricultural Science. Mr Hubble, who is stationed at the Cuoningham Laboratory, Brisbane, is an authority on Queensland soils.

Fellowship

Dr J. R. Philip of the Division of Environmental Mechanics has been awarded a senior Foreign Scientist Fellowship by the United States National Science Foundation. Dr Philip has been invited to the Science Science Foundation. Dr Philip has been invited to the Santa Cruz campus at the University of California to advise the Uni-versity on aspects of its en-vironmental physics programme and to give a series of lectures on the relations between mathe-matics, physics and biology.

Doctorates

Doctorates Mr E. J. Middleton of the Divi-sion of Applied Chemistry has been awarded the degree of Doctor of Philosophy by the University of Western Aus-tralia for his thesis 'Chemical Studies Related to *Eremophila fraseri* and *Goodenia stro-phiolata*'.

Mr B. D. Millar of the Divi-sion of Environmental Mech-anics has been awarded the degree of Doctor of Philosophy by the Australian National University for his work on plant-water relations.

Visitors

VISIOTS Professor Jean-Yves Parlange of the Department of Engineer-ing and Applied Science at Yale University is spending a sabbatical leave of eight months with the Division of Environ-mental Mechanics working on a range of mathematical prob-lems relating to the Division's research nrogramme

lems relating to the Division's research programme. Mr F. Fujimoto of the Aero-logical Observatory of the Japanese Meteorological Agency is spending six months with the Division of Atmo-spheric Physics where he wilt be closely associated with the Radiation Group.

Mr A. J. Gaskin (left), Chief of the Division of Mineralogy, explains the principles of X-ray diffraction to the official party at the opening of the Division's Perth Laboratory. Others in the picture are, from left to right, Mr M. Thornber of the Division, Dr J. R. Price, Mr R. V. Garland, Minister for Supply, and Mr D. G. May, Western Australian Minister for Mines and the North Mines. Minister for North West.



APPOINTMENTS TO STAFF

Dr W. E. Barber has joined the Division of Fisheries and Oceanography to investigate the biology of the adult king prawn in Moreton Bay and offshore waters. Dr Barber graduated M.S. from Arizona State Uni-versity in 1967 and gained his Ph.D. at Michigan State Uni-versity last year.

versity last year. Dr R. M. McQuilkin has joined the Division of Entomo-logy to study the chemistry and biochemistry of compounds in susceptible conifer species that are attractive to the Sirex wood wasp. Dr McQuilkin graduated B.Sc. with honours from the University of Melbourne in 1963 and Ph.D. from the same university in 1967. Since then he has been a post-doctoral

fellow at University College, London, and at Syntex Cor-poration's Research Division at Palo Alto, California.

Palo Alto, California. Mr A. R. Milnes has been appointed to the Division of Soils where he will work on co-operative projects between the Division and the Geology Department of the University of Adelaide in the field of electron probe analysis. Since graduating B.Sc. with honours from the University of Ade-laide in 1967, Mr Milnes has been studying at the same uni-versity for his Ph.D. Mr. D. Roberts has been ap-pointed as an Extension Officer

with the Meat Research Labo-ratory of the Division of Food Research. Mr Roberts will be

located in Perth where he will develop and maintain liaison develop and maintain liaison with meat processing firms in Western Australia and the Northern Territory. He will also be responsible for general food technology liaison in Western Australia. Mr Roberts graduated B.Agr.Sc, with hon-ours from the University of Western Australia in 1964 and spent some time as Beef Cattle Extension Officer with the Western Australian Department of Agriculture. For the last five of Agriculture. For the last five years he has been Stock Man-ager for the Benedictine Com-munity at New Norcia, Western Australia.



Up, up and away

The 'up, up' part may seem easy, but if done in-correctly, you could be 'away' from work for weeks. When lifting loads, many people forget that their leg and thigh muscles are stronger than those of the back and abdomen; the results are strained backs and abdominal muscles.

The Division of Occupational Health of the New South Wales Department of Public Health gives the following guide to correct lifting:

Correct foot positions. Place one foot behind the load (rear foot) and the other beside the load about 15 inches in advance pointing in the direction in which the load is to be moved. Left or right whichever is the preference (advanced foot)



By keeping the arms relaxed straight against the body the movement of the legs in walking forward will help to

When the table, bench or stack is reached the leg will help to lift the load to the required level. The basic factors described can be applied to all lifting

A strained back can be with you for a lifetime and nothing will compensate for that.

jobs whether they are boxes, sacks, drums or machine part Remember correct lifting prevents fatigue and injury to back and abdominal muscles.

propel the load.

search and Development Divi-

Miss Margaret Quin has been

Miss Margaret Quin has been appointed to the Tobacco Re-search Institute of the Division of Land Research where she will undertake comparative nutritional studies of tobacco development under different seasonal planting strategies. Miss Quin graduated B.Sc. with honours from the University of Reading in 1964 and gained her Ph.D. from the same university this vear.

this year. **Dr W. G. Vogt** has joined the Division of Entomology to work on the ecology and bio-logical control of aphids. Since graduating B.Sc. with honours from the University of Sydney in 1966 and Ph.D. from the same University in 1969, Dr Vogt has been carrying out re-search in the Department of Entomology at the Waite Agri-cultural Research Institute. **M. K E Williems** here initial

Mr K. F. Williams has joined

Mr K. F. Williams has joined the Division of Fisheries and Oceanography to work on the collection of field data on northern species of prawns. Since graduating B.Sc. from the University of Melbourne last year, Mr Williams has been demonstrating in biology at the Victorian Pharmacy College.

this year.

Science Policy

(Continued from page 1)

(Continued from page 1) Let me return once more to definitions. The term 'Science Policy' is not only unsatisfac-tory in that it does not neces-sarily convey the thought of the application of science as well as of science itself — in other words, of technology as well as science — it is unsatisfactory in that it can be interpreted, and frequently is interpreted, in the narrow sense of 'A policy for science'. The OECD document 'Science and the Policies of Governments', published in 1963, states: 'The term 'Science Policy'' is ambiguous'; it properly denotes consideration of the interaction of science with policy in all fields.

What it really means is a policy for the use of science and technology to advance— in Cottrell's words—'general national policy'.

We accept, I hope, the neces-sity of linking science with technology under the umbrella of the phrase 'Science Policy'.

In other words, we are concerned as much, or more, with the application of science as we are with the advancement of knowledge.

But in accepting this link, I think it worth pointing out that while science and technology are inextricably involved with one another, scientists and tech-nologists are not.

Scientists are more vocal than the general public, and much more vocal than technologists, in drawing attention to the dan-gers of technological innovation.

gers of technological innovation. On the other hand, scientists often have little conception of what is required to translate a scientific discovery, pure or ap-plied, into a technological ad-vance, an economically viable process or product. And this is reflected by their ignorance both of the intellec-tual demands of innovation and of the very large resources re-

of the very large resources re-quired for innovation.

to transmute basic research into technology... "Will a Science Minister put things right? A cynic would argue that he could hardly make them worse. The junda-mental failure of Canadian science policy has been our in-ability to transmute knowledge into marketable products and processes." processes

Goldak goes on to enumerate several examples to illustrate his point. He stresses the point in another way by saying: 'Canada has never recognized that scientists are not inno-vators, and that it is technology — not science— that produces direct economic benefits. Canada has consistently funded pure research and just as con-sistently been dismayed that it did not pay off.'

did not pay off.' And now, what of Australia? Critics of the existing situation here say that there does not appear to be a co-ordinated at-tempt at defining natural objec-tives to which science and tech-nology should contribute, nor does there appear to be any co-ordinated study of the ap-proaches to achieving such objectives. Moreover, they say there

bioctives. Moreover, they say there does not appear to be any for-mal involvement of the great body of Australian scientists and technologists in considera-tion of such matters. Appearances therefore give rise to repeated statements that *Australia's Science Policy is to have no policy'*. This, of course, is quite in-correct insofar as the mobilisa-tion of science for policy is concerned. It is correct in the sense that

concerned. It is correct in the sense that no formal overriding science policy-determining (or recom-mending) machinery has been set up, but it ignores the acti-vities of a number of govern-mental bodies such as the Agricultural Council, the Fores-ter Council the Fisheries

Agricultural Council, the Fores-try Council, the Fisheries Council and so on. It also ignores the fact that the existence of CSIRO, the Australian Research Grants Committee, the Industrial Re-search Grants Board and a number of other bodies are the result of science policy deci-sions and the continuing sup-port given to these bodies reflects continuing adherence to port given to these bodies reflects continuing adherence to those policies. That this has led to positive

development is demonstrated by, for example, the not incon-siderable increase in resources provided for CSIRO over the

provided for CSIRO over the past several years. Another clear example of a 'Science Policy' is the adherence of the government to the prin-ciple of supporting research sponsored by the agricultural industry funds.

industries through the so-called industry funds. These funds are based on a levy on production to which is added a matching grant from the Commonwealth. There are a number of these funds, by far the largest being the Wool Research Trust Fund, but there are other concerned.

the Wool Research Trust Fund, but there are others concerned with the meat, wheat, dairying and tobacco industries; and to confirm that there is a clear policy, three new funds have been set up in the past year or so -a chicken meat fund, a pig meat fund and a dried fruits fund. So the Australian Govern-ment does have policies for re-search though the approach is ad hoc rather than systematic.



Dr K. J. Nicol has been ap-pointed to the Division of Food Research to investigate bio-chemical aspects of the problem of bitterness in processed orange juice. Dr Nicol gradu-ated B.Sc. with honours from the University of New South Wales in 1967 and Ph.D. from the same university in 1971. Dr M Okuwa has here as

the same university in 1971. Dr M. Okuma has been ap-pointed to the Timber Con-version Section of the Division of Building Research where he will study mechanical proper-ties of wood and wood-based materials. Dr Okuma graduated Bachelor of Agriculture from the University of Tokyo in 1960 and Doctor of Agriculture from the same university in

Dr D. E. Peters has joined ne Leather Research Section f the Division of Protein DF D. C. Peters has joined the Leather Research Section of the Division of Protein Chemistry to investigate the incorporation of polymers into leather and to work on the syn-thesis of polymers and co-polymers. Dr Peters graduated B.Sc. with honours from the Australian National University in 1967 and Ph.D. from the same university in 1971. Dr K. T. Spillame has joined the Division of Atmospheric Physics to work on dynamic and meteorological aspects of cloud physics with particular emphasis on the synoptic and meso-scales. Dr Spillane gra-duated B.Sc. from the Uni-versity of Queensland in 1954 and gained his Ph.D. from the the



University of Melbourne in 1970. He has been with the 1970. Ite has been with the Commonwealth Bureau of Met-corology since 1947 and before joining CSIRO was Officer-in-Charge of the Physical Research Branch of the Bureau's Re-

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Credit Society

At the fourteenth annual general meeting of the CSIRO Co-operative Credit Society last month, the Chairman of Dir-ectors, Dr R, W. R. Muncey, announced a net increase in capital for the financial year 1970-71 of approximately \$342,000.

At the end of the financial year the total capital of the Society (money on deposit plus share capital) stood at nearly \$2,220,000.

This is the first time that the total capital has exceeded \$2,000,000 and represents an-other milestone in the history of the Society.

It is worth noting that it took the Society 10 years (until 1967) to achieve a capital of \$1,000,000 but only four years later (his amount of capital has doubled.

Loans totalling \$808,500 were the year. The total amount of loans outstanding at the end of the financial year was nearly \$2,107,000.

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J. W. Hallam, Safety Officer.

grip. Keep head erect with chin close in. This will assist in stabilising the straight back. Keep arms close into the body and inside the legs. Keep arms close into the body and inside the legs. Use body weight. Start the lift by thrust of the legs (remember to maintain the factors already mentioned). Move forward towards the load, and by keeping the arms straight the load will remain close to the body. The body is now moving upward and forward. The legs having initiated the move will now continue to straighten and lift body and load. The forward movement of the body and the load will combine to make the lift so much easier.

from the same university in 1966. Since 1960 he has been an instructor in the Wood Physics Section of the Uni-versity's Department of Forest Products Products

RFSFA OF CSIRO FOR CIRCULATION AMONG MEMBERS STAFF NUMBER 153, DECEMBER 1971

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EXECUTIVE MEMB EW

Dr D. L. Ford, Chief Research Chemist of Union Carbide Australia Ltd, has been appointed a part-time member of the Executive.

Dr Ford's appointment fills the vacancy created by the recent retirement from the Executive of Dr K. L. Sutherland, Research Director for the Colonial Sugar Refining Company.

The Minister for Education and Science, Mr Malcohn Fraser, paid tribute last month to the long and distinguished service of Dr Sutherland, both as a former member of CSIRO and as a member of the Executive.

He said that Dr Sutherland's industrial research background had been invaluable to the CSIRO Executive in its con-sideration of the research needs of Australian industry.

Dr Ford would bring a similar background of knowl-edge and experience to the de-liberations of the Executive, Mr Fraser said.

Mr Fraser said. Dr Ford gained his M.Sc. from the University of New South Wales in 1954 for his work on the synthesis and structure of herbicides and in 1959 he was granted a Ph.D. from the same university for research on insect secretions.

In recent years he has been a member of the Council of the University of New South Wales and a member of its Academic Committee and its Finance Sub-Committee.

MAN AND THE BIOSPHERE

Mr C. S. Christian and Dr M. F. Day of the Executive, Dr J. R. Philip, Chief of the Division of Environmental Mechanics, and Dr G. B. Tucker, Officer-in-Charge of the Common-wealth Meteorological Research Centre have been appointed members of the Australian Unesco Committee for Man and the Biosphere.

and the Biosphere. The Committee is responsible for advising the Commonwealth Government on the nature of Australian participation in the new long-term Unesco Study which began recently. The international Unesco Study more and is concerned with the scientific study of the biosphere and its ecological regions, the changes brought about by man, and the effects of these changes on man and his environment.

and the effects of these changes on man and his environment. In addition to promoting scientific research, the inter-national program is concerned with the need to inform both specialists and the general pub-lic of the problems involved in the rational use and conserva-tion of natural resources. Australia is one of the twenty-five Unesco Member States currently represented on the International Co-ordinating Council for Man and the Biosphere.

Biosphere.

Biosphere. The Council had its first meeting in Paris last month. Australia was represented by the Chairman of the Australian Unesco Committee, **Professor R**, **O. Slatyer**, School of Bio-logical Sciences, Australian National University, and by **Dr J. R. Philip.**

He played a leading role in the early stages of the develop-ment of teaching hospitals for the University of New South Wales and from 1967 to 1969 he was a member of the Aus-tralian Research Grants Com-mittee mittee

Dr Ford is President of the New South Wales Branch of the Royal Australian Chemical Institute and a member of the Federal Council of that Institute.

Dr FORD



Restoring Coastal Sands

Mr J. E. Coaldrake of the Division of Tropical Pastures will transfer to the Ecology Section of the Division of Plant Industry to lead a research programme on the rehabilitation of coastal mineral sand mining areas in eastern Australia.

large areas of coastal sand dunes.

large areas of coastal sand dunes. Since 1962 he has led the agronomy work of the Division of Tropical Pastures in the brigalow region of Queensland and has worked on the ecology of the heigelow tree.

The programme, which is likely to continue for three years, will be carried out in associa-tion with work being undertaken by the Rutile and Zircon Development Association (R.Z.D.A.) which represents groups of companies engaged in mineral sand mining along the coasts of New South Wales

and Queensland. The research will provide in-formation relevant to re-vegeta-tion programmes and should assist the industry to develop common standards and practices in rehabilitating mined areas

Particular attention will be given to the regeneration of native plant, shrub and tree species.

species. Many years ago Mr Coal-drake was involved in research that helped transform the Ninety Mile Desert region of South Australia into useful pastoral country. At that time Mr Coaldrake was attached to private in-dustry for six months to assist in the application of research findings to pastoral develop-ment. ment.

During the 1950's he was re sponsible for an ecological study of the wallum region of Queensland which embraces

and mining ecology and is con-sidered to be the authority on the ecology of sand dunes in eastern Australia. In 1957-58 he was awarded a Harkness Fellowship to attend Duke University, North Carolina, United States, where he studied the ecology of sand-hill country and the influence of fire on the ecosystem.

Ozone Commission

News In Brief

Assistant Chief

Doctorates

green leaves.

ment.

Dr G. H. Taylor has been appointed an Assistant Chief of the Division of Mineralogy.

Miss E. A. Chapman of the Division of Food Research has been awarded the degree of Doctor of Philosophy by the University of Sydney for her work on the effect of light on the tricarboxylic acid cycle in green leaves

Mr J. C. O'Kelly of the Divi-sion of Animal Genetics has been awarded the degree of Doctor of Philosophy by the University of London for his comparative studies of lipid metabolism in British and zebu cattle in a tropical environ-ment

Dr W. H. Southcott of the

Dr w. H. Southcott of the Division of Animal Physiology has been awarded the degree of Doctor of Veterinary Science by the University of Sydney for his studies on posthitis and vulvitis of sheep.

Mr R. J. Steele of the Divi-sion of Food Research has been awarded the degree of Doctor of Philosophy by the University of New South Wales for an equilibrium and electro-chemical study of oxides in molten chlorides.

Pollution Commission

Dr A. J. Dyer, Assistant Chief of the Division of Atmospheric Physics, has been appointed to the Commission on Atmos-pheric Chemistry and Global Pollution. This Commission operates under the auspices of the International Association of Meteorology and Atmospheric Physics.

Dr R. N. Kulkarni of the Division of Atmospheric Physics has been appointed to the World Meteorological Organi-zation's Ozone Commission.

Credit Union

Deposits with the Laboratories Credit Union Limited increased by \$107,433 during 1970-71 to a total of \$550,592 at 30th June, 1971.

Total membership of the Union at the end of the finan-cial year was 1,121, a net in-crease over the previous year of 119.

During the year 381 loans totalling \$332,365 were made to members.

Anniversary

The Division of Atmospheric Physics celebrated its 25th anniversary with a dinner dance at Mount Eliza on Saturday, 13th November.

Retirement

One of CSIRO's longest serv-ing officers, Mr Bill Bruce, re-tired recently after 42 years with the organization, in Canberra.

Mr Bruce was the first assist-ant to join the Division of Entomology, which he did in 1929. He transferred to the Tobacco Section of the Divi-sion of Plant Industry in 1933 where he remained until the outbreak of the Second World War. War.

After five years in a muni-tions factory in Sydney, he re-turned to Canberra and Plant Industry and took over manage-ment of the Canberra Divi-sion's vehicle fleet.

Two years later, however, he elected to return to technical activities in Plant Industry and his services in field and glass-house work were always in keen demand.

keen demand. At the time of his retire-ment, he was attached to the Division's Plant Introduction Section, where he was asso-ciated with work involving quarantine examination and quarantine examination and treatment of all introductions and exchange material.

For a number of years he held the position of Chairman of the Technical Association in Canberra and even after vacat-ing that position remained as Plant Industry representative for a considerable term.



New Appointees

Dr R. G. Boothroyd has joined the Division of Environmental Mechanics where he will carry out_wind tunnel studies related to flow and transport processes



Dr BOOTHROYD

within and above plant canopies. Since graduating M.A. with honours from the University of Cambridge in 1960, Dr Boothroyd has been working at the University of Birmingham on the fluid mechanics of solid particles in gases. He gained his Ph.D. in Mechanical Engineering from Birmingham in 1967.

Mr H. A. Bremner has joined the Meat Research Laboratory of the Division of Food Re-search to study physical and chemical aspects of fat render-ing with particular emphasis on analysis of tallow and meat meal. Mr Bremner gained his Diploma in Applied Chemistry from the Royal Melbourne In-stitute of Technology in 1965 and his Diploma in Food Tech-nology from the Institute in nology from the Institute in 1969. For the last four years he has worked with KMM Ply Ltd, Melbourne, in its food mill research and development group

Mr C. H. Evans has been ap-pointed to the Division of Fisheries and Oceanography to work on the collection, com-pilation and publication of catch and effort and other data on southern bluefin tuna and to carry out isotherm mapping of carry out isotherm mapping of sea surface waters. Since grad-uating B.Sc. from the Univer-sity of Texas in 1969, Mr Evans has worked as a chemist with Deutsch Connectors.

Mr I. G. Graham has been Mr I. G. Graham has been appointed to the Division of Physics to maintain the Divi-sion's mass spectrometers and to develop associated instru-mentation. He will also carry out research on molecular col-lisions. Since graduating B.Sc. with honours from the Univer-sity of Birmingham in 1967, Mr Graham has been studying for his Ph.D. at the Australian National University.

Mr K. F. Ley has joined the Division of Protein Chemistry to work on the extraction of protein from wool. Mr Ley graduated B.Sc, from the Aus-tralian National University in 1967 and since then has been studying at the same university for his M.Sc.

Dr P. J. Mailew has been appointed to the Mineral Physics Section to assist in the collection of experimental data by nuclear geophysical methods. Dr Mathew graduated B.Sc. from Karala University in 1961 and gained his Ph.D. at Victoria University, Welling-ton, in 1970.

Dr C. D. Nancarrow has joined the Division of Animal Physio-logy to work on the reproduc-tive physiology of beef cattle. Dr Nancarrow graduated B.Ag.Sc, with honours from the



Dr NANCARROW

University of Adelaide in 1965 and gained his Ph.D. from the same university two years ago. Since then he has been working for the Population Council, New York New York.

Mr B. R. Ramage has been Mr B. R. Ramage has been appointed Scientific Assistant to the Agronomy Leader of the Division of Land Research to help with the organization and operation of the Agronomy Section's research programme. Since graduating B.Sc. from the University of Sydney in 1970, Mr Ramage has been working on a property in western Queensland.

Dr H. M. Rawson has joined the Division of Land Research to study factors affecting the partitioning of photosynthate for the development of roots, stems, leaves, and/or reproduc-tive organs. Dr Rawson grad-uated B.Sc. with honours from



Denise Kowalski of the Division of Animal Health is seen here doing nothing in particular, but we think she does it very nicely.

the University of North Wales in 1963 and Ph.D. from the University of Adelaide in 1967. After a period with the Divi-sion of Plant Industry, he joined the Department of Botany at the Indian Agricul-tural Research Institute, New Delhi, in 1970.

Mr P. S. Scanes has joined the Division of Building Re-search to investigate the indoor thermal environment and the factors that affect it. Mr Scanes graduated B.Sc. with honours from the University of London in 1968 and since then has been studying for his Ph.D. at the same university.

CHANGE, TEAMS, APPLICATIONS

Change, teams and applica-tions: These three words were used recently by Mr V. D. Burgmann of the Executive to sum up possible future changes in the working methods of CSIRO staff. He said they would have particular relevance to members of the Technical Association. Association.

In his address to the annual general meeting of the Associa-tion in Canberra recently, Mr Burgmann said that the changing pattern of research in Aus-tralia would mean that changes in projects would be more likely in the future, and this, in turn, would mean increased variety in the work of technical staff.

staff. After stressing that he was speaking personally and not as a Member of the Executive, Mr Burgmann suggested that it would be unreasonable to ex-pect that growth in research for agricultural industries would continue. On the other hand, with the increasing importance of manu-

On the other hand, with the increasing importance of manu-facturing, construction, mining and fishing industries and environmental matters, it is clear that more research re-sources should be directed to supporting the study of these.

The necessity to change pro-cts more often was quoted by Mr Burgmann as one of three ways in which current trends ways in were likely to affect all CSIRO staff.

staft. In addition, people would find themselves learning to form and work in multi-disciplinary teams from more than one Division.

Thirdly, ways to achieve greater effectiveness in the application of research results would have to be found.

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Mr S. V. Tucker has been appointed to the Building Operations and Economics Sec-tion of the Division of Build-ing Research where he will work on the structure, com-munications and productivity problems of the building in-dustry. Since graduating B.Sc. with honours from the Uni-versity of Queensland in 1966, Mr Tucker has been studying for his Ph.D. at the Australian National University.

Mr P. M. Warburton has been appointed to the Division of Applied Geomechanics to work on the development of computer programs for pre-dicting the behaviour of soil and rock masses under load. Since graduating M.Sc. from the University of Melbourne in 1968, Mr Warburton has been studying for his Ph.D. at the same university.

Dr L. J. Warren has joined the Division of Mineral Chem-istry to work on the recovery of minerals from ores contain-ing very fine particles. Dr Warren graduated B.Sc. with honours from the University of Queensland in 1965 and Ph.D. from the same university in 1969. Since then he has been working at the Royal School of Mines and English China Clays, London. Clays, London.

Mr C. K. Williams has been appointed to the Division of Wildlife Research to work on the ecology of *Rattus villosis-*simus and *R. colleti*, two native rodents that are subject to great simus and *R*. colleil, two native rodents that are subject to great fluctuations in numbers. Since graduating B.Sc. with honours from the University of Western Australia in 1965, Mr Williams has been studying at the same university for his Ph.D.

SAFETY NOTES

Eye to Eye

Sunglasses: A hardy perennial, but worthy of further men-tion with the onset of summer and daylight saving. If you must wear them, choose glass lenses and not plastic.

Glass acts as a filter for ultra-violet light, plastic may not. Glass lenses are polished, whereas plastic lenses are usually moulded. A glass lens is therefore unlikely to give a distorted image, reducing cycstrain.

As dark lenses reduce the visible light transmission to below 35%, be wary when driving at dusk or after dark.

People who wear prescription sunglasses when driving at dusk should be particularly wary. They have the choice of taking off the glasses and seeing poorly with uncorrected vision, or leaving them on and seeing nothing.

Windscreen Washers and Wipers: An accident which occurred to one of our vehicles a few weeks ago. Muddy road conditions, speed 45 mph, wipers switched on to clear windscreen, mud smear reduced visibility to zero, brakes applied, vehicle overturned and written off.

Under similar circumstances reduce speed, use washers before wipers, and expect momentary loss of vision.

Contact Lenses: Be sure to take special precautions if you wear contact lenses in a laboratory. Wear a pair of safety glasses as well.

Any chemical splash entering the eye will, by capillary action, be drawn between the lens and the eye, making washing out of the chemical almost impossible. Severe and probably permanent eye damage could result.

Matter of Economics

Before that rather wet Christmas party, consider the following, and make your choice of what you think cheapest.

- 1. Taxi home about \$2.
- Fine and suspension of licence for driving under the influence minimum \$50,
 Hospital about \$20 per day.
- Funeral \$300.

J. W. Hallam, Safety Officer.





Don Williams, Damien Quirk and Barry Jones wait for the signal from starter-timekceper Frank Woods in the start of the Divi-sion of Protein Chemistry's third annual two-mile handicap race around Princes Park, Melbourne. Twenty-six speed competitors lined up for the start and all finished without major fatality. The popular trophy winner was Bruce Bond and the fastest time of 9 min. 50 secs, was recorded by Neil McKern.