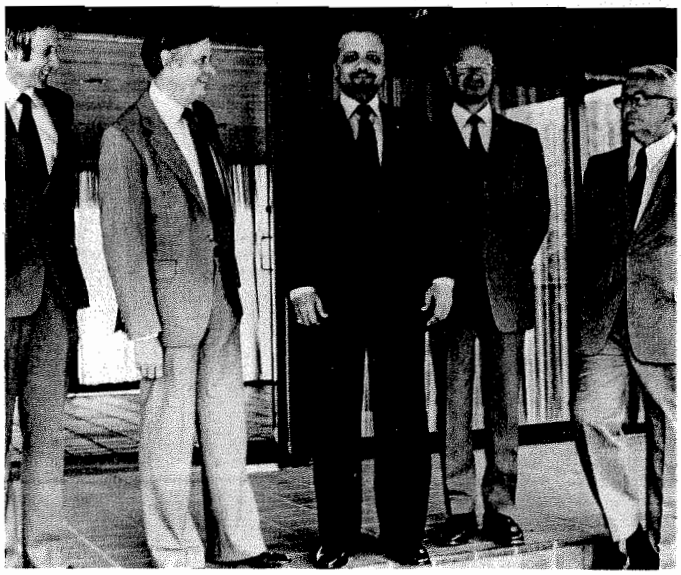
CoResearch

CSIRO's staff newspaper *February 1981* **237**

Sheik drops in to talk farming



One of the world's wealthiest farmers dropped in to CSIRO recently to discuss the rural problems of Saudi Arabia. Sheik Yemani spent an hour and a half at Headquarters talking about dry land farming, irrigation, animal breeding and water purification. Two CSIRO scientists skilled in these areas joined the Sheik for afternoon tea. Dr Allan Wilson, Officer-in-Charge of the Rangelands Research Unit at Deniliquin and Dr Paul Kriedemann, Chief of the Division of Irrigation Research showed the Sheik resource maps and photographs related to work in their Divisions. Further material will be sent to Saudi Arabia. Pictured at Headquarters with the Sheik are, from left, Dr Allan Wilson, CSIRO Executive Member Dr Keith Boardman, the Sheik, Dr Paul Kriedemann and Mr Garnett Smith, Officer-in-Charge of the Centre for International Research Co-operation.

Drought costly to CSIRO

Two CSIRO Divisions involved in animal research have been dramatically affected by the severe drought which now grips part of Australia.

The Divisions of Animal Health and Animal Production already face costs of up to half a million dollars for stock feed bills while experimental programs have had to be curtailed because of reductions to herds and flocks.

Hardest hit have been the pastoral research laboratory at Armidale in the New England district and the McMaster field station at Badgery's Creek near Liverpool in New South Wales.

As a direct result of the drought, the two Divisions are spending $74,000 per month feeding and watering stock that would normally be grazing on the Division's pastures.

INCREASED COSTS

The Institute of Animal and Food Sciences believes that the fodder bill could exceed $800,000 in the current financial year if the drought does not break before the end of March.

Stock affected include the experimental herds selected for high fecundity, the Booroola merinos and selection lines for various wool characteristics as well as sheep used to study parasite resistance.

Although there has been an overall reduction to 20 per cent in animal numbers, both Divisions are unable to further cull their animals without seriously prejudicing their research programs.

FINANCIAL PRESSURES

The Director of the Institute of Animal and Food Sciences, Dr Ken Ferguson, said that financing a contingency like drought placed considerable pressure on the Organization's budget because without extra funds, money had to be redirected away from research.

However, CSIRO appreciated the relief provided through funds being allocated from the Wool Research Trust Fund by

Continued on page eight

From the Chairman–

A regular column by the Chairman of CSIRO Dr. J. Paul Wild

Of the thirty-four years I have spent in CSIRO, twenty-four were as a research scientist responsible to a Chief in a Division.

During those twenty-four years, I rarely met a Member of the Executive. I saw no particular reason why I should, except later in my research career when it was necessary to negotiate financial arrangements of a major new initiative. Many other colleagues had the same attitude; but there were perhaps equally many who on the one hand wanted to see the Executive at reasonably regular intervals as real people and show them their work, and on the other, wanted to know what was going on at Head Office, always (in the eyes of some) a centre surrounded by a cloud of mystery and suspicion. I believe the same applies today as then–there remain people in the Organization happy to get on with what they are doing and trusting or disinterested in the central management of the Organization; and those who want to know about and meet with it regularly. Both attitudes seem to me to be healthy and understandable.

Nowadays Executive members, like Directors, do a great deal of travelling around the Divisions and Laboratories of the Organization in the course of their normal business. Also, Executive meetings are held in different places and then we always look forward to the opportunity of seeing and hearing about the work going on locally. Altogether during the last two years or so since the new Executive was appointed at least one member has visited most of the well over 100 laboratories and centres which the Organization operates. The Executive as a whole has visited about 30 centres. We are going to try to do still better than that, giving special attention to remote centres which have the greatest need of communication links with the central body. On the other hand it would be wrong for my colleagues and me to become *excessively* preoccupied with these visits because that is not our principal job.

I come now to the question as to how to let those of you who are interested know what is going on in the domain of the Executive and the headquarters staff that supports them–or at least what is new. The official way of distributing this information is through the Information and Policy Circulars which are distributed for noticeboards throughout the Organization. For more up-to-date information I have begun, on an experimental basis, the routine of sending a telex after each Executive meeting summarizing the main decisions and matters discussed. As an additional means of communication, I now offer this column as a regular contribution to CoResearch.

On this first occasion I have used up half of my allotted space setting the scene for future occasions. But let me nevertheless give an indication of some recent and current decisions and activities of the Executive simply by listing them:

- Appointment of new Chiefs to Divisions of Forest Research, Oceanography, Fisheries Research and Entomology.
- Establishment of the Division of Fossil Fuels by combining the Division of Process Technology and the Fuel Geoscience Unit
- Development of procedures for reviews of Divisions, including arrangements for Advisory Council and other inputs and for the evalu. ion of these reports by the Executive
- Consideration of major new initiatives and developments which include the establishment of a VLSI (Very Large Scale Integration) Program within the Division of Computing Research and future activities in radio astronomy and manufacturing industry research.
- Development of Oceanography in CSIRO and negotiations for the acquisition of the research vessel and for the Hobart site for the CSIRO Marine Laboratories.
- Development of the Organization's Annual Report
- Use of information provided by the Planning and Evaluation Advisory Unit and interaction with Divisions on strategic planning
- Executive Seminars (see CoResearch 236) the assessment of those already held and planning for future seminars
- Review of the Executive's energy research policy
- Development of Executive policy on the question of early retirement
- Consideration of Reviews of the Divisions of Land Use Research, Land Resources Management, Wildlife, Chemical Technology and Soils
- Development of a Green Paper, for comment by all staff, about CSIRO Administration following the W. D. Scott Review of Administration
- Interactions with the Advisory Council following the appointment of Sir Peter Derham as Chairman
- Development of staff counselling procedures for both performance and welfare counselling through the Organization
- Development of guidelines and criteria for reclassification of research staff.

I hope this column will serve a useful purpose. If you have any special comments I would be glad to hear from you.

Paul Wild

workplace
an occasional series on CSIRO staff

Anna Schneider, who has been visiting the Division of Horticultural Research, helped to make the Division's exhibit at Sirosearch '80 one of the most popular. Anna returns to her native Italy at the end of this month.

Anna Schneider, a young viticulturist from the University of Turin and CNR, the Italian equivalent of CSIRO, has been a more than usually welcome visitor at the Division of Horticultural Research in Adelaide for the past three or four months.

With the funds from a scholarship from CNR in her banking account, Anna picked on Australia for her research project for two reasons—she wanted to go outside Europe to see what was being done away from that region and this country had family ties for her.

A couple of weeks before she left her home in Turin she set about learning English and made a remarkable effort of conquering the language in something like six or seven weeks.

Since she arrived, Anna has sampled a number of Australian wines and has liked the whites she's tasted, better than our reds.

'European reds are rich in personality,' she said, 'but I've found some of the Australian ones are sometimes woody and heavy if they've been kept for long.'

Conditions for growing grapes for wine vary considerably here from those in the district around Turin, she said.

'Your climate is different, you have the space and a lot of money, it seems. Where I come from grape growing is mostly done as a small family industry. We don't have big quantities but the quality is high.

'Conditions vary over several kilometres and each grape is typical of the area it comes from.'

Anna's main interest as far as work is concerned is in the physiology of the grape vine and she's been seeing some of this work at Merbein where the Division has its field station.

She's also experienced CSIRO open days, having visited the Division of Irrigation Research at Griffith when they staged their event at the end of last year.

When it comes to tasting wines, Anna likes to be adventurous. And that's a characteristic she carries over into her private life. She's a mountaineer of some experience and has enjoyed climbing both in Europe and in the Himalayas.

Letters to the Editor

Dear Editor,

I have recently become aware of the decision of the majority of OA members to refuse a 5.6% increase because it is too low.

We have all become accustomed to unions that wield their industrial muscle in an endeavour to increase their members' share of the nation's wealth regardless of the consequences for others. I had hoped that my fellow professionals would take a broader view—a view that took into account such factors as the state of the economy and the plight of the unemployed and other underprivileged groups in society. What justification can there be for an already privileged sector to press for massive salary increases when the price will probably include other people's jobs?

I know it is possible to rationalise the claim in terms of relativity to other groups. That leaves me unimpressed; what about relativity to the underprivileged? The naked greed of the haves in our society is driving an ever-deeper wedge between them and the have-nots.

Somebody has to make a start in showing compassion; why not us? We can afford it.

Whatever rise we may get from arbitration, I would like to explore the possibility of individuals refusing it. Who will join me?

Though I don't like using the cloak of anonymity, for reasons that may become apparent if this letter gets a response, I sign myself

'Observer'
(name and address supplied)

Dear Editor,

Your note in *CoResearch*, October 1980, about the representations in 1916 for female involvement on a national science council, was timely, but perhaps the point was partly lost.

The council being set up was the embryo of CSIRO. The Archives *do* reveal the outcome—viz. no notice taken. In fact, to my knowledge no woman was ever appointed to a CSIRO national governing body until November 1975, when Professor Mollie E. Holman became a part-time member of the Executive.

Yours faithfully

Colin Smith
CSIRO Archivist

Energy award

ANZAAS and Esso Australia Ltd are making a $2,500 award for outstanding research in the energy field.

The award, consisting of a table sculpture as well as the $2,500 will be made to a researcher, or group of researchers, who has made "an outstanding contribution to science, engineering or technology, or who has effectively applied current knowledge resulting in the more efficient use, conversion or conservation of energy."

Applications should include a 500-word description of the work, and quantitative estimates of energy saved. The names of two referees are also required.

Inquiries can be directed to the Executive Officer, ANZAAS, Box 873, GPO, Sydney, NSW 2001.

Entries close at the end of February.

'CoResearch' is produced by the Science Communication Unit for CSIRO staff. It is also circulated to some people outside the Organization who have a professional interest in CSIRO activities. Members are invited to contribute or send suggestions for articles. The deadline for material is normally the 8th day of the month of publication. Material and queries should be sent to the Editor, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editor: Jeannie Ferris.

Printed by Pirie Printers Pty Limited, Canberra, A.C.T.

ROYAL MEDAL PRESENTED

Lord Todd, President of the Royal Society, right, presents the Royal Medal to the Chairman of CSIRO, Dr J. Paul Wild at a ceremony in London during December. Dr Wild's medal recognised his conception of the basic principles of the Interscan aircraft landing system and the guidance of its development to a successful conclusion. Three Royal Medals—also known as the Queen's Gold Medals—are awarded each year to scientists within the Commonwealth on the recommendation of the Council of the Royal Society. The Royal Medals are one of the oldest and most prestigious awards for scientific research. The first were awarded in 1825.

BHP SCIENCE PRIZE

New award for young scientist

CSIRO is one of three organisations in a partnership offering a new science prize for excellence in scientific research.

The BHP Science Prize, to be awarded for the first time in 1982, will then be awarded each year to a primary, secondary or secondary college student for research in biology, chemistry, geology, physics or a combination of these.

The Prize will take the form of a $5,000 award and a gold medal to Australia's most prominent young scientist under 19 years of age. Medals will be awarded to the best three entries from students under 15 years of age.

The initial BHP Science Prize will be presented at a ceremony to be held at the Australian Academy of Science, Canberra, in March 1982.

The organising committee comprises the Broken Hill Proprietary Company Limited (BHP), The Australian Science Teachers' Association and CSIRO.

To be eligible, entrants must be under the age of 19 and be enrolled as a full-time or part-time student at a registered primary school, secondary school or secondary college.

The entries must involve research by individuals studying to discover new facts. Models demonstrating well-known scientific principles will not be eligible.

Students intending to enter for the prize should obtain entry forms from members of the Science Teachers' Association and submit their entry by November 30 1981 for judging at State level.

The organising committee has advised prospective entrants to the competition to discuss the selection of topic with science teachers at their school.

The Chairman of CSIRO, Dr J. Paul Wild, has endorsed the prize. He said Australia's isolation, ruggedness and vastness had forced successive generations of its inhabitants to become resourceful and adaptable.

'May I offer the wholehearted support of CSIRO to the BHP Science Prize to help encourage our young scientists in the pursuit of excellence in the biological and physical sciences,' he added.

National award to Melbourne researcher

The Australian Council of the Institution of Production Engineers has presented Mr George Lorenz with the 1980 Jack Finlay National Award for his contribution to the science of production engineering in Australia.

George, an engineer in the Division of Manufacturing Technology, has been a pioneer in applying a knowledge of machine, materials and statistics to the solution of machinability problems.

Geelong visit for Advisory Council

The Victorian State Advisory Committee and newly appointed Chairman of the CSIRO Advisory Committee, Sir Peter Derham, visited the Division of Textile Industry, Geelong, in December.

The Committee held its normal meeting, and, following a barbecue lunch for which Committee members were joined by several industry leaders in Geelong, they toured the Division.

Projects which were discussed and demonstrated on the Division's pilot and full-scale textile processing equipment were: new wool-packaging techniques, Lo-flo scouring, the new Sirospun spinning process, a novel approach to joining yarns together, transfer printing of wool, shrink-proofing, mothproofing, and the short-staple processing of wool, a project designed to ease the use of wool on equipment normally reserved for cotton.

Despite the heat, the visit was judged by all to be an outstanding success, with many of the Committee members and visitors commenting favourably on the practical orientation of the Division's work.

New Chief for Forest Research

Dr Joe Landsberg, an environmental research scientist currently working in the United Kingdom, is the new Chief of CSIRO's Division of Forest Research.

Dr Landsberg succeeds Dr Max Day who retired in December, and will take up his position in June.

Dr Landsberg, 43, graduated from Natal University in South Africa with a BSc (Agric) in 1961 and an MSc in 1964. He was awarded a PhD from Bristol University (UK) in 1974.

At present Dr Landsberg is leading a team of researchers in the microclimatology section of the Long Ashton Research Station near Bristol.

Dr Landsberg has wide-ranging experience in the application of mission-oriented research which will be of great importance for the Division's studies of Australian forests as multi-purpose resources, with a range of uses and values to the community.

The new chief is no stranger to Australia having spent two periods in the country. During 1976 he was visiting lecturer in agronomy at the University of Western Australia. He spent five months last year at the University of Sydney as the holder of the Pawlett Scholarship.

Scientific Exhibition in China this year

A major exhibition of Australian-made scientific instruments is being planned in China this year by CSIRO's Dr Clive Coogan who is Chairman of the Australian Scientific Industry Association.

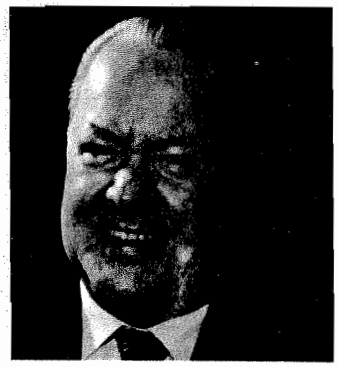
'In September or October, the Jiansu branch of the Chinese Academy of Science and the Jiangsu branch of the China Machine Tool Import Export Corporation will host a major trade exhibition of Australian equipment in Nanjing,' Dr Coogan said.

He said the exhibition would be based on categories selected by the visiting scientists.

'Jiangsu authorities promise to ensure that representatives from all other major provinces will attend and the event will be supported by seminars on all the major scientific disciplines represented,' Dr Coogan added.

Australian firms interested in participating in this exhibition should contact the Canberra office of the Australian Scientific Industry Association, telephone (062) 484157.

.. People ... People ... People ... People ... People ... People ... People ... People ...



Mr Lawrie Muller

Mr Lawrie Muller has been appointed Assistant Chief of the Division of Food Research and Officer-in-Charge of the Dairy Research Laboratory.

Lawrie Muller joined the Dairy Research Laboratory, CSIRO, in 1958 after previous experience in the Dairy Research Laboratory of the, then, Queensland Department of Agriculture and Stock and nearly four years as Dairy Technologist with the Downs Cooperative Dairy Association, Toowoomba, Queensland.

Since joining CSIRO, Mr Muller's research activities have been mainly in the development of processes for the manufacture of dairy products.

In recent years Muller and his team turned their attention to the problems of whey utilization, with a particular interest in applications of membrane technology and in the functional properties of whey protein concentrates.

Mr Muller's appointment is timely, as several aspects of the Dairy Research Laboratory's program are moving towards the stage of commercial application.

His wide experience in such fields of activity, his knowledge of the dairy industry of Australia and overseas, and the breadth of his understanding in dairy science will assist him to provide the leadership needed to successfully bridge the gap between research and development.

David Thomas, RAO in Brisbane poses the question 'Has Queensland done it again? That is, beaten the Feds to the punch—this time in the sunflower business.'

David reports that the cover of the March-April issue of the Queensland Agricultural Journal had a photograph of a sunflower in full bloom, looking remarkably like a certain Christmas card.

However David hastened to add that CSIRO's Christmas card showed a sunflower with seven bees to the journal photograph's one, so perhaps all was not lost.

□□

Noel Bignell of Applied Physics is looking for somebody with a long memory. He wants to know what brought the Federal Labor politician John J. Dedman to the National Standards Laboratory on January 16, 1942.

Noel reports that Dedman's signature appears on the first page of the visitors' book, sharing space with the Governor General of the day Earl Gowrie, Harold Holt, then newly appointed Minister for Labour and National Service, the Governor of NSW, Lord Wakehurst and his wife, and David Rivett.

The Division has established an archives committee comprised of **Guy White, Eric Thwaite, Ralph Loughhead, Penny Riley** and **Noel Bignell.**

Their first task will be to identify and document a collection of photographs collected by **Jack Wright.**

□□

Soon to join the Division of Mathematics and Statistics as a senior research scientist is **Dr Noel Barton**, presently with the School of Mathematics at the University of New South Wales. Noel will work with the applied mathematics group.

□□

Colleagues of **Mick Burns**, formerly of Headquarters Canberra, will be saddened to hear of his untimely death on December 20 1980 after a brief illness.

Mick was an administrative officer in the personnel branch and was well known to staff in a number of Divisions and offices of CSIRO.

He joined the Organization in 1974 and had worked at the Division of Computing Research, at the Regional Administrative Office, Canberra, the Division of Plant Industry and the Ginninderra Experimental Station.

His funeral service in December 23 was attended by many colleagues from CSIRO.

□□

Insects took over from the Editor of the Divisional news sheet from Entomology over the Christmas break.

Among the normal positions vacant section were listed openings for termites and furniture beetles in the new taxonomy wing, mealy bug and mites for the ornamental plants in the records section, and mosquitoes to inject new blood at Headquarters.

Other listings in the news sheet included a meeting to enable sheep blow flies to complain about their environment—overcrowding, genetic engineering and cruelty in air drops.

Ed Highley's return from leave has seen a return to a more traditional news sheet.

□□

Move over Harry Butler. Four scientists from the Division of Land Resources Management have been filming on location with the ABC Natural History Unit in the Bulloo country of South West Queensland. **Dean Graetz, Graham Harrington, Geoff Johns** and **David Tongway** were assisting producer **Ken Taylor** to make a 50 minute documentary depicting the ecological consequences of drought. The program will be shown later this year.

□□

"Nannying visitors through the system" is how **Bob Heginbotham** described his job on a recent visit to CSIRO.

Bob, Chief Clerk at ASLO, London, spent seven weeks touring Australia with his wife **Zoe.** It is Bob's second visit to Australia to make contact with divisional administration officers with whom he deals during the year.

Bob sees his office as something of a branch of Universal Aunts, helping visitors with everything from lost luggage to missing wives.

He's one of three locally engaged staff at the headquarters, working with **Dr Alan Pierce**, the present Scientific Liaison Officer.

□□

Greig Zadow of the Dairy Research Laboratory has been awarded the degree of Doctor of Applied Science by the Victoria Institute of Colleges on the basis of his published work.

Greig joined CSIRO in 1967 and has worked on the long-life milk program and the utilisation of whey.

□□

Dr Allan Antcliff

Allan Antcliff, Senior Principal Research Scientist at the CSIRO Division of Horticultural Research's Merbein Laboratory, has been awarded the degree of Doctor of Agricultural Science by the University of Queensland.

He is probably best known to many in the CSIRO and the viticultural industry as leader of the Division's grapevine breeding program which began at Merbein in 1965 and, so far, has resulted in the release of four new grape varieties.

Alan joined CSIRO at Merbein soon after graduating in 1947 and is the author of nearly 50 papers, mainly concerned with viticulture. He is also widely recognized as Australia's leading expert in ampellography, the science and art of identifying vine varieties.

□□

Two members of CSIRO's staff received awards in the Australia Day honours list announced last month.

Ermeritus Professor Hill Worner became an Officer of the Order of Australia (AO) for public service in the field of metallurgy and industrial technology.

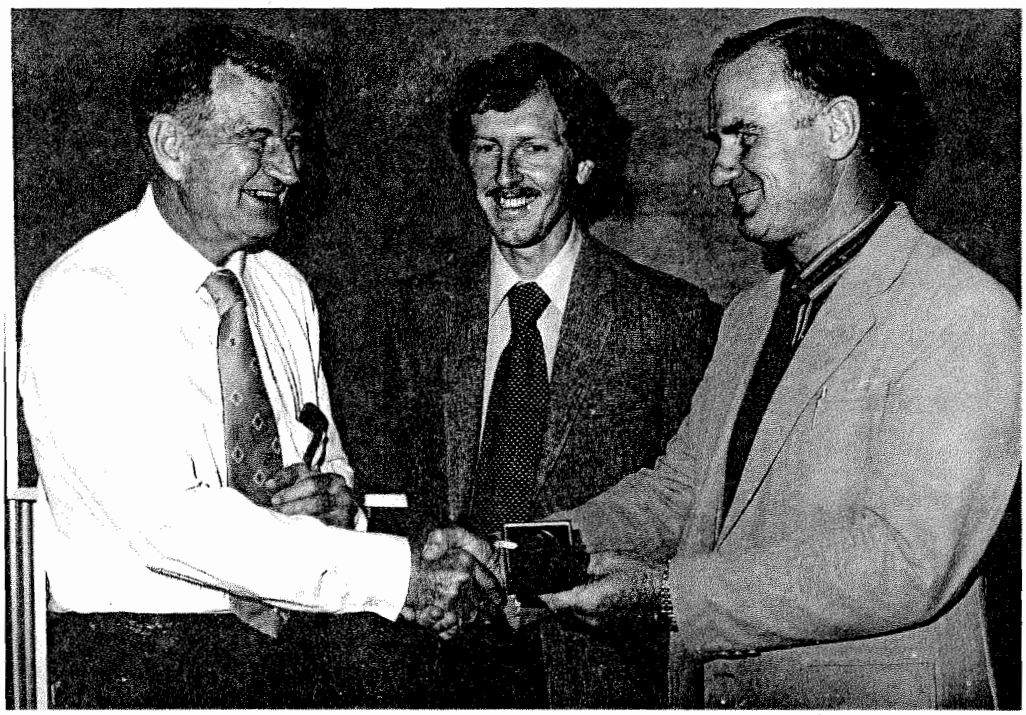
Professor Worner has been Director of the Institute of Industrial Technology since 1979 and served as a member of the National Energy Advisory Committee from 1977 to 1979.

He was a member of the CSIRO Executive from 1976 to 1978 and previously worked as a research metallurgist.

Dr Marshall Davidson ("Hal") Hatch, chief research scientist with the Division of Plant Industry, was made a Member of the Order of Australia for public service in the field of plant metabolism.

Dr Hatch has worked as a research scientist and research fellow in government and private industry since 1955 and is President of the Australian Society of Plant Physiologists.

Last year Dr Hatch was elected a Fellow of the Royal Society and he is a member of several committees of the Australian Academy of Science.



Dr Roy Brewer who retired recently from CSIRO's Division of Soils in Canberra, is congratulated on receiving the Prescott Medal of Soil Science for 'his outstanding contribution to soil research." Dr Brewer's career spanned 38 years as a pedologist and micropedologist and his book 'Fabric and Mineral Analysis of Soils' is now a classic. Pictured with Dr Brewer, left, is Dr Kevin Tiller, President of the Federal Council of the Australian Soil Science Society, right, and Dr John Rawson.

The Australian Institute of Agricultural Science has awarded Institute Fellowships to three CSIRO scientists.

Dr John Possingham, Chief of the Division of Horticultural Research, was awarded his fellowship for his contributions to horticultural science.

Dr Ted Henzell, Chief of the Division of Tropical Crops and Pastures, received his fellowship for his outstanding contributions to research in tropical pastures.

Mr Peter Ozanne, senior principal research scientist in the Division of Land Resources Management, was given his fellowship for his outstanding contribution to agriculture in the field of plant nutrition.

A total of 15 fellowships was awarded by the Institute for 1981.

□□

A new face in the Division of Entomology is **Mr Fred Ashman** who has joined the Stored Grain Research Laboratory in Canberra from the Tropical Stored Products Centre in Slough, England. Fred's first major task will be to organise an Australian Development Assistance course which will be held in Canberra later in the year.

□□

The effectiveness of pig accommodation is being studied in Melbourne by **Leon Wrathal** who has recently joined the Division of Building Research on a project funded by the Australian Pig Industry Research Committee.

Leon has had years of experience in the design and construction of farm buildings and will make suggestions on ways in which pig accommodation could be improved.

□□

John Birch, of the Division of Applied Physics, has recently been appointed chairman of Community Aid Abroad. He replaces **David Scott** who held the post for many years.

□□

Clive Coogan, not content with the challenge of ASIA has taken on yet another post. He's been appointed to the eight-person Victorian statutory body called the Accreditation Board of the Victorian Post Secondary Education Commission (VIPSEC). This Qango is to accredit all non-university post secondary courses in the State.

Bowls win

Each year the Commonwealth and State public servants in Victoria play each other in a bowls match for the right to hold a perpetual trophy in the form of a sheild for the following year.

A CSIRO rink has participated in this event for a number of years and on 1st December of this year was successful in winning the trophy for the best Commonwealth team.

The CSIRO team was composed of Bill Cole, Building Research (Captain), Norm Southern, ex. Animal Health (third), Jack Etheridge, Animal Health (second), Les Armstrong, Building Research (leader).

The shield won by the Victorian side last year was regained narrowly by the Commonwealth for another year.

Visiting the Division of Horticultural Research for three months to study abscisic acid in grapes is **Dr Helmut During** from Geilweilerhof. Helmut is working with **Brian Loveys.**

□□

Yet another first for CSIRO was scored recently by a team of bowlers who won the Commonwealth trophy at an annual bowling tournament between Commonwealth and Victorian State public services. Captain of the team was **Bill Cole,** with **Norm Southern** and **Jack Etheridge** (Animal Health) and **Les Armstrong** of the Division of Building Research. The men each won a pewter tankard.

□□

Mike Young, of Land Resources Management Deniliquin, has joined a South Australian Government working group to review the State's Pastoral and Dog Fence Acts.

Mike recently returned from a similar enquiry in the Northern Territory when he made recommendations on the most appropriate form of tenure for the Territory's pastoral lands.

□□

Among the 10 Australians nominated for the Man of the Year in Australia agriculture award was **Ken Whitely** of the Division of Textile Physics. Ken was for 20 years a lecturer with the University of New South Wales's school of wool and pastoral sciences before he joined CSIRO as a senior principal research scientist, last year.

□□

Bill White, whose map was the subject of a CoResearch article late last year, is delighted with the response of his CSIRO colleagues who have purchased more than 400 copies from him. Bill's map and some of the original drawings have been attracting a great deal of interest in the window of a Canberra bookshop. Those wishing to purchase a map can contact Bill at the Division of Land Use Research.

□□

Dr Andrew Calder has joined the Division of Entomology's taxonomy group to work with **Dr Errol Zimmerman** on the Australian curculionidae. Andrew was previously with the National Museum of Victoria as assistant curator of insects.

The flush of success

A plastic toilet seat with the logos of Irrigation Research and Imperial Chemical Industries (ICI) was the subject of much torture last month at Griffith.

The annual cricket grudge match was played in 38°C temperature, with ICI being the victors. Played under Packer one-day rules the match was won in the final over.

Highest score for DIR was John Burgess (on loan from LRM, Deniliquin) with 20 runs. Other erstwhile batsmen were Wayne Meyer and Ron Locke (Capt.) with 11 each, and Greg Humphries 10. Total score was 116 runs.

Despite defeat, Wayne Meyer (DIR) was awarded Man of the Match. The most dedicated player was Mick Meyer (no relation), who not only donated his Harry Butler image to ICI but gently serenaded players throughout the afternoon on his tin whistle.

Nuns in a convent in northern New South Wales are preaching about the value of specialist advice from CSIRO. It seems that the sisters used information on building houses from mud to create extra room in adobe-style at their convent near Kempsey. It took the sisters three years to complete the building at a cost of $500.

□□

A new face in the Division of Mathematics and Statistics Melbourne laboratory is **Mr Bohdan Durnota,** who is working on renewable energy modelling with **Ian Saunders** and **Richard Tweedie.** Bohdan recently completed an honours degree in pure mathematics at La Trobe University and is at present finishing an honours degree in computing science.

□□

Staff at the Division of Horticultural Research were amused recently to receive a letter addressed to "Dep of Horty Chunral Research".

□□

Tony Evans, a principal research scientist at the Division of Tropical Crops and Pastures in Brisbane, has been elected president of the Tropical Grassland Society of Australia.

Tony joined CSIRO in 1961 and is currently working on a program of research identifying the factor that influences pasture selection by the animal when it is grazing in the field.

□□

Graham Harrington of the Land Resources Management Laboratory at Deniliquin is well known for his theatrical talents in and out of the laboratory.

But on Australia Day this year, Graham shared his national pride with the people of Deniliquin by donning the uniform of Captain Phillip for a re-enactment of the landing ceremony.

Mr Jim Woodcock

Mr Jim Woodcock, of the Division of Mineral Chemistry, has been awarded the President's Award for 1980 of the Australian Institute of Mining and Metallurgy.

The award is "in recognition of his contribution to the publications of the Institute and in particular his services as Honorary Editor since 1965". The award will be presented at an Institute meeting during the year.

The President's award was established in 1973 and is made in recognition of notable achievements within the mining industry in some specific sphere of activity such as exploration, production, construction, education, research, authorship, equipment development. Jim is the first CSIRO scientist to receive the award.

Jim Woodcock is well known in mining circles for his annual survey of progress in mineral processing, published in the journal "Australian Mining".

He edited the recently published book "Mining and Metallurgical Practices in Australasia", which includes contributions from over 300 authors in Australia, New Zealand, Papua New Guinea and Fiji.

ICI stumps the Griffith mob

Pictured with the winners' "shield" is, from left, Allan Chick, Ron Locke (Irrigation Research) and Greg Fraser (ICI).

Helping in the year of the handicapped –CSIRO could make a contribution

CSIRO could make a significant contribution to the Year of the Disabled, according to Peter Osman, of the Division of Applied Physics.

Mr Osman has just completed a tour of 45 Australian institutions to look at developments in rehabilitation engineering –and he found plenty for CSIRO to do.

'There's no doubt that CSIRO has the potential to act in a consultative fashion for rehabilitation professionals over a wide range of fields from communication to applied mathematics,' he said.

'Significant opportunities for this kind of consultation could be created by directing published work and liaison activities to hospital engineering and physics departments.'

Mr Osman is more cautious about the possibility of CSIRO being directly involved in research and development on clinical problems.

COLLABORATIVE EFFORT

'The fact is that CSIRO does not have the necessary clinical skills or the environment for direct research, but collaborative research which would match CSIRO expertise with clinical expertise outside the Organization, would be quite feasible.'

Mr Osman is a control systems engineer at the Division of Applied Physics, and became involved in the survey through the National Advisory Council for the Handicapped.

The Council set up an expert committee on rehabilitation engineering. CSIRO is represented on this committee by Mr Graham Warden, Secretary of the Bureau of Scientific Services in Canberra.

The committee received a grant of $10,000 last year to conduct a survey on the feasibility of establishing a 'clearing house' for rehabilitation engineering.

ASSESS POTENTIAL

Mr Osman and Mr Ed. Scull, who was seconded from the Royal Perth Hospital, conducted the study and their report is now before the committee.

Mr Osman's role and particular interest was to assess CSIRO's potential for research in the area and the provision of advisory services.

He surveyed every division, by phone or by letter, to assess their involvement and visited six.

'And not surprisingly, we found some projects of direct relevance to the disabled,' he said.

In his report he outlines the work:

- **Division of Manufacturing Technology, Adelaide Laboratory**
  An automated microfiche reader is being manufactured commercially for general use, although it had been conceived as a device for the disabled. However, it is not anticipated that further work of this nature will be carried out. (see picture, this page).
- **Division of Mineral Chemistry**
  Techniques for the examination of industrial traction batteries have been developed, and for several years the laboratory has been advising on the installation of lead acid batteries. Enquiries concerning wheelchair battery applications have been dealt with on an ad hoc basis. Preliminary discussions have taken place on a proposal for the Royal Perth Hospital to collaborate on the assessment of wheelchair batteries, with a view to producing a publication on the subject.
- **Division of Building Research**
  According to Mr Osman, an interactive, multichannel telephone information service appeared to be potentially useful for dissemination of information to the handicapped.

'Documents and standards for the design of housing for the handicapped already exist and further work is being carried out by groups such as the Commonwealth Department of Housing and Construction and The Australian Uniform Building Regulations Co-ordinating Council.

'However, recommendations arising from such work are frequently not implemented in private and public buildings,' Mr Osman said.

- **Division of Chemical Physics**
  Three areas of divisional expertise could have specific relevance to technology for the handicapped. At Royal Perth Hospital atomic absorption spectroscopy is being used to assess micro contaminants caused by prosthetic implants. A requirement exists to establish operational techniques for this application. Techniques for bonding stainless steels to ceramics are being investigated for industrial purposes and these techniques may be useful in the fabrication of prosthetic implants. Surgical needles containing four twenty-five micron electrodes have been manufactured by electro deposition.
- **Division of Textile Physics**
  Mr Osman said it was suggested that the Division's expertise in textiles could be relevant to research on textiles and materials to reduce pressure sores. It was also suggested that their general expertise in automation might be of use. Staff in this division have assisted in the past with the writing of standards for prosthetic devices.
- **Division of Applied Physics**
  This division has a broad spectrum in applied physics which renders it useful as a consultant, provided clinical problems are well defined in physics or engineering terms. A biomedical instrumentation committee has been formed which is developing an understanding of the clinical environment. A transmitter hearing aid has been developed which has gained wide acceptance.
- **Bureau of Scientific Services**
  'CSIRO's apparent unapproachability as a consultant on rehabilitation engineering problems was discussed and it was suggested that journals such as 'Industrial Research News' be circulated to hospital libraries, biophysics and bioengineering departments and that relevant articles be published in those journals serving the rehabilitation engineering profession,' Mr Osman said.

'The Bureau's facilities for provision of scientific and technical information were also discussed. It is apparent that considerable expertise in data base management exists and that CSIRO is particularly well equipped with regard to speed of response to requests for data. Further,its expertise in demography with regard to the earth sciences may be readily transferrable to clinical demography.

'A willingness to collaborate on an information clearing house, for use by groups working with the disabled, was indicated; however, it was mentioned that other organisations both public and private mighr be capable of this work and it would be necessary for NACH to assess which organisation was most appropriate.'

- **The Division of Animal Production**
  The Division has used a radioactive microsphere to study spinal vasculature before and after injury. This work is the result of collaboration between Dr R. Halls of the division and Dr J. Yeo of the Spinal Injuries Unit of the Royal North Shore Hospital.

POSSIBLE PROJECTS

Mr Osman pointed out that a list of 30 possible collaborative projects has been compiled and these range over a wide area of CSIRO research activity.

'This is just a starting point as the projects need closer evaluation and of course the list can be expanded.

'Just some of the rehabilitation problems pointed out to us during the survey included the development of methods of measuring pressure exerted by bandages; the evaluation of lightweight support bracing; the development of customised wheelchair controls and the study of electronic communication aids,' he said.

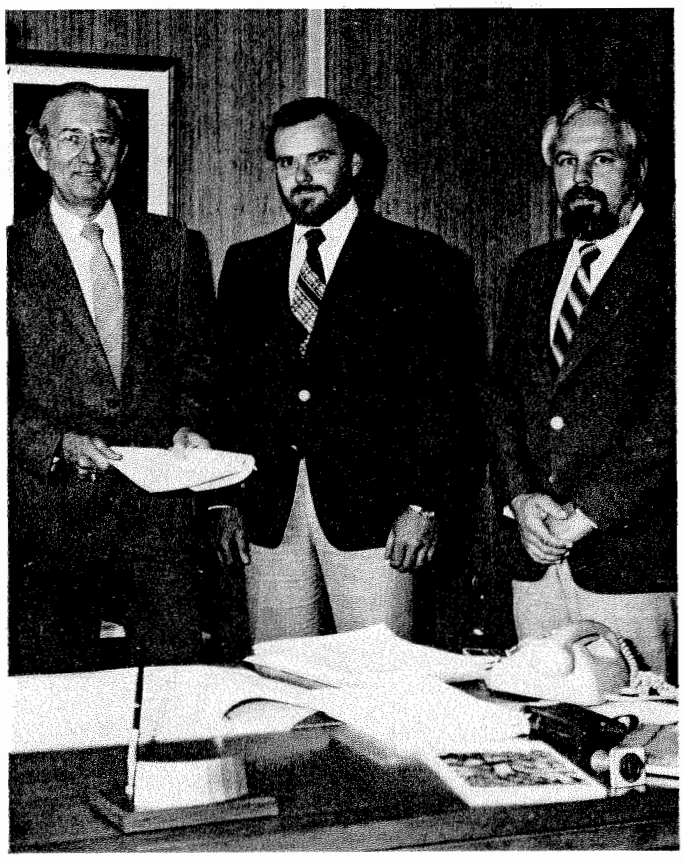
'If CSIRO scientists are to become involved in rehabilitation projects, the impetus should come from group leaders. It is the group leader who should be able to see an opportunity for a contribution and fit it in with the group's other priorities.

IDENTIFYING TASKS

'It is not a case of CSIRO needing to create the work; the work is there waiting. It's a matter of research workers in divisions identifying what task suits their expertise.'

Mr Osman added that the National Inquiry into Rehabilitation and Compensation in Australia observed that Australia was 'seriously deficient in the development of research facilities in all aspects of rehabilitation.'

'This year, the Year of the Disabled, provides the opportunity for Australian researchers, particularly those within CSIRO, to make a contribution to redress this imbalance,' he said.–Tom Parkes.



'A totally new concept in reading aids which makes life not only easier for handicapped people, but richer, more informed and fulfilling'....that's the claim made for a CSIRO invention launched on to the commercial market in December.

The device, an automated microfiche reader, allows handicapped people to read by using simple touch controls.

The reader, known commercially as ARAPH (automated reading aid for the physically handicapped) was developed in the Adelaide Laboratory of the Division of Manufacturing Technology and is pictured above.

Also pictured (above) are three of the team responsible for getting the idea from a laboratory concept to a marketable product: Left, Mr Ron Bowman, the Managing Director of R. W. Bowman Manufacturing Pty Ltd, the licensed manufacturers; centre, Dr Colin Perrott, the OIC of the Adelaide Laboratory of the Division of Manufacturing Technology who headed the research team; and right, Dr Henri Martel, the Industrial Property Officer of the Division of Manufacturing Technology.

Representatives of hospitals and institutions, rehabilitation professionals, educationalists and politicians, as well as CSIRO staff, attended the commercial launching of ARAPH in Adelaide.

The guests were told that the device had great international potential as an aid for the handicapped in homes and institutions and also in the business world as a more efficient method of using a microfiche reader.

According to Bowman Manufacturing's promotional material, the uses of ARAPH are "as unlimited as imagination itself."

FOR MORE INFORMATION:

Mr Peter Osman is available to discuss rehabilitation projects with other CSIRO researchers. He has a detailed list of project possibilities and contacts in the clinical field who can provide more information.

He is at the CSIRO Division of Applied Physics, P.O. Box 28, Lindfield, NSW 2070. Phone (02) 467 6211.

Research and technical staff can also join a voluntary professional group who can provide an engineering service to disabled people.

The group, TAD (Technical Aid for the Disabled) is made up of engineers, technicians and tradesmen who use their skills to design and manufacture aids for the disabled as well as providing a consulting service–all on a voluntary basis.

Information on the State branches of TAD is available from Mr G. Winston, TAD, P.O. Box 108, Ryde NSW 2112. Phone: (02) 808 2022.

Taking a close look at Macquarie Island's frozen wastes

Macquarie Island, which lies in the sub-Antarctic about 1500 kilometres south east of Tasmania, has provided a number of puzzling questions as to some of its land form origins.

A recent visit was made by two scientists from CSIRO's Division of Land Use Research, geomorphologist Dr Ernst Loffler and plant ecologist Dr Andy Gillison, who made the trip in conjunction with the Australian National Antarctic Research Expedition.

Their studies have shed further light on the extent of glaciation and the widespread terracing that is one of the main features of the island plateau area.

LAKE ORIGINS

It now appears that most if not all of the considerable number of lakes on the island are of glacial origin. A study of the geomorphology and plant ecology of the remarkable terrace formations on the island plateau has also revealed that many of the terraces, particularly those exposed to the prevailing westerly winds, are not stable post-glacial remnants as generally believed.

The giant terraces on the lee side of the island are more or less stable but the smaller terraces on the windward side are much more dynamic due to higher rates of freeze and thaw. This influences the development of soil and vegetation cover which in turn affects terrace building. The location of such terraces has provided a valuable opportunity to study these formation processes at first hand.

Researchers from the CSIRO Division of Land Use Research, geomorphologist Ernst Loffler and plant ecologist Andy Gillison, undertake an examination of periglacial land forms during a recent visit to sub-Antarctic Macquarie Island.

Publishing milestone for CSIRO

For the first time in fifty years, CSIRO has a sales outlet in Sydney for its many and varied publications. Burfitt's Books Pty Ltd, have become our Sydney agent.

A recent survey found that 11 per cent of enquiries coming in to the Sydney Technical Information & Liaison Office referred to CSIRO publications and the difficulties experienced by people wishing to obtain them.

For many years, Sydney people had to write to Melbourne for saleable publications.

'Melbourne!' they would shriek in dismay, as if Melbourne were at the other end of the earth.

Quelle indignite—no self-respecting Sydney-sider likes to be dependent on that other city in the south for anything. 'Couldn't something be done about this outrageous situation?' they would ask.

Well, Burfitt's have taken their courage in both hands and are endeavouring to fathom the mysteries of the multivarious CSIRO divisional publications, the collaborative publications and the out-of-print publications, not to mention the numerous extant or extinct serial publications.

CHALLENGE

In the past, this task has proved either too arduous or too incomprehensible for others, including the Australian Government Publishing Service, who long since gave up the unequal struggle, except in the case of a few best sellers.

Who are these people—these Burfitt's—brave Goliaths of Sydney's bookselling world? Briefly, the history of their business is as follows:

Six years ago, Mrs Penelope Burfitt set up in a small way as a specialist book service, operating from her own home in Chatswood. No job was too small or too tedious and she became famous for her talent in hunting down hard-to-find titles. University students, scientists, librarians and booksellers all trod a path to her door.

Last year, on completion of his Commerce degree, her son Charles joined her in the business and it is he who is handling the CSIRO material. He is also interested in providing book services to Sydney's schools and educational establishments.

Burfitts have moved to premises in Burwood, the demographic heart of Sydney's western suburbs, where the bulk of Sydney's population resides, and as well as selling CSIRO books they are hoping to act as wholesalers for other Sydney bookshops.

The establishment of this sales outlet makes a milestone in CSIRO's publishing history, since the early philosophy was that information, published or otherwise, should be free and should only be given away not sold.

Unfortunately, if any published material is given away indefinitely, there is an eventual upper limit beyond which no division can afford to go.

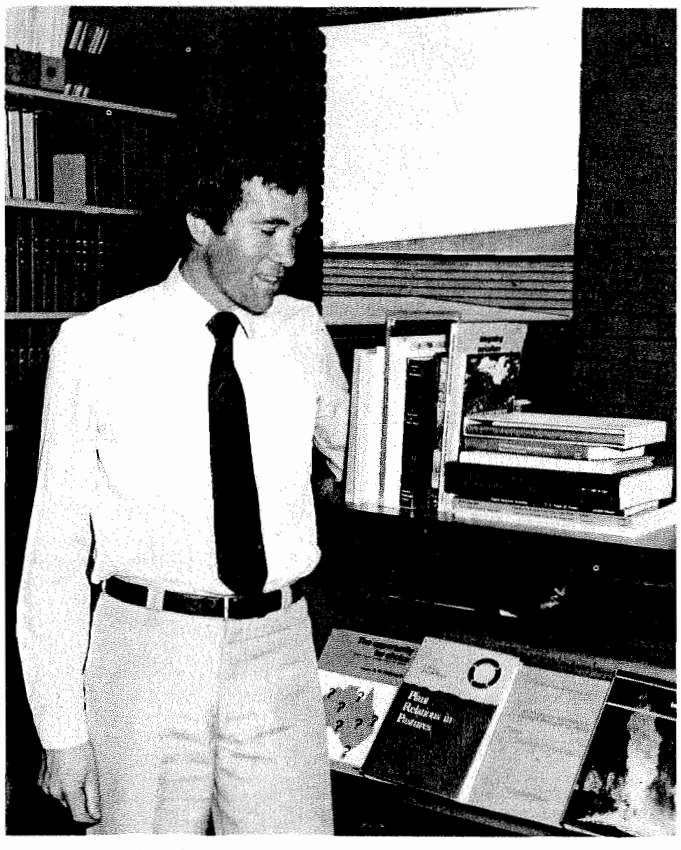
Hence the advent of saleable publications, now running at nearly $500,000/year in CSIRO, from the Editorial and Publications Service alone.

We hope that Burfitts will be eminently successful in disseminating the CSIRO's saleable scientific publications in Sydney. In doing so, they will fill a long-felt need and we wish them well for the future.

For any prospective bookbuyers, their address is:

2 Hornsey Street
Burwood, NSW 2134
Telephone: 747-5212, 74 8833

—Yvonne Esplin



Charles Burfitt of Burfitt Books Pty Ltd which has become CSIRO's book sales outlet in Sydney.

CAT

The CAT column is open to all members of CSIRO who wish to comment on communication matters. Letters and articles should be sent to the Editor of CoResearch in the normal way.

The Director of the Bureau of Scientific Services, Mr Sam Lattimore, has replied to three recommendations made by CAT following its third meeting late last year.

In response to a request for an information officer to handle general inquiries to CSIRO in the Brisbane area, Mr Lattimore said at present he could make the appointment only by taking a position from somewhere else in the Bureau.

'As you know, I have recently appointed Mr Jim McNamara as an information officer in Perth and as soon as resources are available an appointment will be made in Brisbane,' Mr Lattimore added.

TELEPHONE OPERATIONS

CAT's second request referred to a review of CSIRO's telephone operations.

Mr Lattimore replied that he had established a small working party to examine the matters raised and to canvass opinions from CSIRO Divisions and Headquarters. Recommendations made by the working party would be reported to the Executive.

Members of the working party are Jenny North (Institute of Earth Resources), Don Gwynne (Staff Development Unit), and Charles Hawkins (Commercial Group).

A representative from Telecom and another from the National Library will also be invited to join the working party.

EDITORIAL PANEL

The third request concerned the establishment of an editorial panel to review Headquarters' circulars.

Mr Lattimore has indicated that two individuals will be appointed to appraise previously issued circulars and suggest methods by which they could be improved.

'It seems to me that we need do more than set up an editorial panel if we are to make the circulars more effective,' Mr Lattimore said. 'When I have received the report of the working group I will raise the matter with Mr Wilson and suggest that he examine the mechanisms used to prepare circulars,' he added.

CAT will meet this month in Sydney. The meeting will be held on February 24-25 at the Regional Administrative Office. Among items on the agenda are followup reports from the recent communication symposium, CSIRO's involvement with electronic media and the possibility of sponsorship for an overseas communicator.

Coresearch Classifieds

CANBERRA TO LET

2½ bedroom tri-level townhouse. Bush setting Wybalene Grove, Cook.

Available mid-February for 3 months, $70 per week. Phone 512564 or 886996.

A complete un-opened set of RSX-11 documentation suitable for PDP11/34 minicomputer. Anyone interested should contact The Secretary, CSIRO DMS, P.O. Box 310, South Melbourne, Vic. 3205.

In retirement...

Mr R. C. Richardson retired in November after 35 years' service with CSIRO.

After his final examinations for the BE degree in 1942, Bob joined the Engineering Division of the Directorate of Radio and Signal Supplies, Ministry of Munitions, and was attached to the Division of Radiophysics under Dr O. O. Pulley, who was seconded from CSIR.

In May 1945 Bob transferred to the Electro-technology Section of NSL where, with L. G. Dobbie, work was continued on tropic-proofing and the development of test chambers. In collaboration with J. Warner of the Division of Radiophysics, an aided-layer for a Shoran radar and a straight-line flight-indicator were designed and constructed to demonstrate the control of an aircraft during aerial mapping and surveying.

This equipment was transferred to the Bureau of Mineral Resources and improved models designed for their use.

These activities were combined with general administrative duties as Technical Secretary of the Division of Electrotechnology until 1957 when Bob went to London as Scientific Liaison Officer at ASLO for three years.

On returning from London Bob worked with W. K. Clothier on initial investigations of absolute electrometers. At the end of 1961 he undertook supervision of the work of the DC section.

Principal activities have been the instrumentation of the DC aspects of the absolute determination of the ohm and the development of other measuring techniques.

Latterly a lot of Bob's effort has been devoted to the control of temperature of apparatus and the improvement of the control of laboratory temperature, particularly at the National Measurement Laboratory at West Lindfield.

* * *

Overseas travel with a trip to Europe and America is being planned by Edgar Hindell, who retired in December after 35 years as a fitter and turner with CSIRO.

Edgar had been for some years workshop supervisor for the combined Applied Organic Chemistry and Materials Science workshop at Fishermens Bend.

He was active in the Technical Trades Association and Laboratory Craftsmans Association, being a foundation member and first Victorian Chairman. He was recently made a life member of the Laboratory Craftsmans Association.

Edgar is a keen lawn bowler, an activity that takes a substantial part of his spare time. He also plans to try his hand at carpentry and has a few projects in mind for his new flat.

* * *

War on the Lerp has been declared by retiring Entomology research scientist Keith Taylor who left the Division's Tasmanian laboratories on Christmas Eve after almost 30 years with CSIRO.

Keith has worked on the Sirex wasp problem since 1962 and is looking forward to working in retirement on his old enemies the Lerps which he describes as a galaxy of gum sapsuckers.

* * *

Another of the Division of Entomology's longest-serving members of staff, Arthur Mills, retired after more than 47 years service to CSIRO.

Arthur was senior technical officer with the sheep blowfly program in Canberra, but had contributed a great deal to the other research programs he'd been associated with over the years. Colleagues say they'll also miss his stylish dancing.

The Divisional Secretary of the Division of Mineral Chemistry, Bill Balding, retired on 3rd December after 25 years with CSIRO.

Graduating from the University of Sydney with chemistry as a major subject, Bill spent ten years in industry before joining the Organization as Staff Officer.

During his 13 years at Headquarters he became very well known, and practically every member of staff was known to him—at least on paper—for he was concerned not only with recruitment of scientific, technical and other staff but also with staff appraisals and reclassifications.

He was Secretary of the CSIRO Postgraduate Studentship Committee from 1956 to 1966.

In 1968 Bill transferred to the newly-created position of Secretary of the Division of Mineral Chemistry, a position in which he has helped every member of the Division. One of Bill's major contributions to the Organization has been his involvement with the CSIRO Co-operative Credit Society, of which he has been a Director since 1969.

Bill has planned a walking tour in Nepal and Sikkim next March, and is also looking forward to more opportunities for exploring and boating, for which he is well equipped with a diesel four-wheel drive vehicle, a 19-foot diesel cruiser, both coastal navigation and ocean navigation certificates, a restricted radio operator's licence, and a recently updated first aid certificate.

At a barbecue in his honour Bill was presented with a sherry decanter, a marine chronometer, and an album of photographs to remind him of colleagues and divisional occasions.

* * *

Nearly 40 years' service to CSIRO was notched up by Wilf Ewers, Officer-in-Charge of the Western Australian branch of the Division of Mineralogy.

Wilf joined the Division of Industrial Chemistry in 1941 and transferred to Fishermens Bend in Victoria in 1946. He returned to Perth in 1962 to establish a branch of the Division of Applied Mineralogy which eventually became the Division of Mineralogy.

Colleagues in the Division say Wilf will be particularly missed by the scientific golfers who remember him as a testing opponent and dedicated winner.

Len Richards, one of the best known Administrative Officers in CSIRO, retired due to ill-health in November after 40 years and 6 months service.

Len commenced duty with CSIRO in 1940 as a messenger in the National Standards/Radiophysics Laboratories at Chippendale.

Most of his working life was spent as the Purchasing and Contracts Officer with the NSW Regional Office and as such he was widely known not only by CSIRO staff but by the many firms with whom CSIRO dealt.

Because of his specialised knowledge of the purchasing and stores area Len's advice and guidance was constantly sought by Divisional, Headquarters and other Regional Office staff. At the time of his retirement he was the fifth longest serving clerical and administrative officer in CSIRO and would have been in the top 20 of longest serving officers in CSIRO as a whole.

For many years Len was the organiser of the then annual football challenges between Sydney and Canberra Units and no doubt some of the longer serving Canberra staff will remember both the 'on-field' and 'off-field' encounters that resulted.

At a dinner held in December Len was farewelled in traditional style. Headquarters were represented by Frank Whitty, Assistant Secretary Management Services, who commented on the apparent noticeable improvement in Len's health in the short time he had been away from the pressures of his job.

All of his many friends hope that his health continues to improve. He plans to make his superannuation dollar go further by living in Manilla in the Philippines.

Research grant applications

Individuals or research teams involved in marine science and technology have been invited to apply for research grants to be allocated by the Minister for Science and Technology, Mr Thomson.

Priority will be given to research in the Great Barrier Reef, Bass Strait, the North-West shelf, Gulf of Carpentaria, Arafura Sea and the Great Australian Bight. However other geographical areas will be considered. Priority fields include oceanography, marine biology, geology, ecology, coastal and ocean engineering, environmental studies and archiving aimed at developing the management of data and specimens resulting from marine research.

Application forms are available from the Department of Science and Technology. Applications must be lodged by April 10, 1981.

Drought costly to CSIRO

From page one

the Minister for Primary Industry, Mr Nixon. This money had been used to cover the costs of feeding experimental flocks purchased with wool funds, he said.

Dr Ferguson said the Organization would be applying for supplementary funds from Appropriation sources.

The Chief of the Division of Animal Production, Dr Trevor Scott, said water supplies at the Chiswick laboratory were critical.

DEPLETED WATER

"The 45 million litre water supply dam, built after the 1965 drought, is now empty for the first time and we have had to transfer our water source to a much smaller dam which at present rates of consumption will be emptied during March,' Dr Scott said.

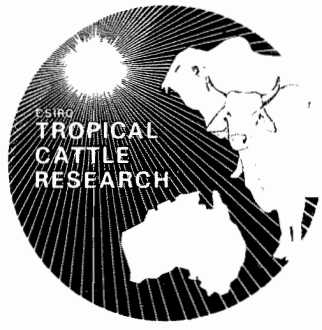
He said the Division would then have to bring back into operation a water bore which had not been used for many years.

The Chief of the Division of Animal Health, Dr Alick Lascelles, said all positive steps to reduce experimental animal numbers had been taken without severe prejudice to research programs. 'Casual labour has had to be employed and overtime worked because of additional demands on labour for feeding, watering and caring for animals under drought stress,' he added.

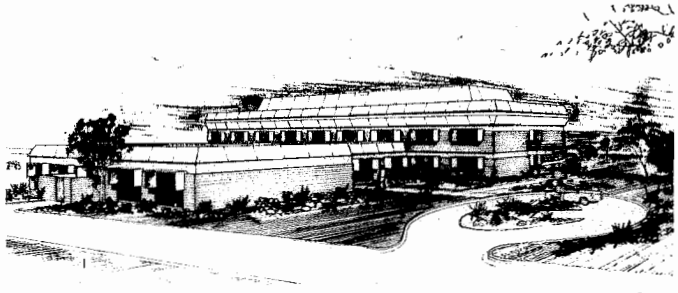
Both Divisions are concerned that if autumn rains are not substantial, hand feeding of stock will have to continue through the winter and up to September.

CoResearch

CSIRO's staff newspaper *March 1981* **238**



Rockhampton centre opens



Topics sought for 'The Researchers'

Does your research cover a topic which could be included in a CSIRO 'Researchers' film for distribution to Australian television stations?

If you think so, Nick Alexander, Officer-in-Charge of CSIRO's Film and Video Centre in Melbourne would like to hear from you.

Nick is always interested in research topics which could be suitable for a five minute television film.

'The "Researchers" are short, no more than five minutes, and are intended to give a representative view of a CSIRO activity, showing science at work to a broad audience,' he said.

'I would particularly like to hear from scientists who are working on research in the high priority areas determined by CSIRO,' Nick added.

Researchers films currently due for release are two new titles, 'Quest For a Better Battery', concerning work at the Division of Mineral Chemistry in developing better batteries for electric vehicles, and 'An Open Book for the Disabled', relating to the development at the Division of Manufacturing Technology of an automated microfiche reader which gives disabled people more ready access to the printed word.

Nick Alexander can be contacted at 314 Albert Street, East Melbourne, or by telephoning (03) 419 1333.

Important Queensland laboratory

A major new CSIRO centre in central Queensland will be officially opened by the Deputy Prime Minister and Minister for Trade and Resources, Mr Anthony, early next month.

It is the Tropical Cattle Research Centre at Rockhampton pictured above, right.

Built on 32 ha, 5 km north of Rockhampton, the $5 million centre will spearhead research into breeding and raising tropical cattle.

CSIRO's Division of Animal Production has had staff based in Rockhampton researching the problems of tropical cattle production since 1953, and has developed several genotypes of cattle on "Belmont" the Australian Meat and Livestock Corporation's research property 30 km north of Rockhampton, since 1952. However, the new Centre is its first specifically designed complex.

It is fully air-conditioned, has seminar and meeting rooms, a library and numerous laboratories including those for low-temperature work.

The animal house is capable of holding between 70 and 100 cattle for research into animal metabolism and nutrition.

It contains two climate rooms where research into the effect of temperature and humidity can be carried out.

There is also room for research involving radio-active isotopes, which is set apart and insulated from the rest of the animal house with its own waste-disposal system.

Effluent from the main animal house goes to the Centre's own sewage disposal unit and, after treatment, is pumped into lawns and gardens throughout the site.

Dr Brian Siebert, Officer-in-Charge of the Centre, said the facilities for indoor cattle research were probably the most extensive found anywhere in Australia.

'In fact it is one of the few facilities in the world to have animal breeding facilities on hand as well as laboratories to study the physiology, biochemistry, immunology, genetics and nutrition of animals simultaneously,' he said.

The Centre will provide accommodation for staff from the Divisions of Animal Health and Entomology. These Divisions play a complementary role to the Division of Animal Production's research program at Rockhampton.

Staff from the Division of Applied Geomechanics, which has mining research interests in the area, are also accommodated in the Centre.

Seminar to outline CSIRO mfg industry assistance

More than 200 key figures in manufacturing industry in Victoria have been invited to attend a one-day seminar in Melbourne next month to hear how their industries can be assisted by CSIRO.

The Seminar will be held on April 14 at the auditorium at Moonee Valley. It's being held by CSIRO in conjunction with the Department of Trade and Resources. The function has been organised by Dr Clive Coogan of the Bureau of Scientific Services in Melbourne.

The Victorian Premier, Mr Dick Hamer, will open the program which will include speakers representing a range of areas within CSIRO.

A member of the Executive, Dr Greg Tegart, will outline CSIRO's role in Manufacturing Industry, while the Chief of the Division of Manufacturing Technology, Mr Bob Brown, will speak of the work in his Division related to manufacturing industry.

The Chief of the Division of Applied Physics in Sydney, Dr John Lowke, will discuss the work of his Division, while Paul Grant will discuss the role of the Patents and Licensing Group.

Dr Coogan said other speakers would include Clyde Garrow of CILES, and the Hon. Ian Smith, Victorian Minister for Economic Development.

The Chairman of CSIRO's Advisory Council, Sir Peter Derham, and the Chairman of the State Committee, Mr J. Kolm, will outline the roles of both the Council and Committee.

This book has the answers

How to waterproof a shower recess.. pouring a no-leak concrete slab... solving the picture-window problem.. these are just some of the answers to home-owners' problems which are contained in a new book which has been compiled by CSIRO's Division of Building Research.

The book, edited by home handyman Bob Ryan, will have an initial print run of 10,000 and will sell for $4.95.

Chapter headings in the book include the roof, walls, soils and under floors, energy savers, concrete, finishing and many others.

It has been produced as a result of the tens of thousands of enquiries that are directed to the Division of Building Research annually.

The information in the book is based on the Division's information sheets and research papers. Bob Ryan, the Australian Broadcasting Commission's commentator on homes, building and local government, is a regular guest on Caroline Jones' Sydney-based City Extra program.

The Minister for Science and Technology, Mr David Thomson, officially launched the book at a ceremony in Sydney earlier this month.

The book will be available at bookshops throughout Australia or from the Division of Building Research, Highett, Victoria.

There are some new faces on the staff of the Minister for Science and Technology, Mr David Thomson, in Canberra. This picture should serve to introduce the members of the Minister's staff to CSIRO staff. Although the Minister's staff handles the day-to-day Ministerial matters involving CSIRO, they rarely get the opportunity to meet a large number of CSIRO people—except by telephone. Pictured are: Back row, from left, Mr Richard Lawson, Assistant Private Secretary; Dr Keith Butler, Senior Private Secretary; Mr John Budd, Private Secretary. Front row, Miss Maria Benedetti, steno secretary; Mr Thomson; Miss Cynthia Howland, Personal Secretary.

Sincere sympathy is extended to the family of **Fred Ashman**, a researcher with the Stored Grain Laboratory of the Division of Entomology, who died suddenly while on a visit to Thailand. Fred had only recently taken up his position in Canberra from the U.K. and colleagues were shocked to learn of his untimely death.

□□

Mike Austin of the Division of Land Use Research will be missing from his Division for the next few weeks. He'll be spending much of his time at the Australian National University's Department of Environmental Biology, working on a project to design a more sensitive experiment to test the responses of organisms to the environment.

□□

Visiting the Division of Land Use Research's Black Mountain Laboratories in Canberra is **Michael Bourke** of the Papua New Guinea highlands agricultural experiment station, Aiyura. Michael will be working with **John McAlpine** who will shortly begin work on the survey to assess the potential of PNG's natural resources for subsistence farming, agriculture and population growth. The study is being carried out for the Territory's Department of Primary Industry.

□□

Angus Packham has retired after 27 years in CSIRO. During this period he served in scientific administration under four Chiefs, Dr H. R. Marston, Mr D. A. Gill, Dr J. M. Rendel and Dr T. W. Scott.

He was most recently Research Coordinator, Tropical Cattle Research Centre, Rockhampton, and was formerly Manager of the Centre's field station "Belmont".

In recognition of his contribution as Treasurer and member of Council of the Australian Veterinary Association for ten years, he was elected a Fellow of the Association in 1967.

□□

Dr David Solomon, Chief of the Division of Applied Organic Chemistry, is the Inaugural Recipient of the RACI Applied Research Medal and Award which for 1980 is to be named after the late Dr S. F. Cox.

The establishment of an award for applied research recognizes the contribution made to the profession of chemistry by members of the RACI whose work is carried out in the laboratories of Industry, and in those academic and government research establishments which are concerned with the application of chemistry to everyday life.

□□

A new job challenge is facing **Barry Carbon** who recently resigned from CSIRO to become environmental manager for Alcoa in Perth. Barry was with CSIRO for 17 years, much of it spend on research in the jarrah forests of south Western Australia.

□□

Elizabeth Carvosso of CILES is the editor of the Bureau newsletter, published for the first time this month, by the Bureau of Scientific Services.

The newsletter will be produced each month except January and contains news of current activities and new projects being developed.

Dr Simon Robinson has joined the Division of Horticultural Research in Adelaide as a recipient of a Queen Elizabeth II Fellowship. Simon was previously at the University of California, Santa Cruz.

□□

The Division of Manufacturing Technology has created **Ted Davis** a Senior Research Fellow. Chief of the Division, **Bob Brown**, says Ted is a highly experienced engineer who was previously Chief Superintendent of the Advanced Engineering Laboratories at the Defence Research Centre in Salisbury, South Australia.

Ted is a member of the South Australian Government Council on Technological Change and has a wide range of industry and government contacts. He will be working with the Division for three days each week.

□□

A new face in the Adelaide laboratory of the Division of Manufacturing Technology is **Ian Henderson** who was recently with the Australian Welding Research Association. He has joined the program of the Division's welding laboratory.

□□

The Division of Entomology in Canberra has lost its little touch of France, with the return to Montpellier, France, of **Dr Jean-Paul Aeschlimann**, who has just spent a year in Canberra looking at this end of the sitona weevil program.

□□

Entomology newsheet editor **Ed Highley** has formed a CSIRO branch of the group DOGS which has received media attention recently for its interest in private school funding. But Entomology's DOGS is the Defence of Government Scientists who are concerned at the increasing number of dogs coming to the Black Mountain laboratories. It seems a recent count indicated that the four-legged researchers may soon outnumber those on the payroll.

CSIRO has an adviser to the Indian sliced veneer industry. He's **Barry McCombe** of the Division of Building Research who has just returned from six weeks assignment with the Food and Agriculture Organisation.

□□

Ian Henderson, Chief Graphic Designer with the Science Communication Unit, is back in Canberra after a two week course at the University of New England where he lectured in design to students involved in the editing of small publications.

Ian's paintings were on display during the course at Mary White College.

□□

In retirement from CSIRO after more than 30 years is **Dr Ron Johanson** who has most recently been working with the Division of Building Research in Melbourne. Ron began his career with CSIRO in 1948 at the Division of Plant Industry and has been involved in the development of the wood preservative BLUE-7.

□□

Also retiring this month from the Division of Plant Industry in Canberra is **Dr Hj Eichler** who has been curator of the Herbarium Australiense since 1973. Dr Eichler's replacement as Leader of the Herbarium is **Dr Bryan Barlow**, a botany graduate from the University of Sydney who recently completed his Dr.Sc at Flinders University in Adelaide.

□□

Dr David Mitchell is Acting Chief of the Division of Irrigation Research in Griffith for the next 12 months.

David assumed the position this month when the Chief, **Dr Paul Kreidemann**, was given 12 months leave to carry out personal research in the Division of Soils in Adelaide.

Baden Williams of Land Use Research in Canberra found himself the centre of media attention in Newcastle when he appeared to explain that land use researchers studying soil salinity in the Hunter Valley were not little green men trying to survey for the proposed aluminium smelter.

The team hope that Baden's appearance will warm up the cool receptions they have received from some landholders.

□□

Two Divisions at Black Mountain in Canberra have new information officers.

Jean Weber at Computing Research to replace **Audrey Jitts**, now living in France, has simply moved over from Environmental Mechanics.

Peter Martin, information officer at Land Use Research, joins CSIRO from the Australian Government Publishing Service in Canberra where he was an editor. A graduate of Adelaide University and the Canberra College of Advanced Education, Peter replaced Marjorie Sullivan who resigned late last year.

□□

Noise problems encountered by the Division of Wildlife Research and Land Use Research in Canberra are being investigated by **Bill Davern** of the Division of Building Research in Melbourne. Bill says many of the problems relate to the installation of new equipment and are able to be improved by increased insulation. Bill has given specialist advice on noise problems to a number of Divisions and comments that where possible he'd rather consult during planning stages.

□□

Barry Norman who has been recently officer in charge of the Burrenda experimental station for the Division of Plant Industry, has resigned from CSIRO.

Barry joined the Division in 1959 and transferred to Burrenda near Narrabri in 1976.

Mr Jan Kolm (recently retired from ICI, and Chairman of the Victorian State Advisory Committee) assesses the feel of wool transfer-printed by the Division of Textile Industry's new process. Left to right: Sir Peter Derham, Chairman, CSIRO Advisory Committee), Dr Don Taylor (Chief, Division of Textile Industry), Mr Kolm, Mr John Brookes (Ministry for Conservation, State Committee Member) and Dr Rex Brady (Division of Textile Industry).

Science education centre to open soon in Melbourne

The Victorian Education Department has seconded secondary teacher Graham Wallis to CSIRO to establish a Science Education Centre at the Highett site in Melbourne. Graham will be located within the Division of Mechanical Engineering.

He has been teaching for about 10 years, the last six at Ringwood High School mainly at year 12 level physics and mathematics.

The proposed science education centre is an exciting new concept for CSIRO and will eventually become the main interface between CSIRO and the education system.

The centre will provide a mainly activity-based "hands on" scientific experience for high school students, giving them an opportunity to do things they would not normally do in the classroom. It will also stimulate an on-going interest in science and its applications and help to make science and scientific research more relevant to students. The centre will become a focal point for future CSIRO employees.

CONSULTATION

Graham will spend the next few months preparing a feasibility study for the future operation and development of the centre. Science teachers are to be consulted about the functioning of the centre and the use they are likely to make of its facilities. The development of a variety of experiments, displays, demonstrations and audio-visuals will take place during this year. The activities will be designed to complement the school program and the centre should be ready for business by the start of the 1982 school year.

Activities for any one year will be based on themes. Some suggested themes are energy resources and their use, human aspects of science and measurement in science.

The centre is a joint project between the Bureau of Scientific Services and the Division of Mechanical Engineering. The Bureau will be budgeting for the operation of the centre while the Division is providing a building to house the centre.

Graham Wallis

Letters

Dear Editor,

Congratulations on the 'From the Chairman' column. A welcome initiative. Perhaps the monologue will become a dialogue. Is this too much to hope?

When an organization is continually growing and good ideas receive resources there is high morale and nobody really cares about the management, never mind giving them any credit. In this atmosphere perhaps most staff are "happy to get on with what they are doing and trusting or disinterested in the central management of the organization." However, in a situation of diminishing resources where good ideas may not get to first base and existing projects are cut then staff naturally feel insecure and have low morale. They may also blame the management for their own problems. If at the same time the organization is restructured with additional links in the bureaucratic chain then many staff feel more remote than ever from top management. Additionally, much of CSIRO research is under external review (quite correctly) leading to an enhanced feeling of insecurity. This is the very time management has to be more visible, to be seen taking stands on important issues. Communication within the organization is essential.

I hope readers of CoResearch take the opportunity to communicate with the Chairman.

Fred Darby
Division of Mechanical Engineering

Instruments on show in China

A major exhibition of Australian-made scientific instruments is being planned in China this year by CSIRO's Dr Clive Coogan who is Chairman of the Australian Scientific Industry Association.

Dr Coogan visited China in November last year as a member of the Victorian Government mission to China led by the Premier, the Hon. R.J. Hamer.

Chinese leaders expressed interest in Australian scientific instruments and equipment taken to Australia on earlier visits, and propose to send a party of five or six selected scientists to Australia during the year to select categories of instruments which particularly interest them.

'In September or October, the Jiangsu branch of the Chinese Academy of Science and the Jiangsu branch of the China Machine Tool Import Export Corporation will host a major trade exhibition of Australian equipment in Nanjing,' Dr Coogan said.

He said the exhibition would be based on categories selected by the visiting scientists.

'Jiangsu authorities promise to ensure that representatives from all other major provinces will attend and the event will be supported by seminars on all the major scientific disciplines represented,' Dr Coogan added.

Australian firms interested in participating in this exhibition should contact the Canberra office of the Australian Scientific Industry Association, telephone 484157.

From the Chairman -

A regular column by the Chairman of CSIRO Dr. J. Paul Wild

Recently, as part of our program of visits which I mentioned in my previous column, the Executive visited the Molecular and Cellular Biology Unit in Sydney.

We were most interested to see some enterprising and exciting work using the new techniques of biotechnology.

This included a collaborative program with the Garvan Institute (which is associated with St Vincents Hospital, Sydney) on the production of anti-bodies for diagnostic purposes. These anti-bodies, which are produced by cloning a single cell, are potentially perfectly pure. Commercial arrangements for the production in Australia and export of these anti-bodies are now being worked out.

We also saw an example of the kind of redeployment which will become increasingly common within CSIRO. The Unit has maintained an impressive international reputation over the years with its work on influenza viruses. But with the retirement of a key research worker and the successful development of a new general theory of immunology it was time to terminate this work and use the resources elsewhere. It often requires more resolution and courage to close something down than to start something up.

* * *

CSIRO is growing, but by accretion rather than internal expansion. The resources for our main activities are roughly standing still: and this means that, in general, resources for existing activities must decrease to make way for new activities. We need to pay heed to the lines of the General Confession:

We have done those things which we ought not to have done;
We have left undone those things which we ought to have done;
And there is no health in us.

Well—the last line *is* rather severe. In fact I believe that most of what we are doing ought to be done, but there is still a need for increased watchfulness. Let me just say that the most effective and creative way of changing a line of research to something more appropriate to current national needs is when the change is thought out and developed by the scientist at the bench. Some changes must inevitably be imposed from above, but I hope the majority will spring from imagination and resourcefulness within Divisions. Let me add that the need and creative perception for change is not confined to the scientific staff. It applies to all activities including the service and administrative branches: the question is the same—how can existing resources be better used to adapt to the changing circumstances and technologies of the present and foreseeable future?

* * *

Like all organizations that have lived for several decades we suffer the effects of ageing. One of our major problems is the paucity of opportunities to employ the bright young people who carry with them new technical skills and ideas often little known to their seniors. The shortage is greatly aggravated by the circumstance of zero growth. Also, we operate under a system within which the majority of our staff have more or less guaranteed employment to retirement age. What then can be done to alleviate the problem?

One approach we have followed is to convert some positions into post-doctoral fellowships (term appointments). This has been effective and welcome in many Divisions, but strongly opposed in a few. The injection of new blood is generally welcomed, but there are some concerns about lack of security and the lead time required to get up to speed.

A second approach is through the introduction of early retirement. Controversy on this subject is raging at the present time. One suggestion is to make 60 the normal retiring age (extended to 65 in special circumstances) with the option of retiring at 55 with a reasonable pension. This is a matter that the Executive will be giving detailed attention to later in the year, but only after extensive consultation.

* * *

I am often asked the question "Where is CSIRO heading in the 1980s?" I would reply in naval terms "steady as she goes". This applies particularly to the relative distribution of effort on major sectors of research (rural, minerals, energy and water, manufacturing industries and community interests) and to the types of research we do (fundamental research of international significance, strategic research of national relevance, and problem-solving for industry and the community). While we have no need for massive redirection in either of these dimensions the fact remains that when the winds blow and the seas rage, challenging and sometimes daring feats of seamanship are required to hold a steady course.

Paul Wild

The challenge of nature

Man has yet to conquer nature...this was clearly shown to members of the administration in the Division of Textile Physics, when they began to experience difficulties with their new PDP 11 computer.

Divisional secretary John Platt said administrators arranged for the processor to be located in the library with an appropriate terminal and for a second time-sharing terminal to be located more remotely in the DAO's office, connected by many metres of multi-channel cable.

'The system worked well for a few weeks until the remote terminal in Warren Baily's office developed a fault, and within a short time, multiple faults,' John said.

After exhaustive instrument checking, it was decided to look at the entire length of the cable connecting the terminal to the processor. It was only then that the mechanics discovered the problem—possum trying to enlarge the cable's entry to the admin roof eave, had chewed through most of the pairs of cable.

John reports that the fault was quickly remedied and all terminals are now functioning satisfactorily.

CAT

The CAT column is open to all members of CSIRO who wish to comment on communication matters. Letters and articles should be sent to the Editor of CoResearch in the normal way.

CAT, at its recent meeting held in Sydney, called on the Director of the Bureau of Scientific Services, Mr Lattimore, to provide a clear statement on the purpose, preparation and distribution of CSIRO's annual report and the Institute/ Bureau and Divisional annual reports.

Mr Lattimore was requested to make the statement widely available and it was suggested that CoResearch publish it when available.

The next meeting of CAT will be held at Forestry House, Canberra, on July 14 and 15.

* * *

A working party established to review CSIRO's telephone operations has held its first meeting in Canberra.

Convenor Jenny North reports that the group is planning to seek opinions and advice in Divisions and Headquarters, to identify problem areas and ultimately report back to the Director of the Bureau of Scientific Services, Mr Sam Lattimore.

The working party comprises Ms North, Don Gwynne and Charles Hawken with Michael Dack acting as Secretary.

The establishment of the working party follows a recommendation from CAT last year in which Mr Lattimore was asked to examine telephone functions within the Organization.

In addition to identifying problem areas, the group plans to look at telephone answering services, technical advice information transfer and how new technology and practice might be of assistance.

Information is to be sought from Telecom and the National Library.

* * *

A meeting of Information Officers and others involved in communication activities in Melbourne-based Divisions was held recently at the Division of Chemical Technology.

The meeting was an informal discussion session to assess communication activities and their role in CSIRO.

It was agreed at the meeting that regular meetings should be held at the various Melbourne Divisions which would also allow the participants to gain some insight into the work of other Divisions.

The next meeting will be at 2.00 pm on Wednesday 29 April, and will be held at the Division of Protein Chemistry, 343 Royal Parade, Parkville, 3052. The speaker will be Wendy Parsons of Forest Research who will talk on her overseas visit and CAT activities.

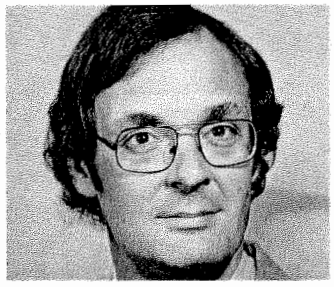
All people involved in communications activities throughout CSIRO would be most welcome to attend.

Enquiries regarding the meeting can be made through Peter Beck, Information Officer for the Division of Protein Chemistry, on (03) 342 4322.

New science, technology program

David Flatman

Sonia Humphrey



Jeffrey Watson

Three well known faces will be presenting a new popular science program on ABC television later this year.

The ABC has decided to put science and technology into the mainstream of its nightly program with the new weekly series scheduled to go to air in July between 7.30 and 8 pm.

Titled 'Towards 2000' it is aimed at explaining new developments in science and technology in layman's terms.

Presenting the program will be:

- David Flatman, former anchor man on 'This Day Tonight' and 'Four Corners' and until recently a producer with the award-winning 'Big Country'.
- Sonia Humphrey, compere of 'Nationwide' in Melbourne.
- Jeffrey Watson, formerly of 'This Day Tonight', 'Four Corners', 'Holiday' and TCN-9's 'Sixty Minutes'.

The series will cover three subjects each half hour from the studio and through location filming.

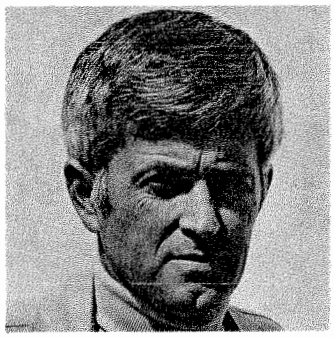
With the emphasis on how science and technology is changing our lives, the program will travel extensively within Australia and overseas.

As production gets underway, the producers are looking at CSIRO and other Australian research groups for topics to be included in the program.

'Towards 2000' is produced by the ABC's TV Entertainment Department, which produced the 'Parkinson' series, 'Mastermind' and 'The Inventors' programs.

Contact with the program's producers can be made through CSIRO Media Liaison Group, Canberra.

New CSIRO Chiefs



Dr McEwan

Dr Angus D. McEwan, currently a research leader in the Division of Atmospheric Physics, has been appointed Chief of the Organization's new Division of Oceanography.

His appointment became effective on 16 March.

Dr McEwan, 43, was born in Scotland but has lived in Australia since 1947. He graduated BE (Hons) from the University of Melbourne in 1960 and PhD (in Physics) from Cambridge University in 1966.

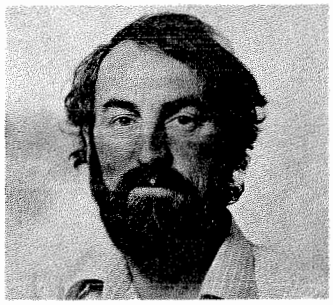
From 1956 to 1969, interspersed with periods of full-time study, he was employed at the Aeronautical Research Laboratories in Melbourne on research into specialised heat transfer processes, the behaviour of moving fluids and related physical phenomena.

In 1969 he joined the CSIRO Division of Meteorological (now Atmospheric) Physics as a Queen Elizabeth Fellow, subsequently rising to his present position of Chief Research Scientist in the Division.

When Dr McEwan takes up his appointment on 16 March the new Division will come into being.

Initially, the staff of the Division will consist of the physical and chemical oceanography groups of the existing Division of Fisheries and Oceanography presently located at Cronulla.

Dr McEwan will operate out of Melbourne initially, but will make Hobart his base later this year.



Dr Whitten

It's back to the Division of Entomology for Dr Max Whitten—as the new Chief, replacing Dr Doug Waterhouse who retires in June after 20 years as its Chief.

Dr Whitten left the Division of Entomology in 1976 to become Professor of Genetics at the University of Melbourne.

He previously worked for 11 years with the Division, originating and leading the Genetic Control Group which investigated ways to control the Australian sheep blowfly.

Dr Whitten, 41, graduated from the University of Sydney with a BSc (Hons) in 1962, and gained a PhD from the University of Tasmania in 1965. During his period as a research scientist at CSIRO, he graduated from the Australian National University as a BA.

In 1969 Dr Whitten was a Fulbright Fellow at the University of Chicago, and is currently a member of the World Health Organisation Expert Advisory Panel on Vector Biology and Control.

Dr Whitten, married with three children, is expected to take up his position later this year.

All tied up

The Division of Textile Industry's Social Club has now produced wool-rich ties with a CSIRO motif to supplement its range of CSIRO tee-shirts and windcheaters.

The ties come in three colours—navy, brown, and bottle green—with a gold diagonal stripe above which is a small gold motif of a map of Australia incorporating the letters CSIRO.

The ties, priced $7.50 plus 50c postage and packing, are available from The Social Club, CSIRO Division of Textile Industry, Box 21, Belmont, 3216. Cash with order please.

Apprentices show their achievements in Sydney

CSIRO's apprentices in New South Wales gathered recently at the workshops of the Division of Process Technology to display samples of their work and to learn of the research programs of other Divisions.

Organizer of the day, CSIRO apprentice co-ordinator Harold King, said apprentices, supervisors, parents and relatives shared the day's events.

The 26 apprentices first inspected the laboratories and workshops of the Division of Food Research at North Ryde and were then joined by parents and friends who had taken part in a similar program at the Institute of Earth Resources.

Speakers at the day were the Chief of the Division of Process Technology, Professor Bradshaw and Mr David Napoli of Headquarters Staff Development Unit.

Mr King is the apprenticeship training co-ordinator for New South Wales, Queensland and the Australian Capital Territory and the Northern Territory. He is attached to the Division of Animal Production at Prospect, NSW.

Coresearch Classifieds

We are currently developing a remote sensing unit capable of data transmission and storage, and possessing a 3-fold redundancy by virtue of self-repair under mini-computer direction.

This advertisement is in attempt to contact other CSIRO groups engaged in similar areas of research who might be interested in collaboration or to whom we might provide assistance.

Given CSIRONET, there should be a technique for entering one's area of interest on permanent file and allowing anyone else to access the user name, telephone number, etc. It would cut across many of the internal communications barriers. Someone must know how! If I could only contact them ...

David F. Smith
Division of Fisheries and Oceanography
P.O. Box 20, North Beach,
Western Australia.

'CoResearch' is produced by the Science Communication Unit for CSIRO staff. It is also circulated to some people outside the Organization who have a professional interest in CSIRO activities. Members are invited to contribute or send suggestions for articles. The deadline for material is normally the 8th day of the month of publication. Material and queries should be sent to the Editor, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editor: Jeannie Ferris.

CoResearch

CSIRO's staff newspaper *April 1981* 239

Project Aquarius: a study of fire fighting techniques

CSIRO is to begin a wide-ranging experiment into the possible uses of aircraft in fighting forest and bushfires in Australia.

This follows State and Territories agreement to a Commonwealth Government proposal made last September that the research be undertaken.

Cost of the experiment called 'Project Aquarius', which will be more than $1.3 million and will take two to three years to complete, will be met by the Commonwealth.

CSIRO will assemble a special research team led by a senior research scientist in its Division of Forest Research, Mr Phil Cheney.

The study will be undertaken in co-operation with State forest and fire control authorities which together share Australia-wide responsibility for natural fire control measures.

This will ensure that the results obtained are readily available to all States, as well as enabling the Project Aquarius team to have the benefit of their experience and knowledge of fire control operations.

CO-OPERATION

As well, the full co-operation of the Australian Forestry Council will allow inputs from other forest services to be co-ordinated and ensure effective promulgation of the findings of the experiment.

CSIRO will advertise nationally, inviting applications from aircraft manufacturers and others interested in taking part in the experiment which will examine:

- the effectiveness of bombing fires of varying intensities with both water and fire retardent chemicals;
- the effectiveness of conventional fire-fighting techniques under similar conditions; and
- a cost benefit analysis of forest and bushfire suppression in Australia.

Initial planning foresees the first series of experiments involving forest and bushfires taking place next summer.

An evaluation of the aircraft on experimental fires will take place during the summer of 1982-83.

This will be followed by a 12-month period of assessment and economic analysis.

Detailed evaluation of the results should become available early in 1984.

The Minister for Science and Technology, Mr David Thomson, will make progress announcements.

Parliamentary committee to examine Hobart Science Centre

The planned Parliamentary enquiry into the proposed National Marine Science Centre in Hobart has been set down for May or June.

The Commonwealth Parliamentary Public Works Committee will carry out the enquiry into the research centre which has been costed at $18 million.

The plan involves the move of CSIRO's Divisions of Fisheries and Oceanography to Hobart and for a new $7 million research vessel to be based at Hobart.

The Minister for the ACT, and Member for Denison, Mr Michael Hodgman, a Tasmanian politician, said a prime waterfront site for the centre was under consideration and he hoped land nearby could be secured for Department of Defence naval facilities.

Committee hearing would allow organisations and individuals in Hobart to put their views on the proposals.

He said he believed the development should be made compatible with the historic and aesthetic qualities of the port of Hobart.

New role for Sir Victor Burley

Sir Victor Burley, who retired recently as Chairman of CSIRO's Advisory Council, is to undertake a long-term study aimed at increasing industry liaison and the exchange of staff between the Organization and industry.

The study, which is expected to begin shortly, is being undertaken by Sir Victor following an invitation by the Chairman of CSIRO, Dr Paul Wild.

CLOSER RELATIONSHIP

Sir Victor said he had accepted the invitation because he believed he could help foster a closer relationship between CSIRO and industry.

'There is a need for CSIRO to develop a more positive attitude towards industry to ensure that successful research is applied as soon as possible,' Sir Victor said.

'There also needs to be broader penetration both ways—not just by researchers, but in the areas of marketing and finance as well,' he added.

Sir Victor plans to visit as many CSIRO Divisions as possible to talk to people at Executive and Chief level and where possible, bring them into contact with appropriate industry leaders.

'I believe industry is as much to blame as anyone for any previous reluctance to communicate with CSIRO,' Sir Victor said.

INDUSTRY EXPERIENCE

'However, I was surprised to learn that more than 50 per cent of CSIRO researchers had no experience in industry and I would like to see some form of employment program whereby incoming scientists spend a year with industry after their appointments,' he added.

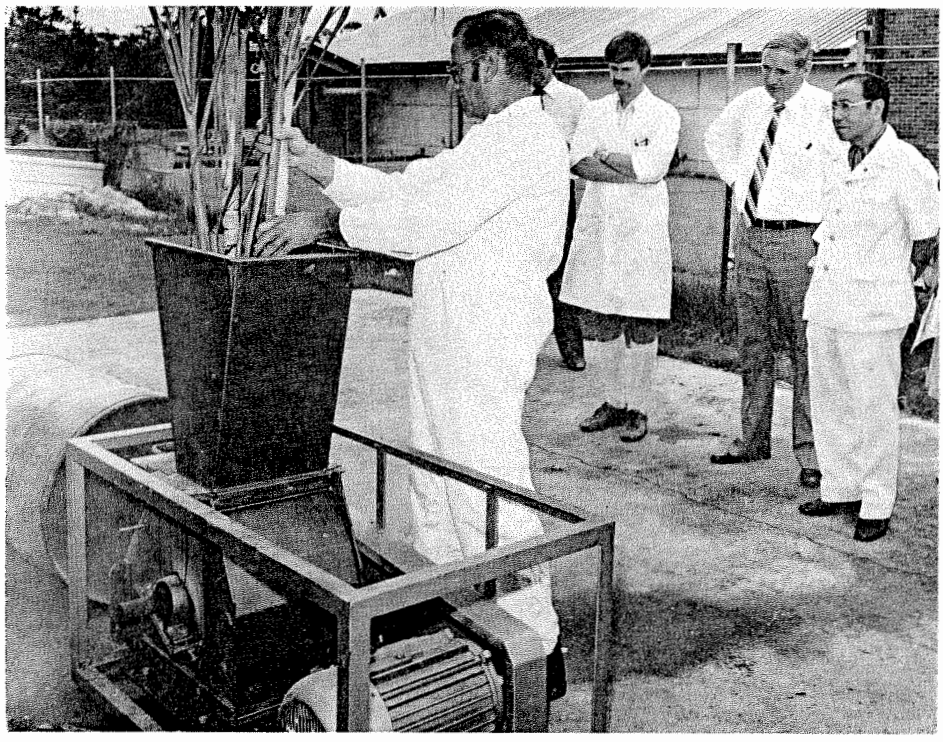
In his invitation to Sir Victor, Dr Wild said CSIRO's Executive would very much like to gain a more complete understanding of industry's views on the interchange of staff with CSIRO.

Sir Victor said he would set no time limit on his study, adding that he saw it as simply adding momentum to what others were already trying to do.

Sir Victor formally ended 20 years association with CSIRO when he retired earlier this year as Chairman of the Advisory Council.

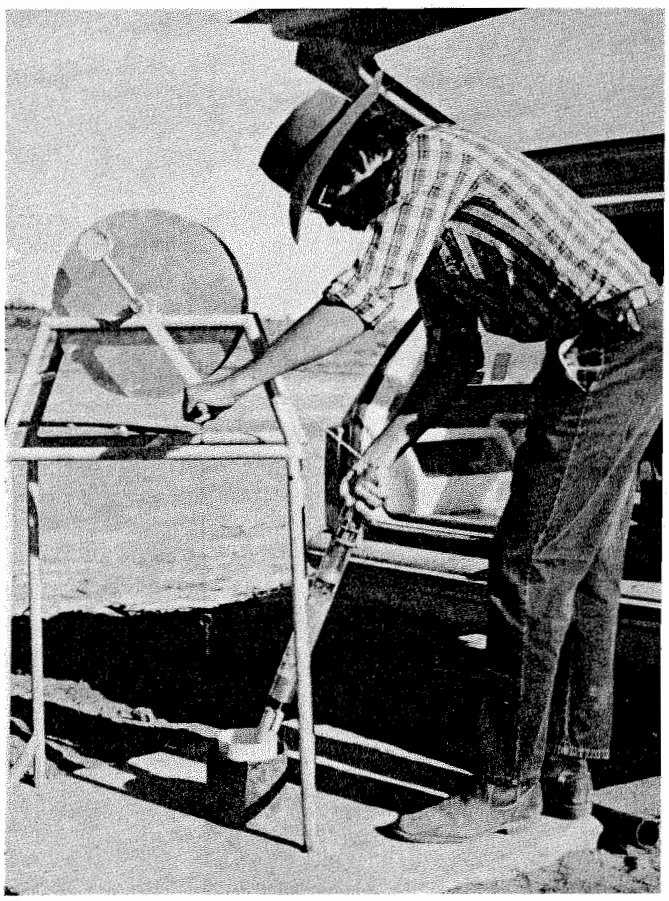
He became a member of the Council in 1961, and recalls that at his first meeting, two minutes silence was recorded to honour the memory of Sir David Rivett who had recently died.

Sir Victor became Chairman of the Advisory Council in February 1979.



Norman Peck of the Division of Animal Production, Prospect, demonstrates how sugar cane can be shredded in the Ripple-flo mill during a recent visit to the Division by the Malaysian Minister for Science and the Environment. With the Minister, Tan Sri Ong Kee-Nui, is the Chief of the Division, Dr Trevor Scott.

workplace...



Tony Smith about to lower the borewater sampling device, designed and constructed in the Division of Mineral Chemistry, down one of a series of monitoring boreholes.

Tony Smith, like Jim Edwards (CoResearch No. 236), is another of CSIRO's staff who works in an isolated region.

Tony is an Experimental Officer with the Division of Mineral Chemistry, and is based at the Mutooroo copper mine, about 100 km south west of Broken Hill.

Under the supervision of John Canterford, who visits the site every five weeks or so, Tony is responsible for on-site environmental monitoring and process optimization of the experimental solution mining project commenced last year in collaboration with the mining industry.

An old station homestead about 3 km from the mine site has been rehabilitated and Tony shares this with two mining company staff on site.

DESOLATE WORKPLACE

The surrounding country can at best be described as desolate where a lazy wind—it goes through you rather than around—blows all the time. During summer it is not uncommon to have ten or more days in a row with temperatures in excess of 40°C, while during winter it gets cold enough to freeze the water present in diesel fuel.

Apart from the sometimes unpleasant weather, Tony also has to put up with hazards such as scorpions, red back spiders and a variety of snakes. Earlier this year during one of his visits, John Canterford shot a 1 m brown snake that had decided to visit the small laboratory Tony had set up in the homestead.

SIROMAYOR

Tony regards himself as the Mayor of New Saltash, Saltash being the name of the original (1888) site—he even has a mayoral chain (made of ring pulls) to go with his title.

Apart from joining a rifle club in Broken Hill, Tony spends much of his spare time exploring the local area, including looking for an elusive quandong tree reported to be in the area, and catching yabbies and other exotica for mealtime.

Letters to the Editor

Dear Editor, Dr Wild's hope, CoResearch No. 237, that staff will communicate with him is likely to succeed only too well if one of his thoughts in CoResearch 238 is put into practice.

Are there no "Limits to Growth" applicable to CSIRO? Why must we be expanding at any cost? What is wrong with a "staff ceiling". I would like to have answers in due course but my main objection is Dr Wild's suggestion that one way to overcome the ageing scientist problem is to lower the retirement age to 60 from 65. Surely that is a snub to those employees who are over 60?

It is about time the myth that "a bright young PhD from University will revitalize CSIRO" was put to rest. Surely revitalizing comes from within oneself and more importantly from being in an environment in which adaptability and creativity are at a premium.

It is true that it requires courage to close down units and redeploy staff (CoResearch 238) but surely that is one of the duties of management. I hope that CSIRO does not become an Institution which parasitizes scientists only to discard them when either they reach 55 or when someone newer and cleverer appears on the horizon.

It may be appropriate for some people to retire at 55 to 60 (some might say even earlier) but what of those who wish to work beyond 65?

I trust Dr Wild's suggestion is not a backdoor method of introducing the Government's Redeployment and Retirement Act. The Financial Review recently suggested that Cabinet was considering applying the Act to Australia Post and Telecom so perhaps this is a case of doing something to ourselves before it is done to us.

Yours faithfully, M. H. Jones
Division of Mineral Chemistry

Dear Editor,

WANTED?

Is the IDENTIKIT picture of someone called J. Paul Wild used on the front of CoResearch No. 237 supposed to ensure that we don't recognise him when he slips into our lab. to communicate with us?

Yours faithfully
Graham Harrington
Land Resources Management
Deniliquin, NSW.

Dear Editor,

In the February issue you published an article, "Helping in the Year of the Disabled" mentioning in the bottom right hand corner, the TAD organisation.

I would like to bring to readers' attention that TAD organisations exist, not only in NSW, but also in Queensland, South Australia, Victoria, Tasmania and the ACT.

The contact addresses are as follows:

- Victoria. Mr Mark Dohrmann, Co-ordinator, TAD, Lincoln Institute, Swanston Street, Melbourne, Vic. 3000. Tel. (03) 347 7544.
- Queensland. Mr I. Cain, P.O. Box 127, Spring Hill, 4000.
- South Australia. Ms J. Harper, TAD, 4 Moseley Road, Paradise, S.A. 5075
- Tasmania. Mr Philip Hillsdon, TAD, c/- Industrial Design Council of Aust., 5 Battery Place, Battery Point, Tas. 7000.
- A.C.T. Mr D. F. Wrigley, TAD, RMB. 901 Burra Road, via Queanbeyan.

Yours sincerely, George Winston,
Executive Engineer, Technical Aid to the Disabled.

Dear Editor,

The February issue of CoResearch contained an anonymous letter deploring the decision of most OA members to reject a 5.6% salary increase.

The letter contained a plea for compassion for the underprivileged and unemployed and an accusation of greed on the part of the offending OA members.

I am sure all of your readers, even if sympathetic to the view of 'Observer', will recognize the over-simplification of complex salary fixation issues embodied in his argument. I would just like to touch on two points raised.

The first concerns matters of fact. OA members' relativity to less 'privileged' (i.e. lower paid) wage earners has been declining at an alarming rate over the past 6 or 7 years (see OA Bulletin No. 176). Whether or not they feel any better for it I cannot say (my guess is they don't) but their involuntary sacrifice does not seem to have improved the unemployment statistics significantly. If the OA, or anyone else, could guarantee that a particular salary policy would produce certain social benefits then 'Observer' might have a case. Until then, his views on salary vs unemployment simply reflect one side of a long-standing and as yet unresolved debate.

The other point is more general. Our society provides an enormous number of avenues for those who feel so inclined to help others whom they perceive as underprivileged. Of those avenues, I would have thought that a compulsory cutback of professional salaries was one of the less efficient.

What does 'Observer' imagine the Government will do with the salary rise he wishes to relinquish (or the salary loss he seems so readily to have accepted)? If he wishes to make sure that areas of *his* choice, presumably not F111's, Blue Poles or Royal Tours, gets a guernsey, might I suggest he gets ready to take the money and start writing out cheques?

Yours faithfully, Tom Biegler
Mineral Chemistry

Dear Editor,

The decision by the majority of the OA members to refuse to accept a 5.6% increase in salary was based on concern for the future of CSIRO and not for selfish reasons as suggested by 'Observer' (CoResearch No. 237).

CSIRO has a reputation as one of the world's best research organizations. This reputation was achieved by the ability of CSIRO to attract and keep a high proportion of the best brains available.

If CSIRO fails to maintain this quality how will it be able to continue to attract the best scientists? Once CSIRO starts to employ the second best then quality will rapidly become a figment of the imagination of a public relations section.

To maintain its premier position, CSIRO must maintain its competitive position in the market place for scientists. Excellent facilities are essential but it is foolhardy to believe that salaries are not another important factor considered by scientists choosing between CSIRO and some other employers.

For many years there was a de facto relationship between CSIRO and University salaries. This has now changed. The value of academic training is now recognized and university staff, through their own special salary review system, have achieved appropriate rewards.

The salaries of CSIRO staff are under the control of the Public Service Board who have effectively tied the salaries of research scientists to those of the Administrative Grades of the Public Service. This has led to a loss of 7-8 per cent in CSIRO research staff salaries relative to comparable grades in the universities.

In recent years the rate of promotion within universities has been faster than in CSIRO. A recent salary survey published by the Royal Australian Chemical Institute showed that in the past eight years the median salaries of chemists working in CSIRO had slipped 20 per cent relative to that of university chemists.

Continued on page seven

Increased CSIRO aid to developing countries

Requests for CSIRO aid to developing countries has increased enormously over the past two years.

In 1980, CSIRO's Centre for International Research Co-operation (CIRC) has handled projects in about 40 countries.

These projects involve more than 60 CSIRO officers and are carried out in countries in Africa, Asia, South America, the Middle East and the Pacific Islands.

Funds administered by CSIRO on aid projects have exceeded $3.8 million in the twelve months to December 1980.

Of this, approximately $2.36 million has gone to the Centre for Animal Research and Development near Bogor, Java, a joint Australian-Indonesian project.

FINANCIAL SUPPORT

Money for these projects has come from several sources including the Australian Development Assistance Bureau, various United Nations agencies, foreign governments and private bodies.

Aid sought has been mainly in the fields of agriculture and forestry research although CSIRO expertise in areas such as national measurement and standards has also been requested.

Use is being made by scientists of CSIRO's computer-based information bank in many developing countries. The Co-operative network of information on renewable energy is proving of particular value to research workers in South-east Asia and the Pacific as energy costs increase. CSIRO has collaborated with the Department of National Development and Energy in developing this system.

FOCAL POINT

CIRC was established in mid-1978 to provide a focal point for CSIRO research co-operation in developing countries, to plan and evaluate CSIRO's contribution to Australian assistance to developing countries and to encourage the efficient use of CSIRO resources in this area.

CIRC responds to requests for research and research administration aid, provides advice and information and trains people from developing countries.

ANZAAS planning underway

All roads lead to Brisbane this year for the 51st ANZAAS Congress.

To be held between May 11 and 15 at the University of Queensland, the Congress has attracted 3,000 delegates including many from CSIRO.

As usual the program is dotted with CSIRO names, presenting papers, leading symposiums, discussions and heading Section Committees.

The theme this year is Energy and Equity, a theme, according to the Organizing Committee Chairman, Mr Allen Morgan that is 'particularly appropriate.'

'Because the Congress has attracted eminent scientists and industrialists and politicians from many countries, it is certain to produce some fresh insights into our energy problems over a wide range of areas,' he said.

One of the additions to the Congress this year will be the participation of the CSIRO Media Liaison Group in the Congress Media Centre.

The Group, part of the Science Communication Unit within the Bureau of Scientific Services, has been involved in the Centre's planning since mid 1980.

Two members of the Group, Tom Parkes and Jeannie Ferris as well as John Seymour from the Science Communication Unit will staff the Media Centre with the Congress's Public Relations Officer, Mrs Anna Palthe.

The plan is to provide the media with an efficient service for congress papers as well as a full range of facilities like telephones, telex lines and typewriters.

A 'blackboard menu' system will point journalists to what appear to be the most newsworthy events each day.

However, the operation of the Centre depends heavily on speakers delivering a copy of their paper to the Media Centre directly or through their Section Secretary before they speak.

Sir William Hudson is remembered

One of Australia's most respected research associations is seeking young people who are innovative, 'even unorthodox', to help them further their careers in the national interest.

And the source of inspiration is one of Australia's best remembered engineers, the late Sir William Hudson of Snowy Mountains Hydro-Electric Authority fame and foundation Chairman of the Australian Welding Research Association.

This Association, comprised of representatives of more than 160 companies, government departments and statutory authorities including CSIRO, universities and other research bodies, has launched the Sir William Hudson Memorial Awards Scheme.

BROADEN SPECTRUM

President of the Association, Mr Neil A. Falconer, said the purpose of the awards was "to broaden the spectrum of service given by the Association, particularly to Australia's metals industry, by envouraging young people involved in welding."

'Much of Australia's new technology is the culmination of research, development and demonstration,' he said.

'The machinery for conducting research is well established in universities, colleges, government and industrial organizations.

'For some years the Association has initiated and funded welding research through this system.

'But it has also been aware that the opportunities for young persons, perhaps unorthodox in their approach but with innovative ability, to engage in development and demonstration are not so well defined.'

FINANCIAL CONTRIBUTION

Mr Falconer said the 1981 Award, entries for which close on 31 May, would take the form of a contribution towards salary and expenses to enable successful applicants to engage in any one of the following activities:

- to conduct research into any aspect of welding or its application:
- to develop a technique or process involving the use of welding:
- to study modern developments in welding in Australia or overseas:
- to engage in any other activity likely to contribute to the improvement of welding technology in Australia.

Application forms are available from the Australian Welding Research Association, 118 Alfred Street, Milsons Point (NSW) 2061, (Phone 02-922 3711).

From the Chairman -

A regular column by the Chairman of CSIRO Dr. J. Paul Wild

Not long ago I received a letter from a Chief of a Division telling me that in his opinion the Executive should spend a day or two each year with every Chief individually, making an in-depth analysis of the Division's work and indicating the way to proceed in the future.

I am sure this sounds like a very good idea and it will have a nostalgic ring for those who recall the halycon days of the Rivett era (though I must confess that I, a 1947 recruit, never had the privilege of meeting Sir David). But nowadays there are two major differences: firstly, the Organization is very much bigger; and secondly, the decisions to be taken are very much harder—one has to decide not what new activity to set up by saying 'good idea—go ahead', but rather how to redirect existing resources; a slow, painstaking and soul-searching operation.

Each Division's work is analysed periodically (at intervals of 3-7 years depending on circumstances) by a Divisional review. This activity has become a central part of the way we operate, and I hope our scientists, and staff in general, will come to welcome these reviews as an opportunity to debate the future course rather than fear them as a threat to established order, comfort and peace.

The need to introduce more formality into the way we go about allocating resources has made it more important to promote, in parallel, informal channels of communication between the Executive and the staff of the Organization. Thus, while we cannot decide everything in direct dialogue between the Executive and individual Chiefs, this dialogue must be improved. One outcome of last year's chiefs meeting was the creation of a representative working party of chiefs to help strengthen direct links between the Executive and Divisions. The working party has now begun its discussions with the Executive.

We have recently introduced the practice of ensuring that Divisional review committees contain strong external representation, and we go to considerable efforts to get the best possible people, often from the opposite side of the Earth. The Executive encourages review committees to consider very broadly and, if necessary, radically the question of how best to use resources in a given area of research.

We realize there are weaknesses in the present system, and are trying to overcome them. One weakness has been that we have appointed committees consisting of experts specialising in the work being undertaken by a Division. Such committees tended to focus their attention on how to improve the existing programs rather than to consider whether the programs should continue to exist at all. So now we are beginning to include people with a broader view in addition to the experts. Another weakness is in the concept of a *Divisional* review; very often it is important that several related Divisions should be reviewed together. There is therefore need for more flexibility than in the past, and so our whole approach to reviews is now being reviewed!

This examination is timely just now because a record number of Divisional reviews are reaching finality: Soils, Land Use Research, Land Resources Management, Chemical Technology, Mechanical Engineering, Cloud Physics, Mathematics and Statistics and Animal Production. Furthermore, the foundation Director of the Institute of Industrial Technology, Hill Worner, is approaching retirement and this means that we must take a special look at that Institute as a whole.

In my last article I used a naval term 'steady as she goes'. But perhaps at this time it is appropriate also to reflect on the words of Edmund Burke written some 200 years ago: 'A state without the means of some change is without the means of conservation'.

Paul Wild

Paper available on visual aid centre

Maurie Woodward, an information officer in the Division of Land Resources Management in Perth, has recently completed a paper prepared during a Jubilee Study tour of the United States.

The paper explores the possibilities and means by which a visual aid production centre could be established.

'The idea of developing a self-serve visual aid production facility within an organization, or to augment an existing service, has been generated by observing and studying the teaching methods and philosophy of the College of Education, Department of Instructional Media, Utah State University, under the leadership of Dr Don Smellie,' Maurie said.

Maurie's paper, entitled 'Self-Serve Visual Aid Production for Professionals' is available from Maurie at the Division's Perth office.

Questionnaire for CSIRO women staff now ready

The questionnaire which will be sent to all CSIRO female employees and a selected group of men, should reach staff within the next few weeks.

Technical difficulties have delayed the originally planned date for circulation, however the questionnaires have now been printed and are currently being prepared for circulation.

The questionnaire will be the major component in a survey which is being conducted by the Consultative Council subcommittee on the employment of women.

The results of the survey will form the basis for a paper to be written by Dr Gribbin during next year. It will also be used to provide information about the present role of women within CSIRO and will help interpret other information available to the sub-committee.

Brian Savvas, who for almost 10 years, has been officer in charge of Computing Research's Adelaide laboratory, has relinquished the position to work with newly appointed **Dr Craig Mudge** on the VLSI research. Dr Mudge has been appointed officer in charge of the laboratory and will take up his position early next month when he returns from a brief visit to the United States.

□□

Computer whizzes in the Division of Computing Research have been invited to become rich and famous by taking part in the current "Sig-graph 81" photo contest. Entries have to be computer-generated and can be black and white or colour. Information for those wishing to become rich and famous from other Divisions can get information from the Publications Assistant at the Division's Canberra offices.

□□

A total of 34 years of service to CSIRO was notched up by **Clive Gates** who retired from the Division of Plant Industry in March. Clive had been working as an agricultural plant physiologist.

□□

Nine researchers from the Division of Land Use Research and one from the Division of Plant Industry are at present surveying an area on the South Coast of NSW for the Department of Defence. The area, the Tianjara military training area on the tablelands west of Ulladulla, has recently been incorporated into the Morton National Park.

Those involved in the work are **Mike Austin, Kees Paijmans, Nick Nicholls, Laurie Adams, Ken Myers, Henry Nix, Garry Speight, Bob Gunn, Peter Richardson** and **Trevor Dowling**. Most of the work will be carried out during April and May.

There were some starry-eyed people around Parkes at the end of last month following a party given by the staff to say goodbye to two of the Radio Telescope stalwarts—**Frank Trett**, the engineer, and his wife **Jenny** (Radiophysics), and **Les Fellows** (Science Communication Unit, senior information officer at the CSIRO Visitors Centre) and his wife **Jean**.

Frank, an engineer for nine years, has taken up a position with Esso at Sale.

Frank's wife Jenny, who had often filled in at the Visitors Centre as a casual, had for some time been working with John Bolton.

For Les Fellows it was a case of severing a 20 year old association with the Telescope. Les came out from England to work on its construction and until 1975 when he joined the SCU, worked there as a technician.

He was part of the team during the famous first walk on the Moon when the Parkes telescope relayed the pictures after Honeysuckle Creek in the ACT had taken the first six minutes and then handed over to Parkes. He was around when the emergencies occurred with both the Apollo 13 and 16 spacecraft and of course, during the exciting times when some of the major astronomical achievements were made with the 64-metre antenna.

As a front-man for CSIRO at the Centre, Les had looked after a Governor-General, various Cabinet Ministers, numerous politicians, scientists from overseas and the all-important public among whom have been many of the Organization's distinguished visitors.

Somehow retaining his sanity after showing the audio-visual presentation 'Listening to the Stars' many thousands of times, Les and the Centre staff have persuaded the public to part with half a million dollars in payment for souvenirs and theatre tickets and his 'Fathers' Day specials' have been only one of his many innovations.

□□

Miss Margaret Mills, Divisional Editor at Land Use Research, retires this month after 30 years with the Division.

Margaret came to CSIRO in February 1944, joining Plant Industry as an assistant research officer, and moved to the Land Research and Regional Survey Section in January 1951.

Margaret had a strong commitment to the staff Benevolent Fund since its inception in 1968 and was its president in 1979-80.

□□

The Chief of the Division of Atmospheric Physics in Melbourne, **Dr Brian Tucker** is currently in the United States taking up a fellowship with the Co-operative Institute for Research into Environmental Sciences, an organisation jointly sponsored by the University of Colorado and the Environmental Research Laboratories of the National Oceanic and Atmospheric Administration.

CIRES exists to promote research and teaching in the physical sciences related to the earth and its environment.

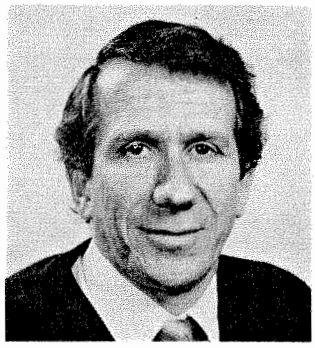
Dr Tucker will be away for nine months and during this time **Dr Arch Dyer** will act as Chief of the Division.

□□

The population of Kalgoorlie and Boulder in Western Australia is no doubt better informed on the role of CSIRO as a result of a stand organised at the towns' fair held late last month.

The corporate image—rather than individual Divisions—was promoted by the organisers **Bob Rummery, Maurie Woodward** and **Justin Murphy** in the Division of Land Use Research in Perth. Five CSIRO staff took part (**Peter Husband** from Food Research, and Liaison Officer **Jim McNamara** as well as the three LRM communicators) and a wide range of printed material and information sheets was made available.

□□



Dr Joe Landsberg, the newly appointed Chief of the Division of Forest Research, who will take up his position on June 1st. Dr Landsberg is currently working at the Long Ashton Research Station near Bristol in the U.K.

□□

Dr A. P. Raiche, a researcher in the Division of Mineral Physics in Sydney, has been appointed assistant director of the newly-established Centre for Geophysical Exploration Research, established at Macquarie University in Sydney.

The establishment of the centre gives formal recognition to years of joint research and teaching between the University, CSIRO and geophysicists from the Geological Survey of New South Wales.

□□

Working in the Division of Entomology's Black Mountain laboratories for two months is **Ms Marianne Horak** of the Entomologische Institut at Zurich. Marianne has a special interest in the taxonomy of the papual tortricidae, and is at present studying specimens in the national insect collection, housed at Entomology.

□□

Three new faces at the Division of Applied Organic Chemistry in Melbourne are **Neil Furlong**, with the solar energy storage program, **Ivan Vit** with the mass spectrometer system and **John Kershaw** with the liquid fuels from coals program.

□□

Dr James Morrison, who recently completed his Doctorate at Edinburgh University, has recently joined Plant Industry to work with **Dr Roger Clifford's** group on studies related to the biological responses to the globally rising level of atmospheric carbon dioxide.

□□

In retirement from the same Division is CSIRO's "mushroom man", **Dr Jack Shepherd** who retired during March after 20 years with CSIRO. Dr Shepherd is acknowledged as an authority on the ecology and taxonomy of soil-borne fungi.

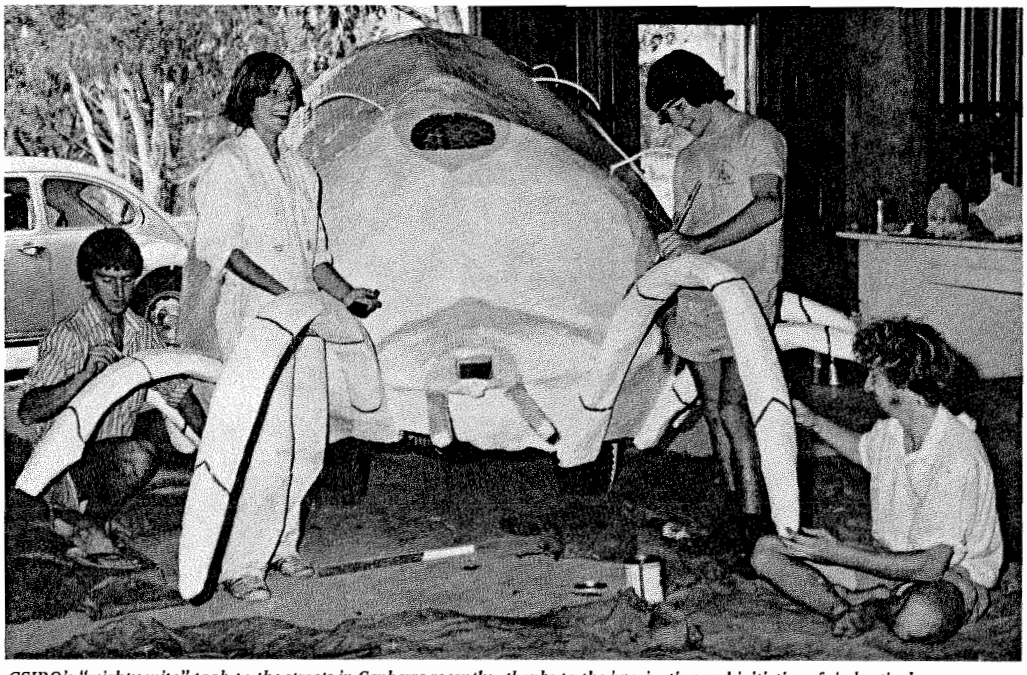
□□

A visiting Chinese professor is spending part of this month at the Divisions of Plant Industry and Land Use Research to participate in a joint field experiment in nearby New South Wales.

Professor Zhu Zhao-liang is working with **Rob Wetselaar, John Freney** and **Jeff Simpson** on the development of sample methods for the measurement of ammonia fluxes between the soil and the free atmosphere.

Professor Zhu is an Associated Professor at the Nanjing Institute of Soil Science of the Academia Sinica. His special interests are nitrogen fertilizers for rice and other crops.

MIGHTY MITE-ON WHEELS



CSIRO's "mighty mite" took to the streets in Canberra recently—thanks to the imagination and initiative of six horticulture apprentices from City Parks Administration. The group, David Freney, David Eldridge, Andrew Garner, Kerry Simmons, Ross Burden and Michael Lowrey, won first prize in the Government Department section of the Canberra Week festival with their cream and pink papier mache mite float.

The group mounted the wire frame on to a ride-on mower and decorated its base with roses, marigolds and a sign explaining the role of the mite in the biological control of mites in the National Rose Garden in Canberra.

The new Chief of the Division of Entomology, **Professor Max Whitten**, will not be able to take up his appointment until September 7, because of commitments at the University of Melbourne.

Dr Douglas Waterhouse, the retiring Chief of the Division, will remain in the position until Professor Whitten's arrival.

Dr Waterhouse had been due to retire in June.

□□

Three CSIRO scientists are giving papers to a national energy conference being held over four days in Sydney next month.

Dr L. Luong, a research scientist with the Adelaide laboratory of the Division of Manufacturing Technology will speak on control and instrumentation in furnace operation, while two researchers from the Division of Process Technology, **Dr R. LaNauze** and **Dr G. Duffy**, will speak on fluidized bed combustion.

The conference opens on May 26 and includes a wide range of papers related to energy conservation.

□□

Roger Morse, former Chief of the Division of Mechanical Engineering, has been awarded the Peter Nicol Russell Medal for 1981 by the Institution of Engineers, Australia. The bronze Medal is the highest award given by the Institution and recognises a distinguished contribution to the science and practice of engineering in Australia.

Roger is now working for the Victorian Government.

□□

Allan Wilson, of the Deniliquin laboratory of the Division of Land Resources Management, is currently in the Kingdom of Saudi Arabia to attend the annual symposium of the Saudi Biological Society. Allan will present a paper on rangelands research and agricultural development in Australia.

□□

Colleagues of **Ray Kerr**, one of CSIRO's longest-serving researchers, gathered in Canberra recently to farewell him into retirement. Ray has worked with the Division of Entomology for 38 years, taking part in some of the Division's early work on the genetics of insecticide resistance, and later on the DDT resistance in houseflies.

At his farewell dinner, the Chief **Dr Doug Waterhouse**, spoke of Ray's contribution to the Division's research efforts and made special mention of his meticulous attention to detail in his experiments.

□□

Dr Fraser Bergersen of the Division of Plant Industry has been elected a Fellow of the Royal Society.

Dr Bergersen has worked with CSIRO for almost 30 years, and is concerned with research involving the biochemistry of nitrogen fixation.

□□

Also honoured by the scientific community during recent weeks is **Dr Hal Hatch**, also of the Division of Plant Industry.

Dr Hatch won a third share of a $115, 800 British prize for his work on photosynthesis in plants. The other winners of the Rank Award for work in nutrition and crop husbandry are **Dr Charles Slack** of the DSIR, and **Dr Hugo Kortschak** of the University of Hawaii.

□□

A recent letter received by the Organization proved to be a bit of a challenge for those in the circulation department. The writer requested copies of the CSIRO publications, 'Eros', 'Royal Research' and 'Industrial and Physical News'.

Russell Porter, a Melbourne freelance journalist, has been appointed to the Film and Video Centre as a scriptwriter for CSIRO films, working with **Nick Alexander**.

Russell was for seven years a freelance script-writer in Melbourne and has written more than 40 scripts, mainly for the South Australia and Victorian Film Corporation. During last year, Russell scripted a film which won two AFS Penguin Awards and a Channel Seven award for the best documentary.

□□

Dr John Nicolson from CIRC has been seconded for six months to act as CSIRO project co-ordinator for Project Hercules, a joint Commonwealth/Victorian study to test bushfire control using chemical suppressants.

A Hercules aircraft will carry a modular airborne firefighting system on loan from the U.S. Forest Service during the trials.

John will be initially seconded for six months and will continue to operate from an office in CIRC.

John Burdett from Headquarters will carry out John Nicolson's normal work on overseas aid projects.

From the next issue, the People pages will contain a special 'In Retirement' column to enable staff in all Divisions and Units to notify retirements of colleagues.

The Editor of CoResearch would therefore appreciate notification of impending retirements so that personal details can be assembled for articles in the column.

Dr David Solomon

Dr David Solomon, Chief of the Division of Applied Organic Chemistry is the Inaugural Recipient of the RACI Applied Research Medal and Award which for 1980 is to be named after the late Dr S. F. Cox.

The establishment of an award for applied research recognises the contribution made to the profession of chemistry by members of the RACI whose work is carried out in the laboratories of Industry, and in those academic and government research establishments which are concerned with the application of chemistry to everyday life.

□□

The degree, D.Sc.Agri. was recently conferred on a senior scientist in the Division of Food Research, **Dr W. G. Murrell**. A graduate of the University of Sydney, Dr Murrell's doctorate was conferred at a ceremony during March. Dr Murrell has been working with CSIRO for more than 30 years in the area of heat resistance of bacterial spores.

Death of Tom Dagg

Colleagues at the Division of Animal Production were saddened by the death late in December of the head of the photographic section, Tom Dagg.

He succumbed, after a courageous 8-month battle with illness, at age 50.

Tom joined CSIRO late in 1949, first with the Division of Radiophysics. In 1955 he transferred to the newly-opened Ian Clunies Ross Laboratory at Prospect, where he remained until his death.

During those 25 years he rose from Technical Assistant to Senior Technical Officer, on the strength of his special contribution to scientific photography.

In addition to producing highest quality photographs for research and publicity, Tom developed new techniques in photomicrography and autoradiography. In doing so, he played in integral part in the research effort of this Division. His skilled depiction of research accomplishments in cine films are a lasting tribute to him.

Even while striving for such high professional standards, Tom always remained obliging and eager to help.

He exercised this same craftsmanship in his hobby of restoring veteran cars.

His many friends and colleagues in CSIRO are much the poorer for the loss of this quiet, competent man.

Building research launches a success

The Minister for Science and Technology, Mr David Thomson, shares a joke with the Chief of the Division of Building Research Dr Lex Blakey, right, at the recent launching of the publication 'Home Building and Maintenance Problems Answered by CSIRO Division of Building Research'. The Editor of the book, Mr Bob Ryan, the ABC's commentator on homes, building and local government is pictured next to the Minister, and on the left is the Media Liaison Officer for the Division, Mr David Zerman.

The 7,500 copies in the first edition of the book have already been sold and a further 10,000 are now being printed. 'Home Building and Maintenance Problems Answered by CSIRO Division of Building Research' is available from newsagents, bookshops, ABC offices in all States and the CSIRO's Melbourne bookshop.

Talking to the Chief...

An occasional series in which a CSIRO Chief talks about his Division

Dr Lewis ('Lew') Chadderton, Chief of the Division of Chemical Physics, rejects the sharp distinction which is popularly made between applied and basic research, referring to regard them as parts of a single continuum.

Yet he himself can testify to the perils of working in that region of the continuum where results tend to be produced in three dimensions rather than four.

In the halycon days of the 1960s, the North American Aviation (now Rockwell International) Science Center was established in Thousand Oaks, California, with the intention that it should become a centre of excellence for fundamental research, playing much the same role on the West Coast for the avionics, nucleonics and space industries as Bell Telephone Laboratories does for communications on the East. Among its international recruits was Dr Chadderton, fresh from Cambridge University's renowned physics centre, the Cavendish Laboratory.

Not long after American footprints appeared in the dust of the Moon, the Nixon Administration initiated one of society's cyclical searches for 'relevance' in research. The Science Centre handed out pink slips to many of its staff—especially those involved with fundamental research.

Dr Chadderton received one, despite the fact that he had only recently secured for the Center a $US800,000 applied research grant from the Advanced Research Projecting Agency (ARPA) of the US Government. If he went, it disappeared. The Rockwell International Science Center was unmoved!

Dr Chadderton had no problem finding alternative employment, but whimsically recalls the occasion when two weeks later, the Science Center tried to re-hire him (and the grant) using the ruse that he had never really been fired. It didn't work. He had already decided to move on!

Not long after, at the age of 31, Dr Chadderton was appointed Visiting Professor of Physics at the University of Copenhagen and, one year later, permanent Professor and Head of Department.

Among other offers which had been made was that of the Chair of Experimental Physics at Monash University in Melbourne.

Dr Chadderton finally made it to the Monash campus a decade later, enticed by CSIRO's invitation to head what is arguably the Organization's most illustrious research Division, Chemical Physics.

His appointment ended an 18-month hiatus in the Division's permanent leadership, which had begun with the retirement of Dr Lloyd Rees in May, 1979.

The prolonged vacancy probably indicated as well as anything else the formidable task awaiting Dr Rees' successor—to head up a Division with an international reputation and whose staff included six Chief Research Scientists, four of them Fellows of the Australian Academy.

In its choice of a new Chief, The Executive must have thought more than once about the consequences of selecting a young, if no less illustrious physicist, to lead such august company.

WORLD AUTHORITY

Dr Chadderton, however, it no stranger to achievement at an early age. He is a world authority in the fields of radiation damage in crystals, ion implantation into solids, the channeling of charged particles, transmission electron microscopy, and fission track phenomena in crystals.

He regards his appointment as a new high point in his career—service with the Division, even at a less senior level, is a passkey sought by many overseas scientists.

Today, at 41, Dr Chadderton is one of the youngest Chiefs in CSIRO. He finds himself heading a research team which has made major contributions in the fields of theoretical and applied physics and chemistry, but which, in common with the rest of CSIRO, has been forced to take stock of its programs in the light of recent financial and staffing constraints.

The keyword for the 1980s is again 'relevance'—and in a Division with such a strong background in theoretical studies, and even whose applied work is beyond the ken of most mortals, the demonstration of 'relevance' to the financial patrons of research poses formidable problems in itself.

RELEVANT RESEARCH

As a Division with close and unique ties with manufacturing industry, Chemical Physics is continuing its efforts to convince industry that what it has to offer is relevant—no easy task in an area noted for its caution in new enterprise.

Dr Chadderton puts it more prosaically. Australian industry is for the most part, though with certain refreshing exceptions, only interested in the short-term buck.

'Australian industry is frequently limited by its own narrow objectives,' he said.

'It sees its primary purpose as the making of as large an amount of money as possible, in maximising returns to shareholders, and only rarely looks into the future, at the long-term prospects of investment in science, technology and innovation.

'Unless we can offer something which virtually guarantees a 100 per cent success, and which will enormously enhance sales, they don't want to know about it,' he added.

MEDIA IMPORTANT

A strong believer in the value of media exposure for science and technology, Dr Chadderton has similar criticisms to make of Australian newspapers.

He describes even the best of them as 'rather conservative, locked into an established format and lacking in fluidity.' Their conservatism is particularly evident in their coverage of science and technology, in sharp contrast to newspapers in other leading Western nations.

Take Denmark, for example—Danish newspapers and other Nordic media are much more ready to make the effort of popularizing scientific discovery, innovation and invention,' he said.

What are his priorities in communication, and is communication with the general public important to science?

'Communication with the public is vital, and I believe it is the responsibility of every Chief, Assistant Chief and section leader to become involved in it—but especially the Chief,' Dr Chadderton said.

'My own first priority must necessarily be that of a successful and rapid two-way communication with Headquarters itself.

'Thereafter communication with other Divisions with the scientific lay public, and with the man in the street are of roughly equal importance.

COMMUNICATING SCIENCE

'There are of course, still those scientists in CSIRO who shun public exposure and who prefer the intensely personal and highly motivated life of fundamental research.

'But every organization will have—and more important—should have a few such people on board.

'Really though, the success of CSIRO and its popularity too, is to a large degree due to its visibility.

'Society views CSIRO and the job it does rather well.'

Dr Chadderton enjoys contact with the media himself, and also enjoys the personal contact with staff members which his position as Chief demands.

He estimates he spends about half his time in this area, talking to and counselling people with a variety of problems, both personal and work-related.

'CSIRO Headquarters run some very good courses in management,' he said.

'One which I can recommend most strongly to any senior administrator deals with human relations in management,' he added.

Not everybody has a problem—Dr Chadderton has noted that gardeners are among the happiest people he meets. He is a keen gardener himself, and a photographer of flowers.

'There's something about gardening—it allows one to think without pressure and I'm told that Sir Alan Walsh conceived the principle of atomic absorption spectroscopy while gardening,' he said.

Asked about his views on the nature of research and discovery, Dr Chadderton said he believed the most important discoveries had their genesis in simple concepts—the skill lay in developing the original insight.

It is important, he believes, to allow young scientists to pursue their own specialist interests for roughly half their working hours. This helps motivation. It is, after all, their distinguished talents in these special fields which led to their joining CSIRO.

CHANGES PLANNED

After a year in the chair, Dr Chadderton says he is reasonably content with the way the Division is developing, perhaps a testimony to his own skill at negotiating the narrow pathway between evolution and revolution.

Things *are* changing at the Division—Dr Chadderton is heading new programs—for example ion implantation and fission track research.

'Chemical Physics has an international reputation for the quality of its theoretical and experimental studies in fundamental and applied physics, due very largely to the inspiration of Lloyd Rees,' he said.

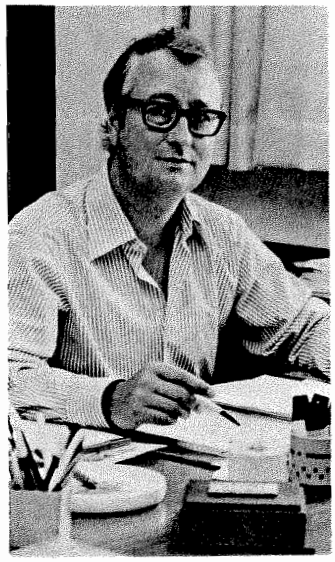
'But we have to realise that the conceptual approach of 20 years ago may not be appropriate today—there are many new ideas and experimental methods which completely destroy deep seated classical ideas.

Take metallurgy, for example. By the implantation of beams of energetic ions of one metal into another we are now able to fabricate alloys with a composition which apparently violates the laws of thermodynamics. We can also produce glassy metals in a like manner.

'Similarly, we can implant impurity atoms into a silicon in a very controlled and ordered way, and hence many tiny p-n junctions (the circuit element which has given rise to the 'transistor' and to the burgeoning microelectronics semiconductor industry).

'We are also broadening the application of fission track techniques (tracks made in crystalline and plastic materials when uranium atoms are split') into many new areas—botany, geology, biophysics, palaeontology, medical physics and others.

'One could say that the name Chemical Physics no longer adequately describes the many different programmes we have under way here in Clayton—though there is no way in the world that I want it changed.'



Dr Lew Chadderton, the Chief of the Division of Chemical Physics.

FINANCIAL RESTRICTIONS

Asked how the Division's ability to adapt and move into new areas was affected by restricted funds and staff ceilings, Dr Chadderton said there had been a few problems and he expected more, but that both the Institute of Physical Sciences and the Executive had swiftly shown a deep and sympathetic understanding of the need for modern research activities.

'In many other countries, due to a lack of proper planning, there is often a totally unnecessary duplication of expensive and sophisticated equipment. We have an obligation to conduct collaborative work with other research groups and, in fulfilling that obligation we can at the same time rationalise the integrated research effort. In our joint program with the Royal Melbourne Insittute of Technology we have made sure that we only buy equipment which complements theirs—and they are doing the same.

Dr Chadderton does not particularly like the word 'redeployment'.

'A new Chief is in a very delicate position,' he said.

'You cannot force scientists into completely new programs.

'You have to change direction by example, and by using wherever possible the three-year short appointment, of which I thoroughly approve.

'Moreover, the old days, when a Chief could direct a Division like a wartime ship of the line, are now past,' Dr Chadderton said.

One thing that worries him is the lack of mobility across Institute boundaries.

STAFF MOVEMENT

'I know of instances where the interdisciplinary nature of CSIRO research would be enhanced by personnel moving permanently into another Institute. The mechanism for this, however, is poor and cumbersome, and in a time of 'no-growth' many Chiefs jealously guard their position tally.'

'There is a feeling in CSIRO that things are getting tougher, and there are certainly problems to be solved.

'But having recently worked in Denmark I have to say that things are nowhere as nad as they are in some European countries.

'We could certainly do more with increased funds and additional staff, but our grumbles should be both good-humoured and quiet.'

Lyle Medal to CSIRO Institute Director

The Director of CSIRO's Institute of Physical Sciences, Dr John Philip, is a joint recipient of the Thomas Ranken Lyle Medal for 1981.

Dr Philip and Professor D. W. Robinson have been named by the Council of the Australian Academy of Science as recipients of the medal for their contributions in the fields of mathematics and physics.

Dr Philip will be presented with his medals during the annual general meeting of the Academy on April 30.

Dr Philip has pioneered the development and application of mathematical-physical approaches to transport problems in the natural environment. He has attacked the central problems of a number of related fields with great originality and considerable success.

He has made important contributions on related topics in porous medium physics, fluid mechanics, meteorology, physical chemistry, physiology and mathematical ecology. He was elected a Fellow of the Australian Academy of Science in 1967 and a Fellow of the Royal Society of London in 1974.

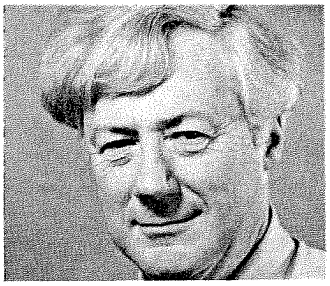
Dr Philip first worked with CSIRO in 1947 when he was seconded from the University of Melbourne to the Irrigation Research Station at Griffith in New South Wales to carry out research on the hydraulics of furrow irrigation.

He joined the research staff of CSIRO in 1951 and became Assistant Chief of the Division of Plant Industry in 1963. After eight years in the position, he was appointed Chief of the Division of Environmental Mechanics where he remained until his appointment as Director of the Institute of Physical Sciences in 1979.

During 1978, Dr Philip was an Associate Member of CSIRO's Executive.

The Lyle Medal was first awarded in 1935 and is a bronze medal given in recognition of distinguished research in Mathematics and Physics.

The Chairman of CSIRO, Dr J. Paul Wild, was awarded the Lyle Medal in 1975.



Dr John Philip

Chinese visit two CSIRO laboratories

Six scientists from the Academia Sinica, visited the Division of Land Use Research during last month.

The group, led by Professor Xi Chengfan of the Nanjing Institute of Soil Science, consisted of three soil scientists, a plant ecologist, an electro-chemist and a researcher in plant-soil relationships.

They expressed particular interest in the Division's application of electromagnetic induction techniques to salinity survey work, in the methodology of land use planning as explained by Dr K. D. Cocks, and in the work of Dr David Jupp with Landsat imagery and computer-aided interpretation.

The role and value of the multidisciplinary scientist, as outlined in his introduction by the Chief of the Division Dr Dick Millington, was recognised by the group.

Professor Xi Cheng-fan said that is his own Institute of Soil Science he was very aware of the diversity of expertise on which he must draw when dealing with problems of land use.

The party also visited the Division of Soils in Adelaide.

Letter to the Editor

From page two

The 20 - 26 per cent rise in salary claimed by the OA is essential if CSIRO is to regain tha ability to attract the best staff. In the Arbitration Court the Public Service Board is vigorously opposing *any* salary rise for scientific staff. This action indicates that it is completely out of touch with regard to professional salaries and should immediately hand over the task of salary assessment to the CSIRO Executive. Only in this way can the *de facto* relationship between the salaries of CSIRO and university staff be restored and maintained.

ACTION NEEDED

Unless some action is taken to upgrade the present salaries of CSIRO scientists, the Executive are unlikely to be able to satisfactorily fill key vacancies essential to meet CSIRO commitments to the Australian community.

Yours faithfully, Dennis Minson
Division of Tropical Crops and Pastures,
Brisbane.

SIRODIAL is Extended

The success of the Division of Building Research's SIRODIAL telephone recorded information service in Melbourne looks like being repeated in Sydney—but this time, CILES is doing the operation.

Three topics, the subject of recurring questions to Yvonne Esplin's CILES information office located in the Division of Applied Physics complex, are discussed on the phone-in tapes.

They are funnel web spiders; thermal insulations for buildings; and rising damp in buildings.

Yvonne told CoResearch: 'We hope to gradually improve and update the tapes as time goes on.

'New tapes will probably be on solar and other forms of alternative energy, and on noise problems.'

The phone numbers for the CILES Sydney tapes are:

- funnel web spiders (467 6524)
- thermal insulations (467 6548)
- rising damp (467 6748)

This is CSIRO

The slide/tape program, 'This is CSIRO', which was originally produced for showing to visitors at Headquarters, has been updated with new slides and transferred to 16mm film and U-matic video-cassette.

The program runs for 13 minutes, and describes in broad outline the range of CSIRO research and shows its remarkable diversity. The program should be very useful for showing to all sorts of CSIRO visitors and could also be used by CSIRO staff who are asked to give a talk on the Organization or their work. In fact, every Division or RAO should have their own copy.

Send your order now to the Film and Video Centre, East Melbourne. The film version costs $80, the video-cassette version $50.

Secondment for 'Rural Research' Editor

The Editor of CSIRO's quarterly magazine 'Rural Research', Jim Lumbers, will be engaged on special projects for the next 'six-plus months'.

Jim recently returned to Australia after an overseas trip where he looked at the evaluation of communications projects and spent some time in the London ASLO Office.

According to Brian Woodruff, acting Officer-in-Charge of the Science Communication Unit, Jim is an ideal person to put into effect a number of new proposals that the Unit has been considering for some time.

Bob Lehane will remain in the Editor's chair for both 'Ecos' and 'Rural Research'.

After completing a report of his overseas visit, Jim will begin setting up the machinery for the compilation and production of a SCU initiative, nominally titled an 'Alerting Newsletter'. This publication is based on the Headquarters Library publication 'Scanfile' concept, and will aim to provide leads to industry publications which will be encouraged to reprint technical and other articles appearing in Divisional and Institute newsletters, magazines and reports.

He will also:

- investigate the feasibility of reducing the free mailing lists of Rural Research and the Organization's environmental-awareness quarterly magazine, Ecos, and increasing subscription sales.
- explore the possibility of increasing penetration to industry of the bi-monthly news sheet Industrial Research News (IRN). One alternative he will investigate is the provision of camera-ready copy of IRN pages to a range of trade publications for them to reprint. This move is instead of increasing the free mailing list of IRN.

Jim will also be looking at the possibility of IRN being offered for sale. Currently all copies are distributed free.

Science in the field

CSIRO was well in evidence at the field day held at the historic Boonoke Stud, near Deniliquin NSW during last month.

The Boonoke Stud was established by F. S. Falkiner and is now owned by Mr Rupert Murdoch through his company News Limited.

The marquee in the photograph above housed an exhibit organised by the Division of Textile Physics illustrating some of the work of the Division, particularly that directed towards the objective measurement of the important characteristics of greasy wool.

Many graziers attended the field day to inspect the rams on display (at prices ranging from $500 to $30,000) and most of them visited the Textile Physics exhibit, eager to learn about and to question the desirability of the "additional measurements" which have featured in the catalogues at some recent trial auction sales at various wool-selling centres.

The stand features displays showing the principles on which the measurements are based and evidence was presented to indicate the value of the measurements to a wool processor.

Also on display was the "Sonic Fineness Tester" (Model B) developed by the Division of Textile Physics as a "do-it-yourself" kit for breeders. This instrument, although it has been on the market for some years, always elicits great interest.

The logistics of the display—transport to the site and assembly of the exhibit—are managed by Joe Snaith and the graziers' questions are "fielded" by Dave David.

CAT

Science at work

The CAT column is open to all members of CSIRO who wish to comment on communication matters. Letters and articles should be sent to the Editor of CoResearch in the normal way.

How many Divisions realise that in CSIRO there is a laboratory that issues an annual report every calendar year, and the report is received by its readers before the end of that year?

For the last 12 years the CSIRO Meat Research Laboratory has done this. Its recipients are mainly those connected with the meat industry.

ACTIVE LIAISON

The Annual Report is not the Laboratory's only extension tool. The MRL has an active Liaison, Extension and Advisory Group catering for both the industry and consumers. Most of the work is done by personal contact. Staff appreciate the opportunity to pick up the 'phone and discuss matters freely with industry personnel. By working this way the Group is able to initiate extension easily and make visits to meatworks to discuss problems, or to educate personnel in certain procedures without necessarily waiting to be asked. Routine liaison works visits are made to discuss present and potential problems on the spot, bring new technology to the attention of management, and to carry out extension duties. Similarly, members of the industry are invited to visit the Laboratory to discuss their problems and inform themselves of new developments. Close liaison is also maintained with all staff in the Laboratory.

TRAINING PROGRAMS

Extension involves training and education programs at the Laboratory, at industry schools, seminars or conferences. or on-the-spot instruction at meatworks. Extension Officers are available to participate in discussion groups at works or to run small workshops for meatworks personnel. Extension also takes the form of dissemination of technical information to industry—for example, the issue of the CSIRO Meat Research Newsletter and CSIRO Meat Research Reports, and the preparation of brochures, films, audio cassettes and slide/sound series. CSIRO Meat Research Reports are written by the scientists doing research of immediate interest and potential application in industry.—Barry Johnson, Information Officer, Meat Research Laboratory.

★★

One of the problems posed for CSIRONET users with the introduction of the FACOM computer model 150 is how to quickly learn the job control language and the time-sharing system for the operating system IV/F4.

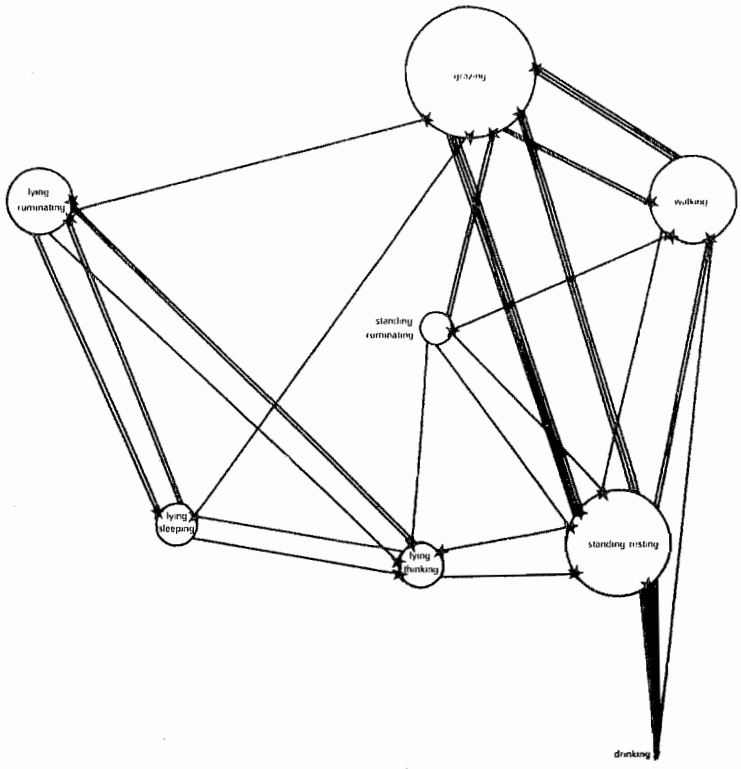
The Administrative Systems Group have found the video-based multi-media training courses very useful in tackling this problem.

CSIRO Headquarters holds a contract with Deltak, a supplier of this type of training courses and an addendum to this contract can be arranged for any CSIRO group who are interested in using these courses. The contract allows for the supplier of a complete course or only single modules for a minimum rental of one month at about half the normal rental cost.

Deltak's training courses include video instruction, manuals and audio-visual aids.

In addition to courses on computers and computer languages, Deltak cover such subjects as communication networks, data processing, information management, microprocessing and minicomputers, planning and organizing, supervisory skills, writing and retirement planning.

Further details may be obtained by contacting Pat Ward, Administrative Systems Group, telephone (062) 484 160.



This is a diagram of cow behaviour, prepared by the Division of Mathematics and Statistics in collaboration with the Division of Land Resources Management, and based on observations of cows during winter and spring nights in central Australia. Each line connecting the circles represents a 10 per cent probability that a cow will proceed from one activity to the one indicated by the terminal star. We thought it raised an interesting question. What do cows think about when they are lying down on warm spring nights (or cold winter nights, for that matter)?

Scientific attache visits Chemical Physics

The increasing interest shown by both Australia and the People's Republic of China in each other's scientific activities was highlighted recently by the visit of the Scientific Attache of the Embassy of the People's Republic of China, Mr Liang Zhan-Ping, to the Division of Chemical Physics.

Mr Liang met many of the Division's scientists, including the Chief of the Division Dr Lew Chadderton. He visited some of the Division's laboratories, including the new laboratory for research into holographic diffraction gratings and the electron diffraction laboratory, which houses the new JEOL 200CX electron microscope, at present the most sophisticated and powerful electron microscope in Australia.

Dr Chadderton, who is Editor of the two international journals "Radiation Effects" and "Radiation Effects Letters", pointed out that scientific cooperation between the two countries is also intensifying in other ways.

Advisors to the editorial boards of these two journals will shortly be appointed from the scientific community of the People's Republic.

The archives... CSIRO Archivist Colin Smith deals with history

The purpose of this column is to interest you in archives—and CSIRO archives in particular.

CSIRO has archives which have accumulated over some 65 years in some 100 locations. If they were stacked in one column, it would be several kilometres high. However, the central collection and control of these unique and irreplaceable historical and scientific documents has only really begun in the last few years, and remains the responsibility of one person.

The value of our old files, minutes, photographs and notebooks is in their character as components of the national memory. For many, this is ample justification for their preservation.

Others, however, are inclined to look askance at the quite appalling amounts of material and the low rate of reference to them. Nor is it much use trying to convince these phlegmatically 'practical' people that historical use of materials makes up in a quality of intellectual interest what it lacks in frequency. For them, the reverse seems to be the case, and the archivist is forced to make what he can of the mere number of his customers.

In the case of the CSIRO archives, that number comes to about 50 over the past two years, of whom 20 could be regarded as really significant and substantial users rather than casual enquirers. The 20 include several writers of post-graduate and undergraduate theses, several official historians of particular fields, divisions etc, and some biographers. In quite a few cases the projects are continuing ones which are likely to involve the CSIRO Archivist for years.

A bigger Archives, of course, has bigger numbers. The Australian Archives—custodian of about 100 km of records of the Commonwealth government—claims to have handled, in 1978-79, 1850 reference enquiries from government departments and authorities, and 2500 from the public. In addition, it had some 256,078 files recalled for administrative back-reference.

Colin Smith would appreciate hearing from researchers approaching retirement before they begin to clear records from their laboratories.

Colin believes research staff may underestimate the value of their records and experiments and would be grateful for the opportunity to evaluate such material before it is destroyed.

The archivist can be contacted in Canberra on telephone 484 677.

'CoResearch' is produced by the Science Communication Unit for CSIRO staff. It is also circulated to some people outside the Organization who have a professional interest in CSIRO activities. Members are invited to contribute or send suggestions for articles. The deadline for material is normally the 8th day of the month of publication. Material and queries should be sent to the Editor, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editor: Jeannie Ferris.

CoResearch

CSIRO's staff newspaper *May 1981* 240

CSIRO BOOK IN ACADEMIA SINICA

Officer-in-Charge of CILES, Peter Judge, hands a copy of Kosciusko Alpine Flora *to a smiling Hao Ting, Director of the Foreign Affairs Bureau of the Academia Sinica. Cheng Young Fang, a member of the Publications Exchange Group of the Academy's central library, is also delighted with the books she is holding, but her colleague Chai Tsung Shu seems to think that the CILES Report is no laughing matter.—report page two.*

ENERGY RESEARCH IN CSIRO BOOSTED

340 join from Lucas Heights establishment

CSIRO is absorbing a major part of the non-nuclear energy research functions of the Australian Atomic Energy Commission's Lucas Heights (Sydney) Establishment.

This was announced on 30 April in a joint statement by the Minister for National Development and Energy, Senator J. L. Carrick, and the Minister for Science and Technology, Mr David Thomson.

The move involves the transfer of 100 professionals and 240 support staff from the AAECRE to CSIRO.

The changes are being made in the light of the Report of the National Energy Research, Development and Demonstration Council (NERDDC) Review Committee on the activities and future role of the Australian Atomic Energy Commission Research Establishment.

That Report recommended changes in the direction of research and development work with a refinement of the nuclear research effort and the building up of non-nuclear energy research.

The Government has decided that this increased non-nuclear energy research effort should be undertaken within CSIRO.

NEW INSTITUTE

CSIRO will establish an Institute of Energy and Earth Resources, which will combine existing CSIRO energy research activities with appropriate resources from the AAEC which can be applied to non-nuclear research. These new arrangements reflect the importance the Government attaches to a vigorous energy R&D program as part of its overall energy policy.

A central factor in these new arrangements is the co-location at the Lucas Heights site of the continuing AAEC nuclear activities and a significant proportion of the new CSIRO Institute. This will minimise dislocation to staff and enable most efficient use of existing facilities.

The Minister for National Development and Energy, as well as the Minister for Science and Technology, will have an effective policy role in the formulation of the overall nature and direction of CSIRO's energy research and will be kept informed of progress on a continuing basis through a policy committee comprising the Secretary to the Department of National Development and Energy and the Chairman of the CSIRO.

The streamlined program of nuclear R&D would include HIFAR reactor operations, uranium enrichment, radioisotope production, waste management studies and support for regulatory and international obligations and would therefore continue to constitute a highly significant part of the Government's effort in energy R&D.

The resources transferred to CSIRO will enable expansion of research in such areas as fossil fuels, mining of energy resources, alternative fuels and renewable energy and energy conservation.

In a special interview with CoResearch, the Chairman of CSIRO, Dr J. Paul Wild, outlined the new plans:

CoResearch: Dr Wild, how do you (and CSIRO) regard the transfer of the non-nuclear energy research component of the AAEC to CSIRO?

Dr Wild: I am quite happy with the Government's decision which is in accord with the role of CSIRO having a broad charter as the Commonwealth Government's strategic research organization.

Q: Does this move mean that CSIRO is one of the few (perhaps the only) Government-funded instrumentality not to be severely slashed by the 'razor gang's' actions?

A: CSIRO, like everyone else, is taking cuts.

The combining with CSIRO of an important part of the AAEC's non-nuclear energy functions means we are gaining more staff and facilities. It also means we are gaining more responsibilities and a heavier workload.

CSIRO would only be gaining in real terms if it was receiving additional funds and staff positions to get on with its existing tasks. This has not been the case.

Q: Do you see any conflict arising in CSIRO, or between CSIRO and the proponents of nuclear energy because of the 'carve up' of the AAECRE?

Continued on page three

Chinese biochemist joins Protein Chemistry's Melbourne laboratory

Dr Tao Zong Jin from the Shanghai Institute of Biochemistry, Academia Sinica, is a guest worker at the Division of Protein Chemistry for about four months.

He came to Australia to participate in the 6th Lorne Protein Conference as a guest of the Australian Biochemical Society.

Dr Tao has had over twenty years' research experience in physical and biochemical studies with proteins. Recently, he and his colleagues in Shanghai have been studying the characterization and biological activity of a crystalline plant protein isolated from a Chinese herb. This protein has been shown to induce abortion in laboratory animals.

During his stay at the Division Dr Tao will join a group studying the purification, structure and stability of enzyme inhibitors, which are anti-nutritional factors, isolated from winged bean seed. The potential for exploiting this crop as a protein source is limited by the presence of large amounts of these anti-nutritional factors.

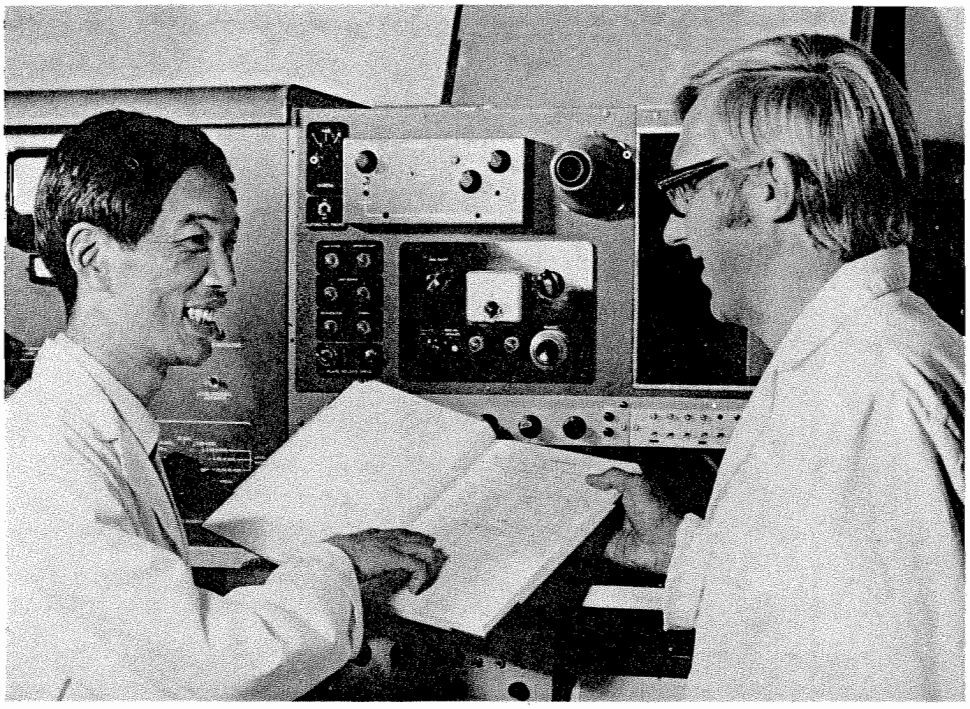


PHOTO RIGHT: Dr Tao talking with Dr Bob Blagrove who is involved in the Division of Protein Chemistry's program on seed protein research.

More CSIRO publications for China

Peter Judge writes of his recent visit to China with the news from Cathay.

Or perhaps "news *for* Cathay" would be more appropriate.

CSIRO currently has exchange agreements with more than forty institutions in China to provide CSIRO publications in return for library materials from China. Needless to say, we are under continuous pressure to increase both the volume of publications we are sending and the number of institutions with which we have relations. It is not at all clear from Australia what fate befalls the material we send: in most cases this is only an annual report or a few journals although if we were to set out to be more helpful there are many titles which would be relevant to the work of the institutions concerned. Moreover, the numbers of these institutions are enormously greater than the handful with which we are in contact: between three and four thousand information centres of various kinds and about the same number of libraries. Clearly, CSIRO contributions to resolving the enormous problems of access to even our small part of the world's scientific and technical literature are no more than a drop in a potentially bottomless bucket.

Being in Tokyo at the expense of another agency, it seemed worthwhile to make a detour on the way back to see the Chinese problem at first hand, and to see whether some way of cooperating with the Chinese authorities could be developed to enable us to provide more effective access to CSIRO publications. At quite short notice I was invited to Beijing (Peking) by the China Association for Science and Technology (CAST – their equivalent of ANZAAS but much more beside) and visits were arranged to the main agencies concerned with Scientific and Technical Information.

As a result, informal agreement has been reached with the Institute for Scientific and Technical Information of China and with the Academia Sinica that we will deposit a wider range of titles with them, selected jointly in accordance with their needs, for them to announce throughout the country, copy and distribute, or in some cases translate and re-publish as they see fit. If this agreement works, it should help to resolve many of the problems currently limiting the supply and distribution of our publications to China, without being the drain on our budget which it could so easily have become. Interest was also expressed in scientific films and video tapes, and it may be that a similar agreement can be reached for these as well.

TOURIST'S VIEW

Between my official visits I was rushed from one end of Peking to the other, to see the principal tourist sights: the Great Wall, the Ming Tombs, the Forbidden City, the Summer Palace, and so on. A small banquet was given in my honour, and I was taken to the ballet: a very exciting performance, with the dancing interspersed with acrobatics, fireworks and the martial arts.

Greater Peking covers an area of 9500 square miles and has a population of eight million. It is undergoing enormous reconstruction and every large street is a building site. The Peking area is very dry, so that the fine dust sifts everywhere, sometimes helped by enormous gusts of wind which can brew up into real dust storms. Everything is vastly bigger than expected: the numbers of cyclists during the rush hour, the 12 million books in the National Library, the amount of building effort going on simultaneously. For example, The Great Hall of the People covers an area of over half a million square feet: its largest banquet hall can seat 5000 people and the major conference room 10,000; yet it was built in only ten months by 200,000 workers. It is easy to see how a project the size of the Great Wall (which was, in fact, a 6,000km linking together of many shorter walls already existing) could have been built in only ten years by a modest 300,000 men ...

MATERIAL SUCCESSESS

Although accommodation is in short supply, the Chinese seem to be enjoying more consumer goods: they all seem to ride at least one bicycle, I am told that one family in six owns a television set (I had a choice of three colour programs in my hotel room), and at the popular tourist centres they all seemed to be photographing each other with expensive cameras. There are no privately owned cars, but small motor bicycles are now coming onto the market: a development which is causing some concern because they are complicating traffic patterns and increasing the demands on fuel. However, a development economist to whom I was speaking during my stay suggested that China has liberalised access to consumer goods too soon, and may need to cut back on these in order to invest more heavily in primary industries. There are some difficult decisions in the air, and CSIRO information may yet be one small helpful factor in "letting a hundred flowers blossom and a hundred schools of thought contend" . . .

Letter to the Editor

Dear Editor,

"Observer" (CoResearch 237) really should try to look more closely at our salaries. These are unjust, and inappropriate to the interests of CSIRO.

"Observer" should take the substantial increase we must have and can then, if he wishes, donate it to charity.

We have reason to be angry about the apparently contemptuous 'official' attitudes to our claim which obviously is not backed by "industrial muscle", unlike, for example, journalists who got 6% simply because typewriters were replaced by VDTs. Mastery of such equipment is only one of the many and frequent challenges to our skills and intellect inherent in our work, which has ever more demanding responsibilities.

EXECUTIVE PARITY

Why does the Chairman of CSIRO, the leading scientist of the Commonwealth, have a much lower salary than, for example, the Chairman of Qantas which has somewhat more staff but does not match us in creative endeavour with all that this implies in our work and provides to the nation?

At the top end of CSIRO salaries there is an absurd and restricting compression of Executive, Directors, Chiefs and CRS scales. A CRS is paid nearly $600 p.a. less than Professors received before the latter got a 4% *interim* rise, now $2000 p.a. less, whereas a discrepancy could reasonably be, and used to be, in the other direction. A Lecturer (max), EO4 (max) and SRS (4) have similar salaries, and even a tutor can be paid about as much as EO1 (6).

SALARY COMPARISONS

It is not only these legitimate comparisons with University salaries that show we are disadvantaged. This, apart from immediate effects on individuals, is against the interests of CSIRO which must always be looking for outstanding people to join its staff. Such people will certainly be attracted by the nature and reputation of CSIRO and its work, but their enthusiasm is likely to diminish on finding that salaries are steadily becoming less attractive in both national and international contexts.

Yours sincerely,
J. L. Corbett
Division of Animal Production,
Armidale, N.S.W.

Energy research in CSIRO boosted

From page one

A: Not at all. Since 1953 CSIRO has not been involved in nuclear energy. That has not changed. CSIRO will not be involved in uranium pricing policies or anything like that. CSIRO has a tradition and world-wide reputation for excellence in non-nuclear energy research, for example, solar energy for industrial and domestic use, alternative fuel supplies such as oil from seeds, greater utilization of fossil deposits, including the extraction of oil from coal.

As well CSIRO is already active in research into the effects of power generation and energy extraction on the environment. We hope to be able to expand this line of work, along with research into energy producing and energy conserving materials.

Q:It was rumoured there was some uneasiness in CSIRO when the proposition that CSIRO take over some of the AAEC was first mooted. Can you confirm this?

A: CSIRO along with other interested parties was invited to make its views known to the NERDDC Review Committee and subsequently to the Government. CSIRO is quite happy with the decision and welcomes the new members to CSIRO's team.

Q:How will the creation of the new Institute affect the current disposition of staff in CSIRO?

A: This has still to be finalised. As announced in the joint statement by Mr Thomson and Senator Carrick, a new Institute of Energy and Earth Resources is to be formed. This will be based on the existing Institute of Earth Resources, whose Director is Mr Ivan Newnham.

The former AAEC staff will be placed in CSIRO Divisions to be located in the enlarged Institute. Although we still have to work out the final details, it is likely one or two new Divisions will be formed.

Certainly there is likely to be some re-arrangement of Divisions to bring more closely together those areas particularly relevant to energy research.

Q: How many extra positions will CSIRO gain by the split of the AAECRE?

A: About 340 people are involved—about 100 professional staff and about 240 support staff.

Q: Where will they be located? Will many be transferred to other cities or States from their present location in Sydney?

A: Any dislocation of former AAEC staff will be minimal.

We envisage some existing CSIRO staff moving on to the Lucas Heights site, and when things settle a little, there could be some rationalization of staff dispositions within Sydney and possibly later from Sydney to other centres.

Q: From the arrangements announced in the joint Ministerial statement, could it be interpreted that the Minister for National Development and Energy is preparing to take over CSIRO's energy research—a repeat of the Rex Connor bid in the 70s?

A: No, this is quite different. CSIRO has never objected to change. It does not involve separation from CSIRO.

CSIRO and the Department of National Development and Energy have been working closely together on energy research matters, and the new arrangements will enhance that working relationship. Our opposition in the days of Mr Connor was that any changes should only be made after consultation with those involved. This certainly has been done on this occasion—there has been full consultation at many levels.

BOARD TO ASSIST IN COMPUTING RESEARCH

Two CSIRO men have been appointed to the newly established Computer Research Board which will have its first meeting in Sydney in July.

The Director of the Bureau of Scientific Services, Mr Sam Lattimore, and the Chief of the Division of Computing Research, Dr Peter Claringbold, will represent CSIRO on the Board. Another member of the Bureau, Mr Lionel Wisbey, will act as secretary.

The Board has been established as a result of a recommendation made by ASTEC and includes representatives of Telecom, the Department of Defence and the Overseas Telecommunications Commission. Two representatives of the University of Sydney, Professor Hugo Messerle, head of the School of Electrical Engineering and Professor John Bennett, Head of the Basser School of Computing Science, make up the remaining members.

The Board will operate in a similar way to the Radio Research Board, and is designed to support computer science and engineering research in tertiary education institutions.

CSIRO has allocated $50,000 per annum towards the Board's costs in the first three years. It is hoped that the Board will attract industry funds in the future.

Southern Sky : A second edition

Visitors to the Parkes Radio Telescope in New South Wales can now purchase for sixty cents, the second edition of 'The Southern Sky', a CSIRO publication which discusses Australian astronomy and space.

The 20-page publication has been edited by Mrs Dorothy Braxton of the Bureau of Scientific Services in Canberra. A total of 15,000 copies have been printed.

'The Southern Sky' discusses the future role for astronomy in Australia, and outlines the role CSIRO has played. Plans for the proposed Australian Synthesis Telescope are outlined by the Chief of the Division of Radiophysics, Mr Harry Minnett.

Other articles in the publication include the role of the tracking stations in the ACT, Australia's role in international solar-watching and the work of the Siding Spring and Mount Stromlo observatories. There is a page for children giving addresses of amateur astronomy societies, and instructions on making a telescope.

Research charts are available

A limited number of unfolded charts on the Distribution of Research Effort in CSIRO, prepared for the current CSIRO Annual Report, are available.

The chart shows the distribution of research effort at the research sector, sub-sector, research area and program levels.

Requests for copies should be directed to: Mrs D. M. Leadbetter
Headquarters Librarian
P.O. Box 225
DICKSON, A.C.T. 2602

From the Chairman-

A regular column by the Chairman of CSIRO Dr. J. Paul Wild

The official title of the Razor Gang's activities is the Review of Commonwealth Functions. The Government's decisions based in this review were announced by the Prime Minister on April 30th.

The most serious consequences for CSIRO are that we share in the across-the-board decisions to cut staff ceilings by about 2% (a cut of 132 positions in our case) and to limit next year's operating funds to the same money amount as this year (i.e. a real cut of 10-12%) unless special arguments can be given. The political climate is such that no amount of protest, argument or lobbying will alter these decisions which have been made with a kind of evangelical fervour based on political conviction and ideology.

Many will argue that the Government cuts are all very well—but please not CSIRO! Unfortunately, everyone sees themselves in a privileged position, including the public servants who administer the cuts.

I have had discussions with the Chairman of the Public Service Board and the Minister and will continue to do everything possible to minimize these consequences.

I believe we can no longer live with the process of steady erosion of the resources of each Division and Unit. What we do we must do well. If resources are reduced, we must simply do less. So I believe we must now begin to pull out of some activities and redistribute their resources to safeguard the quality of our research in the main.

Of course there will be management problems galore, but we have to face them. While looking after the interests of the Organization as a whole, we shall continue to give every possible consideration to the individual affected by any changes.

While many departments and authorities suffered severe additional depletion of resources in addition to the across-the-board cuts discussed above, CSIRO acquired new responsibilities and new resources. The transfer of some 340 staff from the Australian Atomic Energy Establishment to CSIRO will enable us to form an Institute of Energy and Earth Resources.

This re-affirms CSIRO's position as the national body responsible for research into all forms of energy other than nuclear. I might add that the Prime Minister's announcement came as no surprise: it was the result of intricate discussions that spanned a year or more.

So in spite of everything, CSIRO continues to grow!

NORTH AUSTRALIA VISIT

During April the full Executive spent a fascinating week in tropical Queensland, visiting Rockhampton, (where Doug Anthony opened the new CSIRO Tropical Cattle Research Centre with much enthusiasm), Townsville and Atherton.

Almost the entire CSIRO effort in that part of the world is dedicated to tropical agriculture—how to make the best agricultural use of an enormous area of land subjected to conditions that induce stress in most plants and animals. The answer lies in selective breeding, making use of stocks that grow throughout the tropical zone of our planet.

In the words of Dr Raymond Jones (Officer-in-Charge of the Davies Laboratory, Townsville) the recipe for success is: cattle from India, grasses from Africa, legumes from South America and know-how from Australia. Through this formula we help not only ourselves, but all that considerable part of mankind that lives in the tropics.

Many questions arose during our visit. Here are just two: Should our Institute structure separate animals from the pasture they eat? Should tropical agriculture (both animals and the food they eat) have a Division of its own beyond the tropic of Capricorn? We need to think very carefully about such questions.

Paul Wild

Bureau Seminar

More than 70 of the staff in CSIRO's Bureau of Scientific Services gathered during April in Wodonga for three days for a seminar which aimed to improve personal relations between staff, increase understanding of services offered by the Bureau, and provide a forum for discussion on ways in which the Bureau could become more effective.

Clyde Cameron College, on the outskirts of Wodonga, Victoria, was the setting for the event which was attended by staff who travelled by bus from the Melbourne and Canberra offices of the Bureau.

The Director, Mr Sam Lattimore, sat in on syndicate sessions which considered such topics as 'Decision-making in the Bureau', 'How CSIRO Would Be in Five To Ten Years', 'The Organization's Working Environment', and 'Changes That Might Be Needed Within Units To Meet Future Demands'. Other topics discussed included how best the Bureau could be involved in facilitating contact with Divisions and the outside world.

During the seminar, the Chief of the Division of Food Research, Dr John Christian, spoke at length on how his Division interacted with the outside world.

The seminar was organised by Brian Woodruff, Roly Aujard, Michael Dack, Liz Davy, Yvonne Esplin, Laurie Martinelli and Don Gwynne.

CAT

The CAT column is open to all members of CSIRO who wish to comment on communication matters. Letters and articles should be sent to the Editor of CoResearch in the normal way.

There's a certain secrecy surrounding the formation of CSIRO's Communication Advisory Team, according to some of the Organization's Melbourne communicators.

When 22 of the communicators met at Protein Chemistry on 29 April, they were asked for some comment on the team's performance, and this was one of the responses.

It's interesting because the events leading up to the team's formation were spelled out in CoResearch 229, but this is the kind of feedback CAT is looking for. It probably means two things—that CAT members should increase their personal lobbying around the Organization, and that many CSIRO communicators still do not see themselves as part of a network of professional operators who can help and inform one another much more than they are doing now.

Wendy Parsons, CAT Chairman, has been invited to talk to the Melbourne communicators but the air hostesses soon put a stop to that. So she sent along some notes highlighting the need for CSIRO policy makers and public affairs advisors to get together a lot more than they are doing now. She cited examples in large corporations overseas where public affairs experts have a major input into policy formulation.

FEEDBACK

Wendy asked for feedback on the image of CAT itself and as well as feeling that secrecy surrounded its formation, the Melbourne meeting suggested an annual meeting of communication people with CAT. But finances being what they are, CAT will probably still rely on its already established program of inviting communicators to a session when it meets in Melbourne, Sydney or Canberra. So far CAT has been restricted to these places because Institutes meet their representatives' costs and obviously want to keep these to a minimum.

For future meetings of the Melbourne communicators, the chairman of each is to be responsible for supplying CAT with points raised by the meeting.

At the meeting Basil Walby made the point that communicators, particularly information/liaison officers, should be aware of what CSIRO's 'publishing arm' (Editorial and Publications Service) has to offer. Such things as advice on copyright, where and when to publish a book, how many copies to print.

Finally, if you want to prove for yourself that there's no secrecy about CAT either in formation or operation, put yourself on the mailing list for minutes of CAT meetings and other documents of interest by phoning either Michael Dack (CAT Secretary) on (062) 48 4568 or Wendy Parsons (CAT Chairman) on (062) 818 306.

People... People... People... People... People... People

The expertise of Wildlife researchers in Canberra was called in recently when a wedgetailed eagle used for research at the Australian National University was deliberately released.

Michael Brooker was able to help out with the capture, and in the process advised the ANU staff that the eagle, named 'Old Girl', should really be named 'Old Boy'.

xxxx

Newest PhD in the Division of Textile Physics in Sydney is **Ly Nhan**, whose thesis 'A numerical study of bubble growth' was carried out at the University of NSW before he joined CSIRO.

xxxx

Peter Thompson of the Division of Tropical Crops and Pastures in Brisbane is leading a new research project at St Lucia to study world production and world trade in plant proteins.

xxxx

The newest member of the Division of Soils staff in Brisbane is **Peter Jacobson**, who has been appointed for three years to assist **Walter Jehne** with studies on the role of mycorrhiza in re-vegetation of disturbed lands.

xxxx

Spending autumn in Canberra is **Sam Arthur**, who is in Australia from Ghana. Sam is Secretary to the Director of the Building and Road Research Institute in his country and has spent some time with the Division of Building Research in Melbourne.

Quite apart from his professional interests, Sam is an excellent pianist and violinist and belongs to the Ghana Symphony Orchestra.

While in Canberra he has spent some time at Headquarters and the Canberra Regional Administration Office.

xxxx

Not content with the icy wastes of Macquarie Island, Land Use Research's **Andy Gillison** is now off to the Shetland Islands to examine vegetation types on periglacial land forms.

Andy's visit to the Island follows his visit to the U.K. to attend a workshop on natural tropical resources.

xxxx

Rosemary Longstaff, the fastest woman in Entomology, has turned in two creditable performances in international running during the past few weeks.

Rosemary came 86th of 120 starters in the World Cross Country Championships in Madrid and during Easter, was 15th woman home in the 1981 Boston Marathon.

Rosemary's time for the 26-plus miles was two hours 43 minutes, a better time than that she recorded to win the Big M Marathon in Melbourne last year which won her the trip to Boston.

Rosemary's running shirt emblazoned with the 'Mountain Masochists' has given international standing in quite a new field to CSIRO's Division of Entomology.

CSIRO researchers **Bill Mulham**, of Land Resources Management Deniliquin, and **John Leigh** from Plant Industry are co-authors of a new book called 'Plants of Western New South Wales.' Art work in the book is by **Martin Driver**, also of Deniliquin. The other authors are **Geoff Cunningham** and **Peter Milthorpe**, both of the NSW Soil Conservation Service.

xxxx

Gunnar Kirchhof, a horticultural science student at Hanover University, has been on the staff at Irrigation Research in Griffith. Gunnar worked with **Henry Barrs** and **Warren Mason**, assisting with the Irrigation Cropping Program.

xxxx

Spending the remainder of this year with **Rex Oram** in Plant Industry in Canberra is **Dr Senathirajah** of the Botany Department at the University of Columbo, Sri Lanka, who has taken up an International Atomic Energy Agency Fellowship to gain experience in mutation plant breeding.

xxxx

It's back to Bhutan for trainee **Mr K. Namjey**, who has spent a period at the Division of Food Research in Sydney being prepared for his work on the cool storage project in Bhutan.

xxxx

Justin Murphy, Information Officer at the Division of Land Resources Management in Perth, has hit the airwaves. Justin is now producing and presenting a half-hour radio program on FM called 'CSIRO Science for Today'. The program goes out on 6UVS which is the University of Western Australia's radio station.

xxxx

It was goodbye and good luck to **Dr Graeme Quick** of the Division of Mechanical Engineering in Melbourne. Graeme has been appointed Director of Agricultural Engineering with the NSW Department of Agriculture.

xxxx

Overseas this month is **Ron Ballantyne** of the Division of Building Research, Melbourne, who is attending energy conferences in London and Rotterdam, as well as visiting laboratories in the USA, Canada and Europe.

In retirement

The following CSIRO staff have or will shortly be retiring. Divisions are invited to send the details of retiring staff to CoResearch for inclusion in the column.

Kris Kaldma, who leaves Computing Research after 29 years service.

Mrs Helen Magi from Computing Research, who retires after 17 years as a data processor.

Miss Beth Broom, whose service in Building Research totals 35 years.

Ken Plomley, who retires after 42 years with Building Research.

Mr N. E. Craig, who retires as workshop supervisor after 17 years at Applied Physics in Sydney.

Mr G. J. Cotterell, who leaves Animal Health as the senior cleaner after 13 years.

Mr D. H. Maggs, who will leave Horticultural Research after 17 years and will become an honorary research fellow.

Dr Priestley

The degree of Doctor of Science (Honoris Causa) was conferred on **Dr C. H. B. Priestley**, A.O., M.A., Sc.D. (Cantab.), F.R.S., F.A.A., F.Inst.P., at a recent Graduation Ceremony at Monash University, Melbourne, after which he delivered the Occasional Address.

Dr Priestley was the first Chief of the Division of Atmospheric Physics and later Chairman of the Environmental Physics Research Laboratories.

From his retirement from CSIRO in 1978 until recently he was Professor of Meteorology at Monash University.

This doctorate is the latest of many awards and honours awarded to Dr Priestley during a long and distinguished career in meteorology.

Dr French

Dr Eric French, former Assistant Chief of the Division of Animal Health and Officer-in-Charge of the Division's Parkville Laboratory, was recently admitted to the degree of Doctor of Veterinary Science (honoris causa) in the University of Melbourne.

Dr French joined CSIRO in 1958 to establish a Virology Section at the Animal Health Research Laboratory. A vigorous research program on virus diseases of animals developed rapidly and training was provided for animal virologists from local and interstate laboratories. When it became apparent that a high-security laboratory for virus studies was essential for Australia, Dr French and his colleagues contributed technical expertise for decisions which led to the building of the Australian National Animal Health Laboratory at Geelong. His Unit contributed staff for the development of the project and it will provide the nucleus of the scientific staff.

His honorary degree is another of a long list of distinctions and honours, the most noteworthy being the degree of Doctor of Veterinary Medicine (honoris causa) in the University of Hanover in 1978. He has been President of pathology and microbiology societies in Victoria and Australia, he was awarded a C.J. Martin Fellowship in 1953 and a Rockefeller Travel Grant in 1954. He is an Honorary fellow of the Australian College of Veterinary Scientists and an Honorary Member of the Australian Veterinary Association, both in recognition of his contribution to animal health.

Eric retired in 1977 and with characteristic zeal has pursued an active life as Editor-in-Chief of "Veterinary Microbiology". He has also been involved in numerous consultancies with CSIRO and other organizations.

'CoResearch' is produced by the Science Communication Unit for CSIRO staff. It is also circulated to some people outside the Organization who have a professional interest in CSIRO activities. Members are invited to contribute or send suggestions for articles. The deadline for material is normally the 8th day of the month of publication. Material and queries should be sent to the Editor, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editor: Jeannie Ferris.

Printed by Pirie Printers Pty Limited, Canberra, A.C.T.

CoResearch

CSIRO's staff newspaper *June 1981* 241

Mech. Eng. and Chem. Tech. to close — two new Divisions

ENERGY, BIOTECHNOLOGY RESEARCH BOOSTED

CSIRO is to intensify its research into energy conservation, industrial microbiology, water purification, wood-based industry and manufacturing technology.

This is part of a series of changes within the Organization to be implemented progressively over the next several months following recent Executive decisions relating to future research emphases and Institute structures. (See story this page "CHANGES IN INSTITUTES".)

First steps involve the re-organization of two Melbourne-based Divisions—Mechanical Engineering and Chemical Technology—following advice to the Executive from a number of review committees and the Government-appointed CSIRO Advisory Council.

CSIRO also took into account views expressed by the International Energy Agency following its examination of energy research in Australia.

The Division of Mechanical Engineering is to be closed and most of those resources used to form a new Division—yet to be named— based in Melbourne devoted to energy conservation research.

This change will take place on 1 September when the formal transfer of about 340 scientists and support staff from the Australian Atomic Energy Research Establishment is planned to occur.

At that time it is likely CSIRO will proceed with the formation of other new research groupings to expand work on fossil fuels, mining of energy resources, alternative fuels and renewable energy, as well as energy conservation.

(The Government decision to transfer the non-nuclear research activities of the AAECRE to CSIRO was jointly announced on 30 April by the Minister for Science and Technology, Mr David Thomson, and the Minister for National Development and Energy, Senator J.L. Carrick.)

Other resources from the existing Division of Mechanical Engineering will augment the recently-formed Division of Manufacturing Technology.

As well, a new Division of Cellulose Research will be formed using resources of the present Division of Chemical Technology and wood scientists from the Division of Building Research.

This new Division, to come into being early in 1982 when the Division of Chemical Technology will be closed down, will concentrate on the use of wood and other natural cellulose-based substances as sources of manufactured products, chemicals and usable energy.

Work on wood as a structural material will remain with the Division of Building Research.

Continued on page eight

CHANGES IN INSTITUTES

The Chairman, Dr J. Paul Wild, said the Executive had decided to restructure the existing groupings of Divisions and Units in four of the five Institutes within the CSIRO framework.

He said the changes were part of the Executive's management strategy for continuously reviewing the activities and appropriateness of research Divisions.

An Executive sub-committee had considered a number of reports of review committees of Divisions.

'When considering these reports the Executive also had the benefit of comments from the CSIRO Advisory Council and from various senior staff of the Organization, particularly Chiefs of the Divisions concerned,' he said.

'In considering all the information before it, the Executive decided that since the present Institute structure had been established for less than three years, any disturbance to the existing structure should be kept to a minimum, although some changes were essential.'

Continued on page eight

Scientists' image is stereotyped

A research project being carried out at Queensland University into the stereotyping of scientists has revealed that children's television cartoons play a major role in perpetuating the image of scientists as shock-haired, evil looking and quite batty.

According to Mr Napier Roffey-Mitchell, lecturer in Communications at Queensland Institute of Technology, scientists who appear in children's cartoons portray a stereotyped image.

As part of his research into the stereotyping of scientists, he spent what he called several 'boring' Saturday mornings sitting in front of his television set.

He studied 40 cartoons in all, and came up with some interesting facts about scientists as they are depicted on television.

'Most of the cartoons depicted scientists as lab-coated eccentrics with a fazed look in their eyes, living in some remote hideaway and cooking up some evil plan to take over the world,' Mr Roffey-Mitchell said.

He found that of the 40 cartoons analysed, 75 per cent depicted scientists as evil.

Further, 85 per cent of the scientists had Germanic accents.

Hair was important in making a scientist look like a scientist.

In fact, most didn't have any hair.

Fifty-six per cent were bald, while of those who did have hair, about three-quarters had a distinctly ungroomed look.

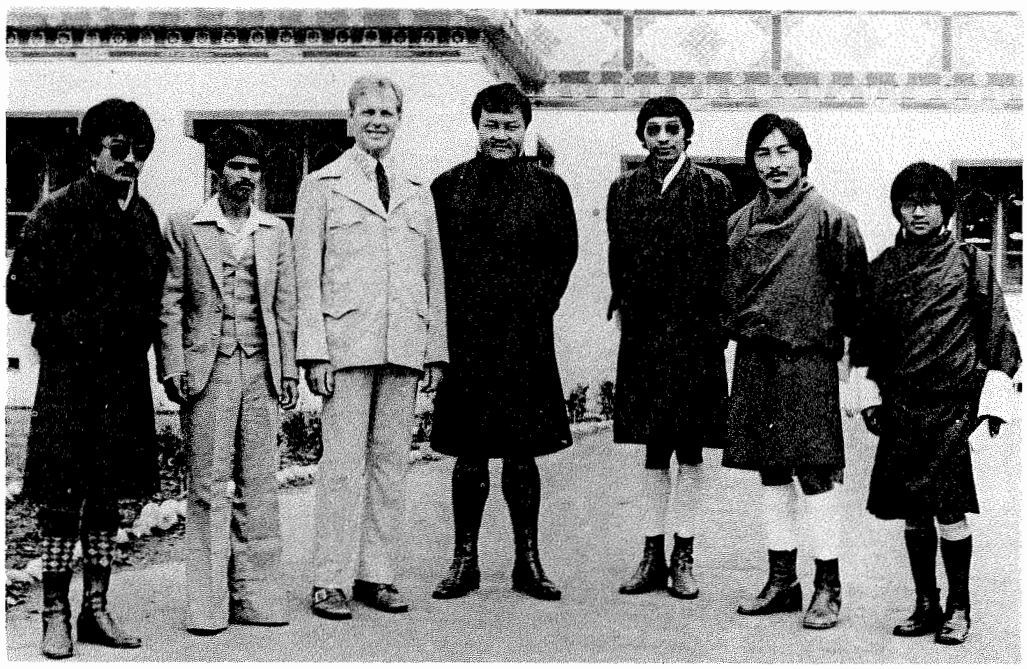
'Many of them resemble a shock-haired Einstein, with German accents, although some were bald with German accents.'

'We don't know whether these cartoons have any effect on our children, for kids may well dissociate cartoon characters from real life.

'However you can't help wondering what the effects may be when you have a scientist as a mean-looking member of 'The Really Rottens', who impersonates policemen and employs his supposedly superior creative intellect to devise methods of cheating in the 'Laff-A-Lympics' to beat the goodies, the 'Scooby Doobies'. '

continued on page three

A visit to 'the lotus garden of the Gods'



Mr Harry Black, of CSIRO's Centre for International Research Co-operation in Canberra, pictured in Bhutan with the five men who recently spent a year in Australia completing a practical training course in post-harvest horticulture and cool store management. The trainees were based at the Division of Food Research, Ryde, Sydney and returned to Bhutan to use their skills in post-harvest management. Mr Black and the graduates are pictured with the Director of the Department of Agriculture in Bhutan, Dash Pema Wangchuk, after a ceremony at which Mr Black presented graduation certificates. From left is Kezang Thinley, Zeko Dorji, Kezang Namjey, Dasho Wangchuk, Harry Black, Roop Narayan Sharma and Sherub Gyaltsben. The men are wearing their country's national dress which consists of a wraparound coat, adjusted to knee level by a multi-coloured sash. A report on Harry Black's visit to Bhutan appears on page seven.

workplace

Brian's studies win him the Hicks Prize

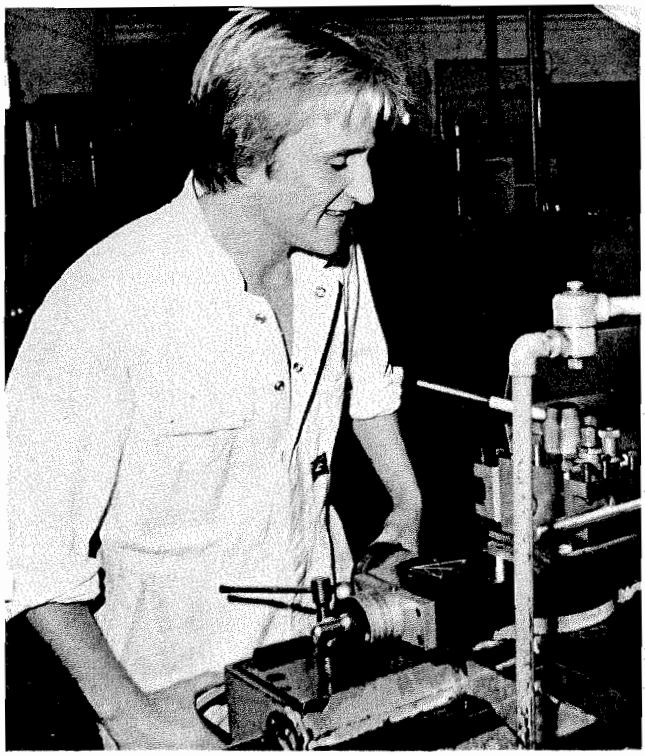
Brian Mann, of CSIRO's Division of Food Research in Sydney, has been awarded the "E.W. Hicks Memorial Prize" for the most meritorious academic record leading to the first post-secondary qualification.

Brian, an apprentice fitter and turner at the North Ryde laboratory, is the first apprentice to win the prize.

The Hicks Prize was established in 1960, following the untimely death, at the age of 52, of Bob Hicks, an outstanding physicist and mathematician in the then Division of Food Preservation and Transport.

The Food Research Laboratory theatrette is known as the Hicks Room. In 1973, the Food Research Laboratory's social club agreed to provide prize money with which winners of the award generally purchase a book relevant to their studies and for which an 'ex libris' is provided. Over the years, the scope of the award has been expanded to include certificates, trade apprenticeships or graduate membership of a professional body as well as the more usual first degree or diploma—all by part-time study by a staff member.

The officer-in-charge of the Food Research Laboratory, Dr A. R. Johnson presented the award to Brian prior to a staff talk by Dr L. R. Fisher on laser interferometry experiments, the equipment for which had been constructed in the Division's workshops by the Award winner, Brian Mann.



Brian Mann of CSIRO's Food Research Laboratory who is the recipient of the "E. W. Hicks Memorial Prize" for the most meritorious academic record leading to a first post-secondary qualification. Brian is a fitter and turner in the Division's North Ryde worksbops.

Planning for the Queensland 'EKKA'

The Organisers of this year's Royal National Association Exhibition to be held in Brisbane from August 6 to 15 were heartened to read a Report to CSIRO entitled "The Results of a Survey of Scientific and Technical Information Gathering Habits by Individual Firms".

In this report the authors stated "The outstanding message . . . is the importance of demonstrations, exhibitions and contacts with suppliers—all personal rather than impersonal means of gathering information . . . talking and showing rather than writing."

Dr Bill Silvey is co-ordinating the displays which will feature the work of the Divisions of Tropical Crops and Pastures, Soils, Mathematics and Statistics, Computing and Forestry which are housed in the Cunningham Laboratory.

David Thomas again will handle the details of staging the event which has been a regular feature of the "Ekka" as it is known locally, since 1976 when CSIRO made its debut into the Brisbane show scene.

This year the displays will be of a high standard and a large percentage of the 800,000 who will click the turnstiles will be there to see what we have to offer.

Letters to the Editor

Dear Sir/Madam,

I couldn't help but reflect, after reading the first issue of Sci Tech (a new monthly newsletter from Canberra) on the style difference in the handling of hard scientific news between it and CoResearch.

Admittedly CoResearch serves a different market and has a heavy social/personal information bias relevant to a staff newspaper. However, CoResearch does carry hard news—but usually with such blandness.

The material is often written down compared to the first mentioned publication. I find there are few hard news stories in CoResearch that couldn't be crowned with the conclusion "...but they all lived happily ever after". It's a style of journalism much beloved of the Women's Weekly and the National Geographic, two publications possessed of unequaled ability to homogenize any material no matter how alarming it may appear in real life.

Now I'm not looking for prophesies of gloom to pour forth from every page, I'd just like to see material pitched at a higher level without added sweeteners—we, your readers, can take it believe it or not. And don't sack Pollyanna if that's who's writing most of the material—just cut off her supply of maple syrup. I'm convinced the withdrawal symptoms would include a healthy dissipation of her smugness and a more respected and credible publication.

Yours faithfully,
R. W. Cullen
Protein Chemistry, Melbourne.

Dear Editor,

A recent Headquarters Personnel Branch Memorandum (27.4.81) to all Chiefs and OICs discussed CSIRO's policy on "Eligibility to apply for Clerk and Administrative Officer Positions".

The title and general presentation of the letter belie its real contents. The last two paragraphs outline a policy which amounts to discrimination against keyboard staff and clerical assistants who, under the policy, are to be singled out for Personnel Branch monitoring.

We are concerned at the inherent injustices of this "interim" policy and feel that all staff should be made aware of its provisions.

We feel it should be withdrawn, or if it is not, very good reasons given for retaining it.

What is the "interim" policy?

As of 30 April 1981, selection arrangements for clerical vacancies where applications include suitably qualified Clerical Assistants and Keyboard Staff are to be "discussed with" Personnel Branch. This is a change of policy brought about by union opposition to CSIRO's disallowing suitably qualified keyboard staff to apply for clerical positions.

The memorandum states that "... in agreeing to the change in policy ...., it is not in any way the Executive's intention to lessen the emphasis currently placed on base grade recruitment or reduce the overall selection standards..."

On the surface this appears to be a reasonable statement, but further examination of the document reveals that to facilitate this, HQ Personnel Branch should have the **"opportunity to participate in selection panels convened to assess candidates for advertised vacant positions in the designation spectrum of Clerk Class 2/3 to AO 7, where applicants for such positions include suitably qualified clerical assistants or keyboard staff."**

The memorandum advises that under these circumstances **"selection arrangements" should be discussed with HQ "prior to the commencement of interviews."**

The policy must be questioned.

It confuses the classification of an applicant with his/her suitability for a job. If all applicants are qualified (as per Personnel Branch Appointment Manual) for a clerical/administrative vacancy, why are only Keyboard Staff and CA's singled out for attention?

Clerical Assistants first became eligible to apply for these positions in 1975. If monitoring arrangements have been in operation since then, they have been without the knowledge of Divisions. We believe they have not been operating.

Divisional selection panels lose credibility under the new arrangements. These panels operate to appoint the most efficient applicant, regardless of classification.

Should it take up its "opportunity to participate", will Personnel Branch sit in on all interviews for a position or just those where Keyboard Staff and CA's are applicants? The latter is clearly discriminatory.

The cost of taking up this opportunity to participate could be considerable if the practice became widespread to cover interviews throughout Australia.

There are many questions to be answered, including the matter of who would have the final say in the case of a close decision. A similar system instituted by CSIRO in the early 1970's was scrapped because it was unwieldy and unmanagable. We suggest that the same thing applies to this plan, with the added stigma of discrimination, particularly against Keyboard Staff. Surely there are much more efficient and equitable means of monitoring clerical recruitment.

Finally, why was there no consultation with Divisions before this memorandum came out? There are certain principles at stake in this issue and we hope that other CSIRO staff members will use CoResearch to air their views.

Yours sincerely,
Geoff Black
Wendy Parsons
Forest Research, Canberra.

'CoResearch' is produced by the Science Communication Unit for CSIRO staff. It is also circulated to some people outside the Organization who have a professional interest in CSIRO activities. Members are invited to contribute or send suggestions for articles. The deadline for material is normally the 8th day of the month of publication. Material and queries should be sent to the Editor, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editor: Jeannie Ferris.

Printed by Pirie Printers Pty Limited, Canberra, A.C.T.

Roger Seccombe left, and sound man Malcolm Patterson of CSIRO's Film and Video Centre, Melbourne, filming during mid-summer mist in the Australian Alps, for 'A Curious and Diverse Flora'. The film is sponsored by the Australian Academy of Science and CSIRO and will set the mood for the 13th International Botanical Congress in Sydney during August.

CSIRO films 'A Curious and Diverse Flora'

CSIRO's Film and Video Centre is putting finishing touches to the first major documentary made of Australia's unique and diverse flora.

Appropriately titled 'A Curious and Diverse Flora', the 60-minute feature will be an important contribution to the 13th International Botanical Congress in Sydney in August.

It is co-sponsored by the Australian Academy of Science. Eminent biologist Sir Rutherford Robertson is the film's executive producer.

'A Curious and Diverse Flora' is anchored by Sydney University botanist Dr Peter Valder, who takes the viewer on a 40,000 km tour of Australia to see the plants of environments as disparate as the Australian Alps, rainforest and desert.

Many of the plants in the film have almost certainly not been filmed previously, and the film is expected to have a wide appeal in educational circles, as well as overseas.

BOTANICAL HISTORY

Dr Valder details how the flora of Australia has evolved in virtual isolation from the other continental floras of the world during the past 45 million years, and gives some of the historical background to modern Australian botany.

Six major locations were chosen for detailed filming, and about 20 hours of footage were reviewed before the final 60-minute version was distilled.

Operating within a limited budget, producer Nick Alexander sent only three people into the field with Dr Valder—director Tony Chenn, cameraman Roger Seccombe and sound recordist Malcolm Patterson.

The team returned with magnificent footage, despite difficult conditions in some locations—mist in the Australian Alps, torrential rain in the tropics, and wind in Western Australia.

In Tasmania, they filmed such curious plants as the palm-like *Richea pandanifolia*, the largest member of the epacrid family, and the strange climbing heath *Prionotes*, which is believed to be the link between the families Epacridaceae and Ericaceae. Eucryphia, the Tasmanian Leatherwood, and the endemic conifers of Tasmania, will also appear in the film along with the strange landscapes of the high bolster moors, where cushion plants dominate.

In the Hawkesbury sandstone region around Sydney, which has more flowering species than all the British Isles, the team filmed the beautiful heathland flowers from the families Proteaceae, Myrtaceae and Rutaceae, and also found the bizarre Gymea Lily in flower.

Northern rainforest provided the world's largest nettle, *Dendrocnide morea*, tropical and sub-tropical orchids.

In Western Australia, the team shot six hours of footage in what many botanists believe to be the most diverse wildflower region in the world. Subjects included the spectacular W.A. Proteaceae genera Banksia, Dryandra, Petrophile and Isopogon, the bell-like Darwinias (Myrtaceae) of the Stirling Ranges, and the beautiful Kangaroo and Catspaws which are endemic to the south-west.

Central Australia provided shots of the aquatic fern Nardoo, a food source for Aborigines, the brilliant Sturt's Desert Pea, and relics of vegetation from the wet past, including *Livistonia* palms.

The Film and Video Centre will make the film available on loan after the Botanical Congress, and also has plans to make use of some of the excess footage for production of further films, possibly for education purposes.

From the Chairman—

A regular column by the Chairman of CSIRO Dr. J. Paul Wild

In my last column I talked of the effects of the Razor Gang's activities upon CSIRO. You will recall that some of these effects are negative (especially the staff ceiling cuts and the budget threat) and some are positive (absorption of part of the AAEC Research Establishment to strengthen our energy research). To cope with these effects, the Executive has set up its own sub-committee, informally known as the "Laser Gang"—we are confident it will help to illuminate the way ahead. The committee consists of Greg Tegart (Chairman), Keith Boardman and David Craig (Part-time Member and A.N.U. Professor of Theoretical Chemistry). In consultation with the Institutes, this committee has the formidable task of making recommendations to the Executive on the restructuring of the Institutes and the identification of which our activities should be curtailed and which strengthened. I expect their deliberations will extend over a considerable period.

As a result of their work so far and through discussions first at Executive Committee level (in which all Directors partake) and then with the Full Executive, the first stage of restructuring has been decided upon: to move the Land and Soils Divisions into Biological Resources to bring them closer to the plant- and ecology-oriented Divisions and to make way for the Lucas Heights energy intake; and to move Fisheries into Animal and Food Sciences to bring them closer to Divisions involved with the food industry and to reduce the rather excessive size of Biological Resources. Some discussion took place on whether Wildlife should be similarly moved, but in the end the view prevailed that this Division belongs with the ecologically oriented Divisions in Biological Resources.

Further developments within this general structure may have been announced by the time this article goes to press. I personally am pleased that a solution was found that carried the minimum disturbance to the existing groupings of Divisions which I believe have been functioning remarkably well, especially at Chief level.

* * *

Today the Advisory Council is a very different kettle of fish from the old one that existed from 1949 to 1978. Previously it included all the Executive, was chaired by the CSIRO Chairman, and was in no sense an independent body. It nevertheless provided a helpful group of influential friends in time of need. The new Advisory Council, on the other hand, is quite independent. I attend meetings, with a colleague or two, but strictly as an observer and the provider of information and opinions on request. The Council, set up under the Chairmanship of Sir Victor Burley and now chaired by Sir Peter Derham, is a powerful group of people. It includes a number of captains of industry (not least Sir Ian McLennan), and leaders from the worlds of agriculture, education, community and government. Several Permanent Heads are members, as are two M.P.'s. Senator Andrew Thomas has been an active contributor from the start, and Barry Jones has recently joined and already provided much food for lateral thought—and entertainment.

Sir Geoffrey Badger, Chairman of ASTEC, and Ian Castles, Permanent Head of the Department of Finance, are observers. When it is considered that this impressive throng is but the tip of the iceberg that contains the six State Committees—soon to become seven with the Northern Territory—nobody can complain that CSIRO is under-advised!

The new Council has now found its feet and with the aid of its specialized sub-committees is beginning to have valuable dialogue with the Organization. This became clearly evident at the last meeting at Adelaide on 20th May. The meeting was memorable for an excellent discussion (leading to formal advice) on the Council's perception of our role in relation to manufacturing industry; and for a splendid presentation by Dr Craig Mudge, who has recently joined the Division of Computing Research to set up a group in Adelaide for the development of the design of micro electronic circuits. In an ambitious program, which was presented to us with confidence and conviction, Dr Mudge hopes in three years to head one of the few groups in the world capable of designing VLSI (very large scale integrated) circuits with 100,000 devices per chip.

* * *

The other day, Michael Tracey and I, in retrospective mood, were comparing notes on how we got into CSIRO in the first place. It turned out that neither of us would ever have joined CSIRO but for the existence of the ASLO London office. It was a sobering thought that the existence of this office, together with the Washington Office, is now under threat of annihilation—by you know who. One may question whether it was prudent of the Government to single out these offices and other parts of the London High Commission and Washington Embassy for elimination without any prior consultation. The Government and its bureaucracy rightly place a high value on the need for consultation and co-ordination.

Paul Wild

Scientific Stereotypes

From page one

Another character, Dr Shrinker, is, according to Mr Roffey-Mitchell, an evil-looking scientist who has invented a machine to shrink people so that he can rule the world.

Mr Roffey-Mitchell said, however, that not all television programs were guilty of presenting scientists in such a malevolent light.

'It's mainly the cartoons which perpetuate such stereotypes.' he said.

'Other programs such as 'Dr Who', 'Buck Rogers' and 'Lost in Space' provide images of scientists who are, respectively, intelligent, brave and blithering idiots.

'Watching the cartoons didn't help my morale as a scientist.'

Mr Roffey-Mitchell said he couldn't stand watching any more cartoon shows.

Mr Roffey-Mitchell formerly worked for CSIRO.

People... People... People... People... People... People ... People ... People ...

Working in the Division of Applied Physics laboratory for a few months is **Dr Emil Babic** from the Institute of Physics of Zagreb University. Dr Babic is considered a research leader on amorphous metals and alloys and during his stay will establish a facility to prepare these metals and alloys at the Division.

□□

CSIRO's Man in Havana has safely returned to Australia and reports that Cuban agriculturalists have recently begun to consider economics as well as productivity. **Bryan Hacker**, of the Division of Tropical Crops and Pastures, was accompanied by Dr Len 't Mannetje and made his trip to Cuba under United Nations Food and Agricultural Organisation sponsorship.

□□

Mike Whiting of the Division of Tropical Crops and Pastures has been appointed officer-in-charge of the Division's Kimberley research station. Mike takes up his appointment later this year, replacing **David Coates** who completes his term there and will return to the Davies Laboratory to work with **Raymond Jones** and **Peter Gillard** on the mineral nutrition of pastures and cattle.

□□

A CSIRO challenger to Jules Verne's around the world in 80 days is **Trevor Booth**, of Land Use Research, who is planning an around the world trip in 79 days, visiting forestry research centres in Canada, USA, Britain and Italy.

A feature on the Questacon science centre in Canberra published in CoResearch No. 236 is being included by the Centre's Director **Dr Michael Gore** in an information sheet which is being sent around the world, in response to enquiries on the role of the Questacon.

□□

We've all heard of proud fathers, but surely **David Zerman** of the Division of Building Research takes the cake. David celebrated the birth of his first born, daughter Maya, with the publication of a special edition of the "North Fitzroy News", entirely devoted to the young **Maya Zerman**.

The sheet included an on-the-spot world exclusive interview with the day-old Maya on her journey into the world, entitled "Escape from the Inside".

□□

Congratulations to **Murray Long** of the Division of Plant Industry who has been awarded the Australian National University's Prize on the basis of his studies at Bruce TAFE towards his Biological Technician's Certificate.

□□

The University of Sydney recently awarded **Dr Andrew Heron**, of the Division of Fisheries Research, a Ph.D. in Biological Sciences for a thesis entitled "Life History Strategy in Varying Environments: the Ecology of two Marine Planktonic Colonizers."

The work involved theoretical and practical contributions to the ecology of major components of the food chain leading to fish.

Congratulations to **Don Pescod** of the Division of Mechanical Engineering who has been awarded the "James Harrison Medal" for 1981. The award is made by the Australian Institute of Refrigeration, Air Conditioning and Heating and was awarded to Don for his outstanding work in the Institute's areas of interest.

Mike Wooldridge and **Laurie Welch** of the same Division have been given the Institute's "best paper" award for 1980 for their paper on the major results from the first winter of operation for CSIRO's low energy house.

□□

The Division of Computing Research has said farewell to their man in Perth, **Geoff Adam**, who has resigned to join the West Australian Department of Fisheries and Wildlife. In the 13 years Geoff has been in Perth, he has provided CSIRONET services to W.A. users and most recently had been working with **John Smith** and the Database section.

□□

The Division of Land Use Research in Canberra has a wide range of talent, some of it musical. **Sylvia Geunther** caters for LUR's rock music fans, playing guitar and synthesizer for an all-female rock band known as the Msfits. It's been described as experimental, avant garde and definition defying, but the group has already had some musical successes in Sydney and Canberra.

On the other hand, catering for those whose musical tastes run on more classical lines is **Mike Hutchison**, the Division's demure virtuoso of recorder and harpsicord who plays with the Canberra Recorder and Early Music Society.

The 1981 Archibald D. Olle Prize, granted by the Royal Australian Chemical Institute, N.S.W. Branch, for a single scientific work on a subject relevant to the Institute's interests and published in the year to June 1980, has been awarded to **Dr Ian Watt** of the Division of Textile Physics.

The award was given for a review paper entitled "Sorption of Water Vapor by Keratin" which appeared in the Journal of Macromolecular Science–Reviews in Macromolecular Chemistry.

□□

Dr A. W. Davis, of the Division of Mathematics and Statistics, Adelaide, has been awarded a D.Sc. from the University of Adelaide with his thesis entitled "Contributions to Statistical Distribution Theory."

□□

Back with Plant Industry's crop adaptation section as a research scientist is **Richard Richards**. Dr Richards is undertaking studies in a project baing funded for three years by the Wheat Industry Research Council.

□□

Staff at the Division of Forestry have been engaged in a healthy game of oneupmanship, and the latest to score maximum points is **Ken Eldridge** who recently returned from New Zealand to relate tales of his birthday party which had been attended by 600 guests on the shores of Lake Tarawera near Rotorua, coinciding with the annual conference of APPITA which had been opened by Prince Charles.

While the great man himself was not at the party, reports indicate that the guest list included a Maori concert party who provided a sumptuous feast, and visiting dignitaries from overseas countries.

□□

Merv Page, of the Division of Building Research in Melbourne, has taken 12 months leave to write a book on forest conversion technology for an American publishing company.

During Merv's absence, **Frank Christensen** is acting officer-in-charge of the Division's timber conversion engineering.

□□

Also absent from the Division during the next year is **Charles Gerrard**, who has recently departed for a 12 month visit to the United Kingdom. Charles will be working in London, participating with leading research teams at the Imperial College and Kings College on the effect of fabric and stress history on the mechanical properties of soil and rock masses.

□□

The Muncey Cup which has graced the canteen at Building Research of recent times has been moved to the Mineral Chemistry portals following Min Chem's golfing vistory in a recent forest products golf day.

□□

A challenge for Australia Post recently arrived at the Division of Applied Physics addressed thus:

Mr J. Petranovic,
CSIRO Applied Physics,
POB 218,
Lindfield, N.S.W. 2070
Turkey.

The letter was sent in October 1980 and received in April 1981.

Hovering above a sticky wicket

CSIRO's Floreat Park cricketers desperately trying to dry out a sticky wicket? No, it's really all to do with research. The Divisions of Fisheries (Dave Smith) and Land Resources Management (Frank Honey's remote sensing group) are collaborating with the Air Force to get low-level photography of sea grass and algae patterns, plus sea-surface temperature data.

Pictured in the chopper (which IS hovering over the CSIRO cricket/soccer pitch!) is LRM's Ian Tapley, complete with a rig for two 70 mm cameras, head phones and a BIG, STRONG seat belt!

People... People... People... People... People... People... People... People...

Still anxious to keep in touch with CSIRO is **Mr Jack Cummins**, who is possibly the oldest surviving member of the original staff of CSIRO, having joined the CSIR Council in August 1926.

Jack established the first Information Service, following Gerald Lightfoot's report in the late 30s, and was involved in the establishment of the first translation service and the original film unit.

He was CSIRO's first overseas liaison officer, taking up the post of Chief Liaison Officer in London just after World War II.

Jack has returned to live in Australia permanently after several years in the United Kingdom.

He has settled in Kew, and joins the CoResearch mailing list as possibly the oldest surviving link with early days.

□□

One of the more unusual parting gifts on retirement was given to **John Bolton** when he recently left the Division of Radiophysics. His Divisional colleagues presented him with a model of the Dover Heights interferometer which originally graced the Eastern Suburbs clifftop during World War II.

It was at that site where John assisted by **Gordon Stanley**, made the first discoveries and identification of radio sources.

The model will undoubtedly have pride of place in **John and Lettie Bolton's** new pemanent home at Buderim on Queensland's Sunshine Coast. **(See page 6.)**

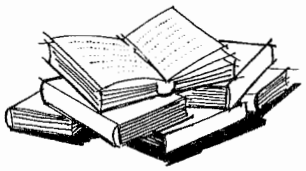
□□

Being welcomed to the Alice Springs laboratory of the Division of Land Resources Management is **Dr Earl Saxon**, who will be involved in research of relevance to the management of arid zone parks and reserves. Earl was previously in Canberra.

It never rains but it pours. As recorded recently, **Dr John Philip**, the Director of CSIRO's Institute of Physical Sciences, received the Lyle Medal of the Australian Academy of Science on April 30.

It now turns out that, on May 26, in Baltimore, U.S.A.,' Fellowship of the American Geophysical Union (AGU) was conferred on him in recognition of his researches in hydrology and other branches of geophysics.

Each year the AGU elects no more than one in 1,000 of its members as Fellows. There are now three Australian Fellows of the AGU, **Professor A. E. Ringwood**, and **Dr K. Lambeck**, of the Australian National University, and **Dr Philip**.



Jill Franklin, Librarian at the McMaster Laboratory in Sydney has received a Meritorious Service Award from the Australian Veterinary Association in recognition of the work she has done on the A.V.A. library which is maintained jointly with the McMaster Library.

It is the first time the Association has made an award to a non-veterinarian. Jill made a special trip to Darwin to receive the Award.

□□

CSIRO is assisting in the fight against diabetes on Sydney's North Shore, by linking its Canberra computer terminal to "Fred" the computer at Royal North Shore hospital. Program psychologist at the hospital, **Hilary Tupling**, said the link enabled dietary advisors to step up their diabetes education program.

Returning to Canberra's Division of Computing Research is **Pam Cohen** who previously worked for the Division seven years ago. In between she has worked as a computer programmer in Victoria, at the University of Illinois and in Cambridge.

In retirement

The following CSIRO staff have or will shortly be retiring. Divisions are invited to send the details of retiring staff to CoResearch for inclusion in the column.

Norm Craig has retired from the Division of Applied Physics in Sydney where he had been a senior laboratory craftsman in the building services section.

□□

Dominic Pelle has retired from the Division of Forest Research where he has been one of the longest-serving members of staff, working as a technical officer.

□□

Peter Ozanne has retired from the Division of Land Resources Management in Perth, where he has been a senior research scientist for many years. In total, Peter had worked for CSIRO for 30 years.

□□

John Bolton has retired from the Division of Radio Physics (see report page 6.)

□□

Neil McKinnon has retired from the Division of Materials Science, Fisherman's Bend.

Academy honours Rendel

Dr J. M. Rendel, whose contribution to cattle breeding research in Australia has been recognised in the naming of CSIRO's new Tropical Cattle Research Centre in Rockhampton, has received a second accolade from the Australian scientific community.

Dr Rendel, who retired from CSIRO last year, was awarded the Burnet Medal at the recent meeting of the Australian Academy of Science.

Dr Rendel also delivered the Burnet lecture, 'Animal Breeding: Past, Present and Future.'

Dr Rendel was associated with CSIRO for 30 years although he originally came to Australia for only three years on secondment from the Institute of Animal Genetics in Edinburgh, Scotland.

Dr Rendel was originally officer-in-charge of the Organization's animal genetics section at Sydney University, and was appointed assistant chief of the Division of Animal Health and Production in 1953.

He subsequently led a research team in cattle breeding investigations being established at Belmont, the research field station bought by the then Australian Meat Board.

Later, working in Sydney, Dr Rendel established CSIRO's Division of Animal Genetics.

The J. M. Rendel Laboratory, officially opened in Rockhampton recently, is a tribute to Dr Rendel's contribution to tropical cattle research in Australia.

Black Mountain funrunners prepare to hit the slopes again

Friday, July 17, will see the running of the 5th "Black Mountain Cup", CSIRO's now famous Canberra fun run.

This prestigious event attracted 105 starters last year and looks like being even bigger in 1981.

The run, over 5.6 km on the slopes of Black Mountain, starts at the Pye Laboratory (Environmental Mechanics) at 12.45 pm. There is no entry fee, but competitors are asked to phone in their entries early to avoid delays at the start.

Entomology have held the "Cup" since its inception but were hurried up last year by Plant Industry and one of the interstate teams from Textile Industry (Melbourne). The actual Cup is a team award won by taking the lowest total time of the first 4 runners from any Division. There are also many individual awards, age categories etc.

So all you runners, joggers, walkers and others, get those bodies moving, there is still plenty of time to train. It is a great way to spend a lunch hour for runners and spectators.

For further information, ring Gregory Heath (062) 465692 or Colin Hazelton (062) 465891.

Funrunners in the early stages of last year's Black Mountain Cup show Alan Melmoth (Forestry) ahead of Peter Mooney (Land Use Research), Trevor Dowling (LUR), Bill Price (LUR), and Michael Hutchinson (LUR).

Retirement of John Bolton

With the recent retirement of John Bolton, the Division of Radiophysics has lost a most distinguished scientist.

John was born in Yorkshire and after taking his degree at Cambridge University in 1942 he joined the Royal Navy as a radar officer. His scientific duties in the Navy put him in touch with such famous persons as C.P. Snow and J. A. Ratcliffe.

John Bolton and CSIRO's Chairman Paul Wild were born in the same district, attended the same university, were both radar officers in the Royal Navy, both married Australians at about the same time, both applied for the same position at the Radiophysics Laboratory in 1946. Wild got the job but Bolton was taken on within a few weeks and they met then for the first time.

John soon began to make an impression in the new science of radio astronomy. He worked with the late Dr J. L. Pawsey on solar studies using the now famous sea-interferometer at Dover Heights. When Pawsey went on an overseas trip Bolton turned his attention to the universe at large and was rewarded with early success in the first identification of a radio source withan optical object—the Taurus A source with the Crab Nebula.

Soon after he and his colleagues Gordon Stanley and Bruce Slee observed the first extra-galactic object, Centaurus A, and identified it with the galaxy NGC5128. In addition he surveyed the radio Milky Way with Kevin Westfold and started building up a catalogue of radio sources.

Manual labour has always played a large role in Bolton's life and his research colleagues felt obliged to help him during lunch hours dig a large hole on the sand hill cliffs at Dover Heights into which was concreted an 80 foot diameter radio telescope. The enterprise led to the identification of the important radio source at the galactic nucleus.

In 1953 Bolton transferred to the Rainmaking section (then part of the Radiophysics Division) and vigorously reorganized the methods of research there. In 1955 he was appointed Professor of Astronomy and Physics at the California Institute of Technology, Pasadena and established the Owens Valley Radio Observatory. John required from his PhD students aptitude for hard labour and an ability to drive a tractor. The twin 90 ft. paraboloids interferometer was the result. It could be said that Bolton gave a very great impetus to American radio astronomy at a time when efforts there appeared to be flagging. Many now-famous radio astronomers were his students at Caltech.

Taffy Bowen brought John Bolton back to the Division in 1961 to become Director of the Australian National Radio Observatory at North Goobang near Parkes. An early success with the famous 64-m radio telescope there was the establishment of a most accurate position for the source 3C273 which led to the discovery of the first quasar. Bolton was active in the initial work on the newly discovered hydroxyl molecule in 1964. He undertook a series of ever deepening surveys of radio sources. The Parkes catalogues of radio sources are the result. His early interest in the identification of radio sources with their optical counterparts remained with him. He used optical telescopes at Lick and Mt Palomar in the USA and more recently the Schmidt Telescope at Siding Spring Mountain to complement his radio work developing a number of important instruments for both observational and analytical work.

Bolton's dynamic leadership was an essential part of the great success of the Parkes Telescope in the Apollo Missions to the Moon from 1969 to about 1973.

In recent times Bolton resigned his position as Director so that he might devote his full attention to his astronomical studies.

In the early years John was a prominent member of the Radiophysics Cricket Club which has been established in the City and Suburban Competition since 1948.

He has gone to live on the Queensland coast where he hopes to continue his sporting and handyman interests.

Orienteering for their country

Jenny Bourne, left, and Kathy Saw, who have represented Australia in the sport of orienteering. Both women work for CSIRO in Canberra.

Two women who work in CSIRO's Canberra laboratories, recently represented Australia in the sport of orienteering.

Jenny Bourne and Kathy Saw were among 40 men and women who formed the Australian team which challenged New Zealand orienteers at Lake Taupo, New Zealand during last month.

Jenny has also been chosen to represent her country in the World Orienteering Championships to be held in Switzerland during September.

She is a member of an open team of five men and five women who will attend a four week training camp in Switzerland immediately before the Championships.

Jenny Bourne works with Dr Richard Milner in the Division of Entomology at Black Mountain, assisting with research into the biological control of lucerne aphids.

Kathy Saw, who works in the Division of Plant Industry at Black Mountain, operates an auto-analyser, determining nitrogen and phosphorous in soils and plants.

What is Pseudo Science?

While debate continues on science and pseudo-science, David Horwood in CILES, Melbourne, has come up with an amusing definition of pseudo-science written in 1859:

'A pseudo-science consists of a nomenclature, with a self-adjusting arrangement, by which all positive evidence, or such as favours its doctrines, is admitted, and all negative evidence, or such as tells against it, is excluded. It is invariably connected with some lucrative practical application. Its professors and practitioners are usually shrewd people; they are very serious with the public, but wink and laugh a good deal among themselves. The believing multitude consists of women of both sexes, feeble-minded inquirers, poetical optimists, people who always get cheated in buying horses, philanthropists who insist on hurrying up the millennium, and others of this class, with here and there a clergyman, less frequently a lawyer, very rarely a physician, and almost never a horse-jockey or member of the detective police.'

The definition was most recently published in 'The Listener'.

Members of the Executive and the Advisory Council met with the Minister for Science and Technology at the Queensland Regional Station of the Division of Forest Research at Atherton in April. The visit to Atherton was at the end of a week of activities for the Executive in Queensland.

On Monday April 6 the group attended the opening by Mr J. D. Anthony, Deputy Prime Minister, of the Rockhampton Laboratory. On Tuesday, April 7 the group visited the Davies Laboratory at Townsville, and on Wednesday, the Lansdown Pasture Research Station.

A formal Executive meeting was held in Townsville on April 8 and in Atherton on Friday, April 10. A seminar entitled "CSIRO in North Australia" was held in Townsville on Thursday, April 9.

Pictured at the regional station are from left to right: Mr John Heussler (Advisory Council), Dr Val Brown (Advisory Council), Professor David Craig (Executive), Mr David Wright (Executive), Dr Paul Wild (Chairman), Mr Geoff Stocker (OIC, Division of Forest Research, Atherton), Mr David Thomson (Minister for Science and Technology), Dr Greg Tegart (Executive), Dr Keith Boardman (Executive), Professor Peter Scott (Advisory Council), Mr Alex Boden (Advisory Council), Mr Hugh Morgan (Executive) and Dr Ken Ferguson (Director, Institute of Animal and Food Sciences).

AID FOR 'THE LOTUS GARDEN OF THE GODS'
CSIRO helps Bhutan's post-harvest project

Thunder rolls menacingly across a line of forbidding mountains, reverberating down the valleys at their foot. Through a sombre curtain of cloud, a lightning flash reveals a rugged backdrop of jagged snow peaks, their sides riven by sliding rivers of ice.

The thunder growls again—and the villagers go to sleep re-assured. For this is Druk Yul, Land of the Thunder Dragon to its people—the remote Himalayan kingdom of Bhutan on the world map.

The Thunder Dragon, according to mythology, has protected the country throughout the centuries. Gigantic mountain ranges, largely responsible for the frequent thunderstorms, have certainly played their part in its protection too.

ISOLATED KINGDOM

Inaccessible to foreigners, in former years because of isolation and more recently by decree, the tiny kingdom lies hidden between Tibet to the north, West Bengal and Bangladesh to the south. In an area roughly the size of Tasmania live about 1.4 million people. Mostly adherents of Mahayana Buddhism, their language is Dzongka. The currency, at par with the rupee of India, is the ngultrim.

Historically free of any caste system, enlightened Bhutan also guarantees its women equal status with men. They enjoy the right to vote, often hold major government posts, and estates are divided equally between sons and daughters.

YOUNGEST MONARCH

King Jigme Singye Wangchuk, a very enlightened monarch 25 years old, is universally revered. Well educated and extensively travelled, he presides personally over the gradual emergence of his country into the 20th century. A National Assembly, Royal Advisory Council and a Council of Ministers assist him. The young king, fond of sport, plays a good game of basketball and volleyball. He is accessible for audience with the humblest of his people.

In this subsistence economy, more than ninety per cent of the work force are agricultural workers.

As the current five-year development plan proceeds, roads and bridges take shape, a national health program gathers pace and the schools, state-run and co-educational, are completely free from primary to tertiary levels. The government also provides students free of charge with textbooks, stationery, sports equipment, transport and medical and health care. More than 500 students are receiving higher education abroad. A university is planned.

SUBSISTENCE ECONOMY

But development on this scale takes money, a particular problem in a subsistence economy, even one that is almost completely self-sufficient in agricultural products. Across the centuries, the ancient trade routes to Tibet and India carried salt, wool, musk, textiles, rice, dyes, tobacco and herbs back and forth along old caravan roads. The closing of the Tibetan border in 1960 by the Chinese changed that. Cereals, herbs, horticultural produce and postage stamps have become the principal exports. The shortfall in foreign currency has been taken up largely by India with whom Bhutan enjoys a special relationship. A number of Colombo Plan countries and many U.N. agencies also provide assistance.

That sadly misused word, "unique", fits snugly into any description of Bhutan. The country is unique in its national language, in its architecture, art forms, dress, and the agricultural environment. In their elegant lines, rich decoration, tasteful colours and simple design, its dwellings and public buildings are stunning. In fact they could teach western architecture a great deal. Timber is the main medium for construction, commonly built atop a stone, mud brick or rammed earth lower storey. The fine craftsmanship requires no nails.

Perhaps the finest example of Bhutanese architecture is the castle-like dzongs which feature gently tapering walls, classic lines, large courtyards, gompas (or temples) and striking galleries. Built centuries ago principally as spiritual centres and refuges in time of invasion, the dzongs harmonize perfectly with their environment. Large dzongs can hold up to 10,000 people.

VERSATILE CLIMATE

The country is probably unique also for its wide spectrum of agriculture and climatic environments in a small area. Rice grows as high as 2,450 m and tropical fruit flourishes in sight of the perpetual snows. Rice, maize, wheat, buckwheat, barley, potatoes and cardamom comprise the chief crops. Citrus and tropical fruit thrive in the lower regions, apples, apricots, peaches and nuts in the central highlands.

There are several agricultural research stations, veterinary centres and livestock farms, including two specialising in sheep breeding. Much of the agricultural research and development is under-pinned by a sprinkling of dedicated foreign specialists, particularly from the Scandinavian countries, generally provided by one U.N. agency or another.

Bhutan produces an abundance of fruit and vegetables, far more than its people require The lack of adequate storage and transport facilities, however, seriously erodes the value of its horticultural surpluses.

Supported by suitable postharvest technology, for instance, mountainous Bhutan should be well placed to supply the teeming markets of the nearby West Bengal and Bangladesh plain, with consequent advantage to the national economy. Together with assistance from U.N. agencies and several other countries, the Australia Bhutan project is designed to assist this program.

CSIRO INTEREST

CSIRO's interest in Bhutan is the Australia-Bhutan Horticulture Postharvest Project. A collaborative venture between the Givernments of Bhutan and Australia, this venture, funded by the Australian Development Assistance Bureau and operated by CSIRO, got under way in 1979. The Division of Food Research, Ryde, with the assistance of CIRC, has the carriage of the project.

The project involves two major forms of assistance: provision of storage facilities, and specialist training of key personnel. Cool store depots around the country, some already operating and others to be built, are being equipped with machinery, vehicles and other items of equipment. The sum of $380,000 expended from ADAB funds to date has covered the training program, supply of refrigerated trucks, fork lift trucks, fruit and vegetable grading equipment and library materials.

Many officers of the Food Research Laboratory, Ryde, including the project leader Alan Johnson, Barry McGlasson and Greg Morgan, all of whom have visited Bhutan, have worked hard to bring it to fruition. The daunting task of designing the cool store, calling tenders from firms in India, arranging for secure transport of equipment to Bhutan, and ensuring proper installation of the equipment can be imagined. As well, Mr Jim Jackson, First Secretary Development Assistance at the Australian High Commission, New Delhi, has rendered invaluable help to the project.

PERSONNEL TRAINING

Five young men from Bhutan spent the whole of 1980 based at the Food Research Laboratory in intensive training in three States with marketing boards, cooperatives, Departments of Agriculture, private growers and CSIRO laboratories. Two were horticulturalists, one a marketing officer, one a refrigeration technician and one a manager. These young trainees proved to be excellent ambassadors for their country.

As an officer of CIRC having borne general responsibility for the trainees in Australia, I was invited by CSIRO to return to duty at the end of one of my annual treks in the Himalaya to visit Bhutan to present CSIRO certificates of training to the five fellows. I also was to discuss the project with officers of the Department of Agriculture and the Food Corporation of Bhutan and obtain an assessment of their training from the five young men.

BHUTANESE HOSPITALITY

What an experience it turned out to be! As guest of the Food Corporation of Bhutan and its quietly efficient Managing Director, Sangay Khandu, in southern Bhutan, and of the Director of Agriculture Dasho Pema Wangchuk in the capital Thimpu, I was given every possible cooperation and showered with traditional Bhutanese hospitality. With a car and driver provided for the week's stay and accompanied by several of the trainees as guides, I covered 800 km looking at key agricultural areas, research stations and storage facilities.

In the districts of Paro, Punakha, and Wangdiphodrang, we inspected rice paddies, potato fields, leaf vegetable plots and citrus, stone and pome fruit orchards. I took many photographs for the Division of Food Research and for general CSIRO requirements.

DEDICATED POPULATION

But after all this about the country, what are the people of Bhutan really like? Gentle, tolerant, intelligent, hospitable, hard working and dedicated to their country's well-being are the qualities that spring to mind immediately. The visitor is showered with goodwill; a visiting friend finds himself overwhelmed with hospitality. The Bhutanese are extraordinary, fascinating and very likeable people.

The first tourists arrived in the kingdom only seven years ago. In contrast to near neighbour Nepal, few foreigners have yet been allowed entry. These limitations are based partly upon the paucity of tourist accommodation and infrastructure but mainly upon a praiseworthy determination of the authorities to control the tourist flow in order to maintain their cultural and social fabric untarnished.

Departure from the Land of the Thunder Dragon proved to be quite a sad occasion. As I sped down to the plains of India for my return, the thunder gods growled their daily warning and I said farewell to the land justly described by early Tibetan chroniclers as "Lotus Garden of the Gods".—Harry Black.

Harry Black, Scientific Development Officer at CSIRO's Centre for International Research Co-operation in Canberra, writes about his recent visit to Bhutan.

Left: A line of shops in the main street of Thimpu, the capital of Bhutan. The photograph shows the unusual architecture of the buildings in the country.

ANZAAS GETS A HELPING HAND

What works 12 hours a day, misses meal breaks and spends most of its time looking for a proverbial needle in a haystack of scientific papers?

Answer: A media representative covering an ANZAAS Congress.

But despite the difficulties, most media representatives have not been discouraged from covering future congresses, according to a survey conducted at the 51st ANZAAS Congress which was held in Brisbane last month.

The survey was conducted by CSIRO's Media Liaison Group as part of its responsibility to plan and manage the Congress Media Centre—the headquarters for the media covering the congress.

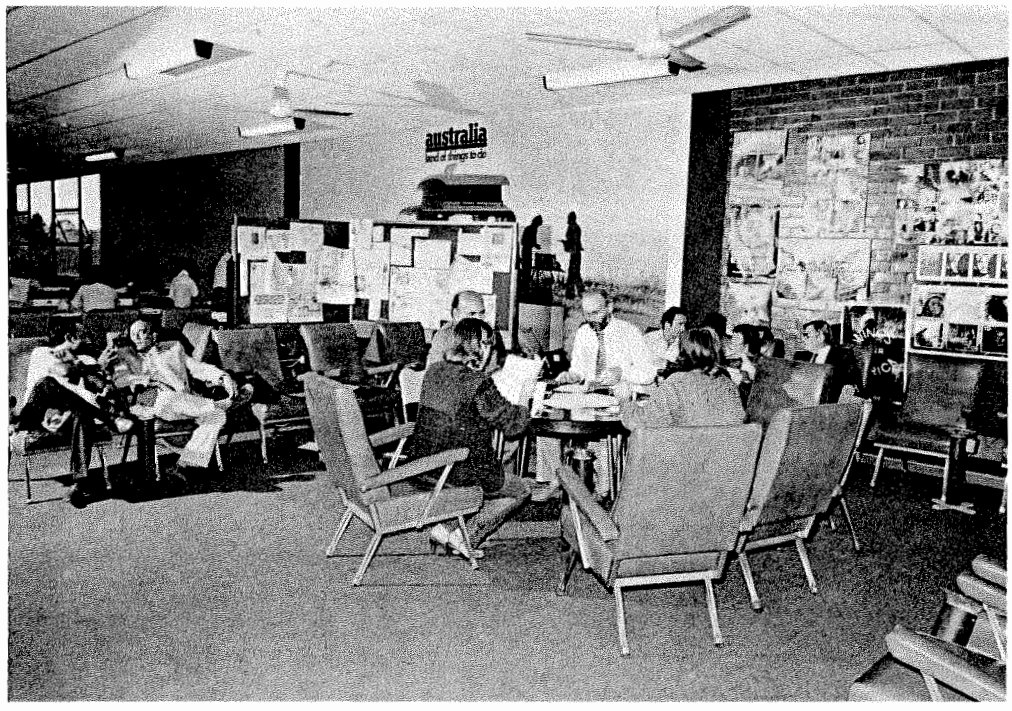
The responses to the survey showed up some of the problems involved in covering an ANZAAS Congress. They included:

- The sheer size and scope of the Congress (About 1000 papers spread over 33 different sections and five days)
- The fact that few speakers provided advance copies of their papers before the congress opened.
- The inability of many speakers to "translate" their research results into a form acceptable to the media.
- The lack of announcements on new research discoveries. One journalist commented there should be "more quality and less quantity" in the papers presented.

But despite the criticisms, 79 per cent of the media people surveyed said that they had found the time and expense involved in covering the congress had been worthwhile.

Satisfaction with the Media Centre organization also showed up in the survey —79 per cent rated the Media Centre as "very helpful".

A detailed report on the CSIRO's media liaison involvement in the 51st ANZAAS Congress will be available through the Science Communication Unit.



Part of the Media Centre during the ANZAAS Congress. The centre, at Queensland University, was a focal point for meetings, interviews and press conferences between the media and Congress speakers and delegates.

RESEARCH BOOSTED

From page one

Other resources from the existing Division of Chemical Technology will be used to form an Industrial Microbiology Unit to capitalise on emerging research opportunities in this important area of biotechnology.

This Unit will embrace a water studies group to be formed around CSIRO staff responsible for the SIROFLOC process for water purification.

These changes will take place progressively as key personnel are appointed.

Commenting on the changes, the Minister, Mr Thomson, said: 'While no new resources have been made available to CSIRO in these research fields, the new arrangements will provide a sharper focus which Australia needs.

'They are part of strategic planning proposals being developed by CSIRO to allow it to maximise its resources in those areas of high national priority which also show scientific promise.

'CSIRO is to be congratulated for finding ways to respond to national needs at a time when resources are restricted by economic circumstances.

'There is no doubt that increases in productivity flow from research and development expenditure, and it is vital that industry backs government-funded research and further develops its own capability.'

Other changes agreed upon by the Executive relate to the way the Organization's research Divisions are grouped into five Institutes within the CSIRO framework.

The principal changes, apart from the energy research area—details of which would be announced over the next few months—provide for a concentration of effort related to ecological studies, including water, soils and plants.

Old books can be useful at Bendigo

CSIRO librarians who are having an early spring clean are advised that the Bendigo Training Prison in Victoria is looking for titles for the library.

According to the Education Officer, such titles as 'Liza of Lambeth', 'Round-up at Wagon Mound' and 'Mechanics applied to Engineering' (1914) are due for replacement.

'The library has some more recent books but not enough, and many of the titles are old,' Mr Jones said.

'The educational and recreational value of a well-stocked, up-to-date prison library cannot be under-estimated and the teachers and prisoners would appreciate any assistance you are able to offer.' he added.

Books and magazines which could be suitable can be sent to the Bendigo Railway Station addressed to the Education Officer at Bendigo Prison. Mr Jones' telephone number is (054) 421188.

CHANGES IN INSTITUTES

From page one

Referring to the decision to close the Divisions of Mechanical Engineering and Chemical Technology and to redeploy resources to higher priority research activities, Dr Wild said: 'Against this perspective, the winding down or breaking up of a particular Division should be seen quite clearly as a rational response to changed circumstances.'

The changes affect all but one of the Institutes, the Institute of Physical Sciences.

As from 1 July, the Divisions of Land Use Research, Land Resources Management and Soils are to be transferred from the Institute of Earth Resources to the Institute of Biological Resources.

'The primary focus of these three Divisions is on biological research, particularly agriculture and ecology,' Dr Wild said.

'This change is also based on the expansion of the energy activities of the Institute of Earth Resources which is planned to be renamed the Institute of Energy and Earth Resources on 1 September.'

Also on 1 July, the Division of Fisheries Research will be transferred from the Institute of Biological Resources to the Institute of Animal and Food Sciences.

Dr Wild said the activities of the Division were primarily related to food, and it was more appropriate that it be located in an Institute which has this as one of its prime responsibilities.

'As well, this move was considered necessary to reduce the size of the Institute of Biological Resources,' he said.

On 1 September the Division of Mechanical Engineering will be closed and most of its resources redeployed to a new Division and with other new research groupings yet to be determined will be located in the proposed Institute of Energy and Earth Resources.

Early in 1982 the Division of Chemical Technology will be closed and a new Division—Cellulose Research—formed from it, together with an independent Industrial Microbiology Unit.

These will be located in the Institute of Industrial Technology, the present 'home' of the Division of Chemical Technology.

CAT

CSIRO's Communication Advisory Team meets in Canberra on July 14 and 15 at the Division of Forest Research.

The Team, which represents all Institutes, the Bureau of Scientific Services and Headquarters, will be discussing its approach to a communication policy for CSIRO using a draft document being prepared by some of its members.

CAT is inviting all Canberra communicators and any staff interested in CSIRO's internal and external communication program to a discussion on the second day.

Invitations will also go to the people who will eventually endorse a communication policy for CSIRO—the Chairman and Executive.

OPINION

On the subject of communication, CAT member Barry Johnson, from CSIRO's Meat Research Laboratory, Queensland, believes that CSIRO indulges in too much theorising about communication with and extension into industry.

He says that the ingredients of success in this area are:

- A Chief or Officer-in-Charge who perceives the need for, and actively supports communication and extension activities.
- Extension (Liaison/Information) officers who are self starters, highly motivated, sincere, not easily frustrated, and have commonsense, and the personality and ability to get on personal terms with industry people and research workers at all levels. They also need to be able to socialise at the bar and in the restaurant within the tight confines of a CSIRO travel allowance!

Barry adds, "At the risk of sounding contradictory and saying the obvious, communication and extension is achieved more by "doing it" than talking or writing about it."

CoResearch

CSIRO's staff newspaper *July 1981* **242**

RADIOHELIOGRAPH WON'T 'FADE AWAY'

CSIRO's radioheliograph at Culgoora in northern NSW will not simply fade away ... if it has to close, it will go out with a bang.

Incoming Chief of the Division of Radiophysics, Dr Bob Frater, told staff at the facility this late last month (24 June).

Here is an edited text of what he said:

'For some time now CSIRO has had a policy whereby positions are called up from Divisions to create a pool for redeployment into high priority areas.

'More recently we have been faced with the possibility of having to reduce our staff by at least three per cent over the next 12 months.

'This reduction applies to the whole of CSIRO. Up to the present the situation has been that staff cuts have been met, in general, by an across the board approach.

'However, after a few years this results in a situation where a number of programs are running at what might be called subcritical level.

'In the case of Culgoora I have already had to make a decision to stop the work on the correlator project because it was apparent that the resources were not available to complete it in a reasonable time.

'What I am faced with now is the problem of having to consider the various programs in the Division and try to assess ways of making some more viable at a time when the general level of resources is being reduced.

'It is necessary for us to make some provision for the future development of the Division.

'We will otherwise find ourselves in the situation at the end of this decade where all our programs have run down and there is nothing to replace them.

'That would certainly spell the end for the Division of Radiophysics.'

Dr Frater then spelled out the immediate actions to be taken:

'I have decided that the Quarters here (used by visiting solar astronomers) will have to be closed at the end of June next year.

'Further, unless some alternative funding source is discovered, I have decided that we will have to recommend to the Executive that we close the Station at the end of 1984.

'I am not talking in terms of a gradual run-down.

'There are particular plans which will be developed for the utilisation of the facilities of this Field Station during the next three and a half years and during that time I am planning that we should make a significant scientific contribution, so that Culgoora does not fade away, but goes out with a bang...'

Dr Frater went on to talk about 'some difficulties (that) have arisen because of conflicting (media) reports':

'The facts are that I have had extensive discussions over the past few weeks with Dr Paul Wild...

'In these discussions we have canvassed a range of possibilities open to us.

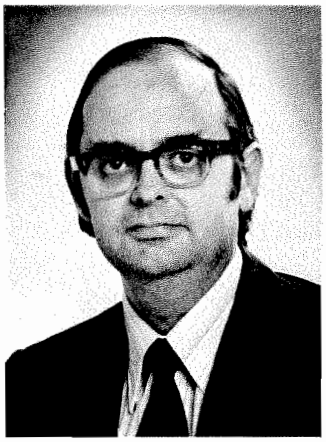
'Until a definite decision is made by the Division and agreed to by the Executive, the matter is not official.

'My problem is that I have chosen to talk with the staff at a stage when we still have some possibilities open to us, because I believe you have a right to know.

'However, I don't want people to have an unrealistic view or to be too optimistic about alternative possibilities.

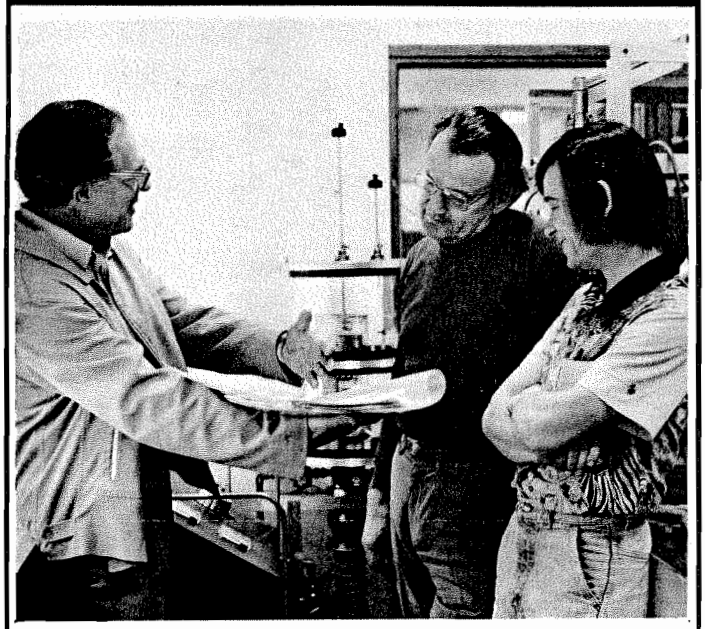
'Operating this facility is a very expensive business and the solar community throughout the world is suffering from cutbacks in funding.

'I believe that people need time to plan for their future—so I am putting the position to you as clearly as I can...'



Dr Bob Frater

Spreading the word with IR News



Steve Szirmai shows Professor Dave Morton and Phillip Kelly some of the many letters received from overseas companies interested in the new powder-coating method. Behind them is the apparatus Steve and Phillip used to develop this potentially useful technique. Steve is from the Division of Fossil Fuels in Sydney, and Professor Morton and Phillip Kelly are from the University of New South Wales.

Hard-pressed executives in industry, both here and overseas, apparently read their copies of CSIRO Industrial Research News avidly from cover to cover.

Last November, an article called "Now particles can be coated" appeared in IR News 143. It described a novel method for producing coated powders, which has several potentially very useful industrial applications.

The new process was invented by Mr Steve Szirmai and Dr Ed Potter of the Division of Fossil Fuels, and Professor Dave Morton at the University of New South Wales. It is being developed by Steve, with valuable assistance from Mr Phillip Kelly of the University.

OVERSEAS INTEREST

Despite back-page billing, the article attracted the attention of over a dozen large overseas companies. They have since contacted the Division, wanting to learn more about the new powder-coating method and its various applications.

As the Division's Steve Szirmai says, "Our success in communicating this invention must be seen as a credit to the interesting and accurate reporting of IR News".

Steve is delighted at the response generated by the article, especially since a number of people came up with possible applications for the technique. Among them was Dr Dave Koch, Chief of the Division of Mineral Chemistry, whose suggestion could lead to a further range of untapped possibilities.

Dr Wild talks to ABC radio

On 18 June, the Chairman, Dr J. Paul Wild, was approached by ABC's national radio current affairs program "P.M." for an interview about the possible closure of the Culgoora radioheliograph.

The following is part of an edited transcript of that interview, put to air in the 6 pm time-slot:

Huw Evans (presenter): 'The CSIRO, after five years of tightening its belt has reached the stage where it's begun lopping off large areas of its operations, and is considering cuts to some scientific research which is unique in the world.

'One of these is the radioheliograph station at Culgoora near Narrabri in New South Wales. The heliograph consists of a ring of radio dishes three kilometres in diameter. It plays a vital role in NASA studies of the sun and supplies data to scientific agencies worldwide which cannot be duplicated.

'The Chairman of CSIRO, Dr Paul Wild, is speaking to Peter Cave.'

Peter Cave: 'Well, Dr Wild before we canvass whether or not it is to be closed down, what is a radioheliograph?'

Dr Wild: 'A radioheliograph is a radiotelescope which actually forms a radiofrequency image of the sun. All the things that happen on the sun are very relevant to the Earth because all sorts of waves and particles coming from the sun influence the outer layers of the Earth's atmosphere. And with the aid of the heliograph it's been possible to tie up, from a scientific point of view, a lot of these solar-terrestrial relationships.

Peter Cave: 'Is the data available from there available from any other source?'

Dr Wild: 'No, it's quite unique—absolutely unique.'

Peter Cave: 'Then things must be pretty tough if you're considering closing it down.'

Dr Wild: 'They certainly are.'

Peter Cave: 'Then how bad are things within the CSIRO?'

Dr Wild: 'At the moment every Division is looking at all its programs to see what things need to be cut out. In the past we've cut every Division year after year by so many per cent across the board. This cannot continue because it means eventually you're not going to do anything properly. So we just simply have to be selective.'

Peter Cave: 'But you've reached the stage now where you're cutting down information which just can't be obtained from anywhere else.'

Dr Wild: 'Ah, don't get the wrong picture. There's been no decision to close down the radioheliograph.'

Peter Cave: 'You are seriously consider-

Continued on page two

Academy plans contribution to the 1988 Bicentenary

CSIRO staff have been invited to assist the Australian Academy of Science's plan to contribute to the 1988 Bicentennial of Australia.

A number of staff members have been invited to contribute an interpretive essay dealing with the history of science and applied science over the 200 years since 1788.

The Academy wants the essays to cover the theme of Western science and the Australian experience since the continent's discovery by Europeans, including the impact of the discovery on the European scientific imagination.

Among specific topics to be covered in the proposed publication are:

- the influence of Australian natural history on European scientific thought.
- the changing pattern of support for science, including relationships between the state departments of agriculture, the universities, CSIRO and scientific societies.
- economic aspects of research, including differences in science for agricultural and manufacturing industries.
- Australia, Antarctica and the Great Barrier Reef.
- Australian contributions to international science.

In a form letter sent to individuals with an interest in the history of Australian science, the Chairman of the Academy's History of Science Committee, Professor J. M. Swan, proposed that a conference be held in August 1982 to discuss the general project with those interested.

He proposed that the publication of the book would coincide with the 1988 Bicentenary celebrations.

'In addition to the projected volume of essays, the Committee is considering the publication of a "Handbook of Australian Science" which would contain a wide range of factual material dealing with aspects of the development of Australian science, some statistical material, a collection of short bibliographies and would be modelled on the "Handbook of American History" published by Harvard University,' Professor Swan added.

The retiring Chief of the Division of Entomology, Dr Doug Waterhouse, is a member of the Academy's Committee.

Letter to the Editor

Dear Editor,

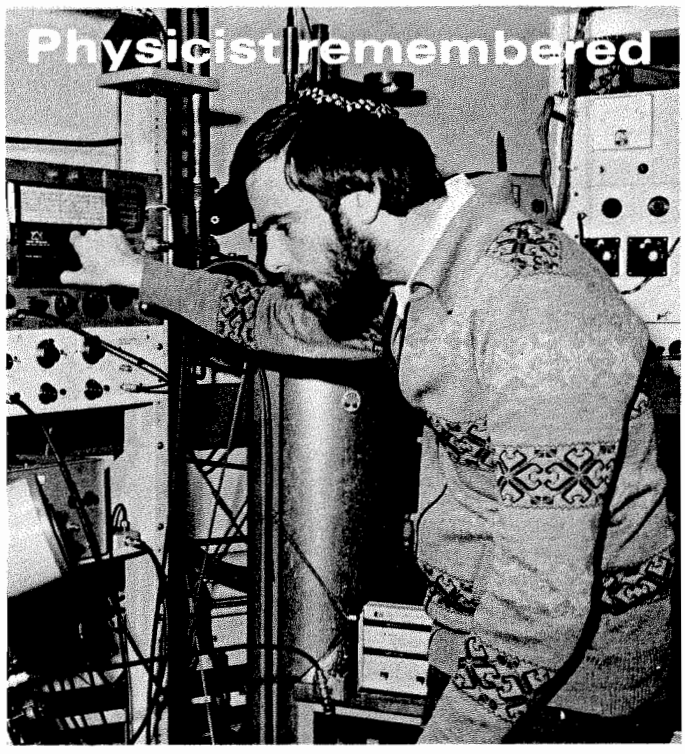
Geoff Black and Wendy Parsons' letter in the last issue (241) is a reminder to all staff that the Terms and Conditions under which we work in CSIRO are not wholly contained in the document of that name nor in the Policy Circulars which accompany changes to it.

How T&C are to be interpreted and implemented may be revealed in memoranda to Chiefs and DAOs, but never directly to other staff.

The individual attempting to discover or obtain his or her rights as an employee of CSIRO is therefore frequently baffled and frustrated by decisions based on hidden rules and made by inaccessible bureaucrats. The only answer is to support our staff associations and to seek the help of their collective experience and strength when tackling the HQ bureaucracy.

Yours sincerely,
Kevin Rattigan
Land Use Research, Canberra.

Physicist remembered



Stephen Prawer, 1981 John J. McNeill Prizeman, driving his ultra-sonic hurdy-gurdy at the Monash University Physics Department.

A young Melbourne physicist, Stephen Prawer, has been awarded the inaugural John J. McNeill prize, established as a memorial to John McNeill, a research scientist with the Division of Applied Physics, who died last year.

Stephen Prawer recently graduated from Monash University as the best student at honours level physics.

The award was made by the Chairman of the Monash University Physics Department, Professor Fred Smith, at a luncheon attended by members of the McNeill and Prawer families.

Stephen Prawer is already well advanced in his PhD research, having chosen to study the propagation of sound in ferroelectric crystals.

A former colleague of John McNeill, Dr Clive Coogan, recalls the role John played in the development of the Division.

John McNeill was a very popular member of the Division of Chemical Physics, who headed the Specialized Optics Section. Coming from the (then) Defence Research Laboratory in 1955, he was soon plunged into designing many optical devices and in particular in making a monochromator which used a diffraction grating, newly produced by the "ruling engine" in the Division, and this became in 1964 the prototype for the highly successful family of Techtron, and later Varian Techtron, monochromators and spectrophotometers which were developed for use in atomic absorption analysis. Techtron moved from two rooms in a weatherboard cottage in South Melbourne via various staging camps to its present complex of factories in Mulgrave, close to the Division of Chemical Physics and Monash University and today employs about 500 people.

John McNeill had played a crucial part in the development of optical munitions in Australia during the 1939-45 war. He was en-route to the U.K. in the 'Orama' to take up a research scholarship in 1939 when war was declared. Instead of going through Suez, the ship was diverted via the Cape. At Capetown, in a great display of official authority, he was taken off the ship and returned to Australia where he was told in great earnestness that he had to proceed to the U.K. immediately to the very destination, Professor L. C. Martin of the Imperial College, London, to which he had been travelling when abstracted from the 'Orama'!

After sundry adventures in wartime London, such as the cancellation of a dinner with his former shipmate Lloyd Rees at the Cafe de Paris in 1940 on the very night that it was obliterated by a bomb, he returned to Australia and played an important part in the Optical Munitions Panel, which is credited with being one of our most successful high technology achievements of the war. (Readers who would like to enquire further are advised to read D. P. Mellor's "The Role of Science and Industry" in the official history of the war series).

John was a bon viveur, and a raconteur of stories in sparse and elegant prose which often verged on an art form! He was a leading member of CSIROSIP, the CSIRO Society for Ingestion and Pontification formed in 1965 when the Division moved to Clayton, on the edge of the Monash University Campus, and which today flourishes with great panache. Often leading vignerons who had spoken (or pontificated) at a lunch said to me "Who was that distinguished grey-haired man who served the sherry?" John was entrusted with this task as he eschewed sherry.

John was many persons. He was a brilliant lay expositor of optics, much sought after for lectures in which he enthused his audience for his topic. He was a prominent athlete in his day (Victorian State Champion in the Long Jump and the Hop Step and Jump of 1939) and later an official at anything from local school sports to the Olympic Games. He was a devout churchman.

He retired in 1978 but unfortunately in 1980 he was struck down by a fast moving cancer. In retirement he had been invited by Monash University to take up residence in the Physics Department, wherefrom he made a valuable contribution to the University's research as a kind of roving consultant in optics.

So it was very natural for the small committee which was set up on his death to organize a fund to finance a memorial of some sort, to think in terms of Monash University. Altogether about $8000 was collected and was handed over to Monash University to provide for the John J. McNeill Prize.

Professor Bert Bolton, former Chairman of the Monash Physics Department has a biography of John McNeill in manuscript form, which we hope will be published before long.

Queen's birthday honours for CSIRO men

A number of CSIRO staff and others connected with the Organization were honoured by the Queen in the recent birthday honours list.

Knight Bachelors were awarded to Sir Laurence Muir, a member of the Victorian State Committee of the CSIRO Advisory Council, and Sir Leslie Froggatt, a member of the Energy Standing Committee of the CSIRO Advisory Council.

The Director of CSIRO's Institute of Earth Resources, Mr I. E. Newnham, A.O., M.B.E., was made an Officer of the Order of Australia.

A member of the Environment Committee of the CSIRO Advisory Council, Dr D. F. McMichael, received the C.B.E., and Mr E. F. Sandbach, a member of the Victorian State Committee of the Advisory Council, has become a Member of the Order of Australia.

Officer of the British Empire was conferred on Dr G. F. Wood, Chief Research Scientist with the Division of Textile Industry.

Mr Den Banyard, Divisional Secretary, Division of Plant Industry, was awarded an M.B.E., while Mr Bon Minius, a Senior Technical Officer with the Division of Plant Industry, was awarded a Medal of the Order of Australia.

Chief off to U.S. university

The Chief of the Division of Mathematics and Statistics, Dr Joe Gani, leaves Australia at the end of this month to take up a three-year appointment in the United States.

Dr Gani has recently completed his seven year term as Chief, and has accepted a professorship with the Department of Statistics at the University of Kentucky in Lexington.

Dr C. C. Heyde is acting as Chief of the Division.

Dr Wild talks to ABC radio

From page one

ing it though, aren't you?'

Dr Wild: 'Well, that's up to the Chief of Division to make recommendations. I want to disclaim the rumour that any decision has been made to close it down. But that is one of the areas like every other of the Division of Radiophysics, which is being looked at.'

Referring to the Executive's strategy for coping with diminishing resources, Dr Wild said:

'The philosophy is not to hit everyone with a 3% or a 5% cut year after year, but from now on, to close some things down so that the others can get on with their jobs properly.'

Peter Cave 'In other words you're cutting off your arms and legs to save the body.'

Dr Wild: 'No, that's not a very good analogy.'

Peter Cave: 'What does Australia stand to lose apart from obvious technical expertise?'

Dr Wild. 'Australian industry, at the present time, needs far more scientific basis to its whole operation. It needs far more inventiveness and innovation; far less buying off the shelf from elsewhere or importing things from other countries and marking them up, as it were. And what industry needs I think is science and technology of its *own*. And I think we're going on a somewhat negative path at the present time.'

People... People... People... People... People... People ... People ... People

Dr Jim Hogan, of the Division of Animal Production, has been awarded the Australian Institute of Agricultural Science Medal for 1981 for his research in ruminant physiology.

□ □

Mr Phil Kenny, of the Agricultural Research Institute, Rutherglen, Victoria, will spend the next year with the Division of Animal Production at Prospect, where he will work in the Nutrition Program with the simulation modelling group.

□ □

Energy planning was the topic for discussion at a recent conference in Lae, attended by **Dick Millington** and **Jetse Kalma** of the Division of Land Use Research.

The conference was sponsored by ADAB and brought together energy planners and researchers in 22 Asian and Pacific countries.

Neil Body was acting Chief of the Division in Canberra.

□ □

Dr John Kirk of the Division of Plant Industry has received the 1981 Jolly Award from the Australian Society for Limnology for his work on underwater light.

John will present the Jolly lecture in May next year.

□ □

In the crazy envelope department...a most official-looking envelope arrived at the Science Communication Unit's mail box recently addressed to 'head of methods'! Several weeks went by as it lay unclaimed in the pidgeon hole, until eventually somebody decided to see what it was the 'head of methods' would have been told had he existed. The envelope was empty.

The Chief of the Division of Land Resources Management, **Ray Perry**, recently returned from a visit to Saudi Arabia, accompanied by the Officer in Charge of CSIRO's Centre for International Relations, **Dr Gurnett-Smith**. They have been consulting on the establishment of an arid zone research institute at the University of Jedda.

□ □

Kelvin Smith has replaced **Irwin Bogg** as deputy secretary, finance and administration at Headquarters. Kelvin was previously assistant secretary, finance, at the Department of Transport in Canberra. Irwin has taken three years leave without pay to work with the International Civil Aviation Organisation in Ottawa, Canada.

□ □

Another new face at Headquarters is **Roger Nairn**, who replaces **Frank Whitty** as assistant secretary, management services. Roger was previously Bursar with the Mitchell College of Advanced Education in Bathurst. Frank Whitty, who left CSIRO on July 15, had spent 44 years with the Organization, joining in 1937 as a junior clerk, Over the years, Frank was the first RAO in Sydney, and was for two years the liaison officer with the Australian High Commission. His links with CSIRO will be maintained in retirement, by his appointment as independent chairman of the Administrative/Clerical Appeals Committee.

□ □

Ted **Trickett** of the Division of Irrigation Research in Griffith has recently been custodian of a 10 kilogram meteorite which was unearthed on a property nearby in Binya. Ted plans to contact the Australian National University in Canberra for more information on the space rock.

Just back from Kenya are **Maurje Woodward**, **Justin Murphy** and **Bill Van Aken** from the Division of Land Resources Management in Perth. The three have been putting together an audio visual documentary on the integrated project on arid lands which is run by the Man and the Biosphere program in Northern Kenya. The trip was sponsored by UNESCO, and the resulting documentary is to be shown at an international conference in Paris in September.

□ □

There's a new manager at the Parkes Radio Telescope, following the resignation in April of **Les Fellows**. He is **David Krumlauf**, a former science teacher with an interest in astronomy which formed part of his science degree.

David is an American who is a permanent resident in Australia. He graduated BSc from the University of Michigan and has taught in schools in both the United States and Australia.

Dr Ken Myers of the Division of Land Use Research, has been acting as consultant to the Australian National Parks and Wildlife Service in a faunal survey of the Kakadu National Park in the Northern Territory.

□ □

A solar astronomer from the Beijing Astronomical Observatory, **Mr Wang Jia-Long**, is working with the Division of Applied Physics for a year under the auspices of the Australia/China Council. Mr Wang is a graduate of the University of Beijing, and has taken part in two eclipse expeditions within China.

□ □

Spending a few months at the Division of Land Use Research is **Thomas Fidler** from Koln, West Germany. Thomas' studies in Australia are part of his geography degree from the Westfalische Wilhelms University.

The following caption accompanied this photograph, sent anonymously to CoResearch from Melbourne.

Newton's dead, Einstein's dead, And we don't feel too good ourselves!! from the decimated.....Melbourne.

From the Chairman–

A regular column by the Chairman of CSIRO Dr. J. Paul Wild

The recent Government decision to transfer part of the resources of the Lucas Heights Research Establishment to CSIRO for increased energy research has given rise to some concerns and suspicions around the Organization.

One concern is that we are in danger of returning to the situation of 1975 when, for a brief period we found ourselves reporting to two Ministers. That is not the case at all. We report to one Minister only through whose representations all our appropriation funds reach us. Nevertheless, it is only proper that certain departments—Primary Industry has been an outstanding example over the decades—should have a role in developing the general direction of CSIRO policies. It is also quite proper for National Development and Energy to have such a policy role in relation to our energy research. For this purpose I meet, from time to time, with Mr Alan Woods, the Permanent Head of the Department of National Development and Energy and, with our senior colleagues, we survey the latest policy developments. Another group, called the Energy Liaison Group, keeps contact at the scientific and technical level. At the top of the hierarchy we have the two Ministers, and if need be the Prime Minister himself! The point I want to stress is that this kind of consultation with policy departments of government is to be welcomed, not feared.

Another concern is whether the new resources for CSIRO are really going to be forthcoming to the extent originally promised. I can only say that the level of transfer was decided by the Government and only the Government can alter that decision—in other words rumours based on preliminary discussions should be ignored.

● ● ●

Current reorganizations have had the biggest impact on the Divisions of Mechanical Engineering and Chemical Technology, which will be closed and have their staff and resources redistributed to new or existing Divisions concentrating on energy, cellulose, biotechnology, water and other specific areas of research. I have emphasized to both Divisions that such closures are not a reflection on the performance of a Division, but represent moves towards charting the future course of the Organization. It is inevitable that some members of staff are left unsure of what opportunities lie ahead of them and I am deeply concerned that there should be the minimum of anxiety. On the other hand, the Executive firmly believes that staff should be informed of such changes at the earliest possible time so that those involved can take part in planning the redeployment of resources.

● ● ●

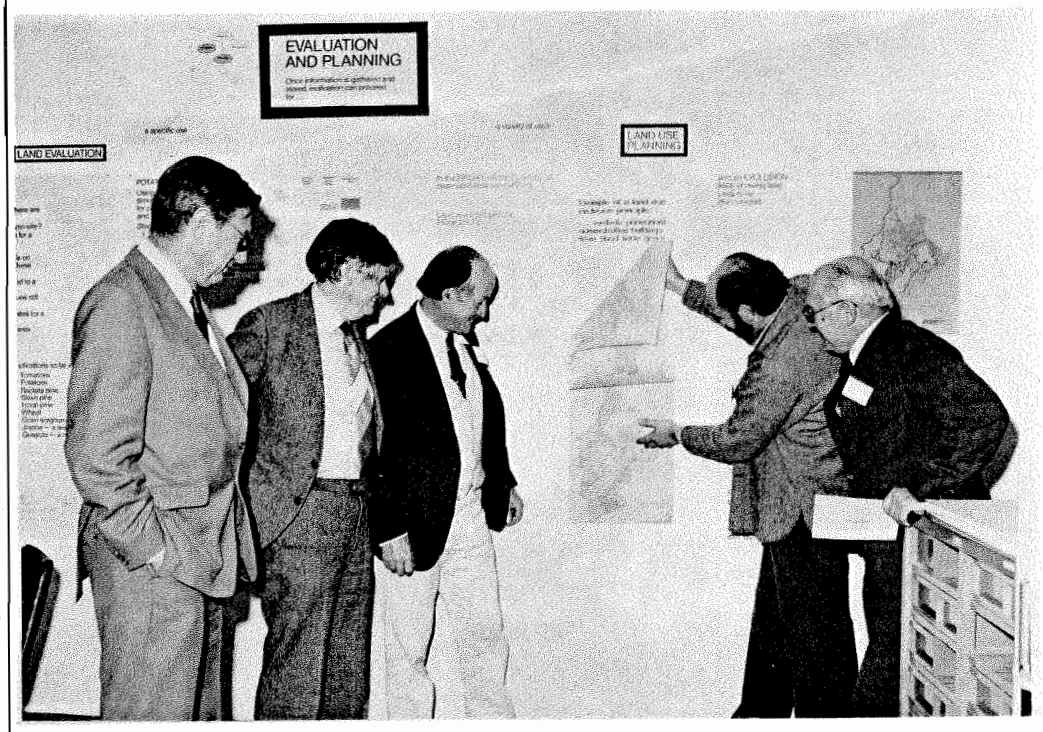
At the recent ANZAAS Congress in Brisbane I had the task of giving the presidential address to the Physics Section. I judged that the audience would not be too specialized and that I could get away with presenting some of my weekend ideas on how the theories of electromagnetism and gravitation might be unified into a single theory.

To my alarm Robyn Williams of the ABC was there and on the following Saturday the introduction and finale of my talk were broadcast across the country in the Science Show.

Since then I have been inundated with letters from all and sundry: some from professional relativists, some from eccentrics with more imagination than their grasp of physics could support, and some from educated people in other walks of life whose interest and curiosity has been stirred by the magic of the principle of relativity. These people included a third year medical student, a hospital engineer, a retired professor of Chemical Engineering and a retired Air Commodore. Ah yes, and one very nice letter from a Chief who was in the audience. He wondered why I didn't spend my time on this sort of thing rather than worrying about Institutes. Thank you Arthur—you have given me more food for thought!

Paul Wild

Executive at Black Mountain



Dr Doug Cocks explains SIROPLAN, the land use planning technique developed by the Division of Land Use Research, to (from left) Dr Paul Wild, (CSIRO's Chairman), Dr Keith Boardman (Member of Executive), Dr Ken Ferguson (Director of the Institute of Animal and Food Sciences) and (right) Mr Jan Basinski (Assistant Chief, Division of Land Use Research).

Dr Michael Dack, Secretary of the Communication Advisory Team, offers this personal view of communication in CSIRO.

In the past couple of years, CSIRO seems to have spent a lot of time contemplating its communication navel.

The formation of CAT, the release of reports such as "Communication: CSIRO's Other Role", the holding of the CSIRO Communication Symposium and the establishment of a communication column in *CoResearch* must have given the impression to many people that things were on the move. And they are—albeit quite slowly.

To its credit, the Executive has taken steps to remove two of the barriers to effective communication in CSIRO.

It has asked the Personnel Section to redraft the promotion criteria for research scientists to take account of any information transfer activities. Clearly, researchers will always be reluctant to spend time away from the bench unless they receive this type of recognition for interacting with industry and the community.

Individual members of the Executive have also welcomed an input from all staff to a communication policy for the Organization. Divisional communicators, especially, have felt a lack of guidance from the top which has apparently inhibited their work; such a policy should remove any uncertainties.

But no-one has yet faced up to the third barrier to communication—the absence of specifically earmarked funds for Divisions to use for communication purposes.

No matter how vociferously Divisions are urged to interact with the community —to provide information and to receive feedback—how seriously can they treat these exhortations if no financial support is forthcoming?

Why should Chiefs be forced to weigh the communication dollar against the research dollar? Can anyone really blame Chiefs for preserving the research effort at the expense of communication in times of economic cutbacks?

After all, none of us wants to see CSIRO degenerating into a handful of scientists kept on simply to give a living to 7000 hangers-on!

However, while recognising the dilemma faced by many Divisions, it must be stated that communication is not just another ancillary activity in our Organization. Research and communication have always been the two vital components of the scientific process, the more so in CSIRO with its charter to assist the nation.

In other words, it is wrong to think of communication as a luxury to be supported only in times of plenty. The old adage about research being a waste of time and money unless it is communicated and exploited has never been more apposite to CSIRO. Better communication is one way we can make our research more effective and relevant.

So, what can be done to remove this barrier? Among the possible solutions are:

- the inclusion in a CSIRO communication policy of a suggested percentage of Divisional funds to be spent on communication activities (say, 10-15 per cent);
- the creation of a central communication fund which Divisions could tap; and
- the seeking of sponsors outside CSIRO to support communication work, in the way that research funds are sought from industry.

Until CSIRO tackles this fundamental problem by putting its money where its mouth is, progress in this area will be painfully slow.

Two Chiefs retire from Sydney Divisions

Chiefs of two CSIRO Divisions who between them spent more than 80 years with the Organization, retired last month.

Mr Jack Warner was Chief of the Division of Cloud Physics in Sydney from 1972, while Mr Harry Minnett served as Chief of the Division of Radiophysics from 1978.

Mr Warner joined CSIR in 1940 as an Assistant Research Officer at the Radiophysics Laboratory, where he participated in engineering development work connected with the application of radar techniques.

He transferred to the Cloud and Rain Physics Group in 1950 and made significant contributions to the cloud physics program, as both a research engineer and physicist.

In 1971, he transferred to the Division of Atmospheric Physics and in July 1972, transferred to the newly formed Division of Cloud Physics, becoming its first Chief later that year.

Mr Minnett achieved a worldwide reputation in the fields of antenna design and radio telescopes. He played a major part in the research phase of the Interscan microwave landing system project.

As a Research Officer with the Division of Radiophysics, he was involved in radar research from 1940 to 1946 and in radio astronomy and radio navigation from 1947 to 1955.

In 1955, he became the Organization's representative in London during engineering studies for the Parkes radio telescope.

Mr Minnett was appointed acting Chief of the Division of Radiophysics in 1977, becoming Chief the following year.

Both men will continue with their Divisions as research fellows.

Deaths of two Canberra scientists

Colleagues in the Division of Plant Industry in Canberra were saddened by the recent deaths of two of the research staff—**Paul Broue**, who had worked in the plant introduction and genetic resources section for 22 years, and **Dr Dennis Cosgrove**, who had worked in the Division since 1955.

Dennis had worked on the chemical nature of the phosphates in soil organic matter which gained him an international reputation and made him a world authority on the chemistry of inositol phosphates.

Paul's last and probably most important work was on the biosystematics of perennial Glycine species indigenous to Australia, with a view to facilitating the exploitation of these species in soybean breeding.

Visit to Land Use Research

Members of CSIRO's Executive and the Advisory Council visited the Division of Land Use Research on Wednesday, June 10. They were addressed by the Chief, Dr R. J. Millington, who outlined the progress of the Division since its origin in 1946 when it was recognized that not enough was known about the agricultural potential of northern Australia.

Dr Millington described how the Division was presently divided into six research groups, and illustrated the sort of work engaged in with a number of displays on current projects.

Examples were a new study in Papua New Guinea, work at Puckapunyal Army Training Area with the Soil Conservation Authority of Victoria, an efficient new device for land salinity survey, and the use of Landsat imagery in survey work on the Great Barrier Reef.

The group visited two laboratories. In the first, Dr Peter Laut explained the scope and aims of the current Coastal Basins Project, a major Divisional undertaking which will hopefully make a major contribution to the Australia-wide Representative Basins Project of the Australian Water Resources Council.

In the second, Dr Doug Cocks gave an account of SIROPLAN, a land use planning technique developed by the Division, and Mr Henry Nix outlined some recent applications by the Division of the latest technique in the evaluation of land for agriculture.

An informal Divisional social was later held to mark the visit, and the Chairman, Dr Paul Wild, addressed the staff.

'CoResearch' is produced by the Science Communication Unit for CSIRO staff. It is also circulated to some people outside the Organization who have a professional interest in CSIRO activities. Members are invited to contribute or send suggestions for articles. The deadline for material is normally the 8th day of the month of publication. Material and queries should be sent to the Editor, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editor: Jeannie Ferris.

CoResearch

CSIRO's staff newspaper *August 1981* **243**

PROVISION MADE IN BUDGET FOR MARINE RESEARCH CENTRE AND VESSEL

CSIRO's 1981/82 Budget Appropriation is $226,904,000, a 27 per cent increase over last financial year.

The Appropriation is made up of $218,404,000 for salaries and operational activities and $8,500,000 for major items of equipment, part of the cost of constructing an oceanographic research vessel, minor building works and developmental expenditure.

It represents an increase of $48,310,000, or 27 per cent over CSIRO's expenditure of $178,594,000 from Appropriation in 1980/81.

However, the most significant proportion of the overall increase, $29,170,000, is to meet the cost of the CSIRO's employer superannuation contribution. This change is essentially an accounting device to enable CSIRO's Budget to reflect the full cost of superannuation cover. A further $2,960,000 has been provided to offset partially the increased cost associated with the provision of laboratory equipment, supplies and services.

An amount of $8,024,000, a 6.5 per cent increase on CSIRO's expenditure on salaries in 1980/81, will provide for inescapable increases in the salaries of the Organization's current level of staffing.

An additional $4,613,000 has been provided for the extra payday which falls during the financial year.

MARINE RESEARCH

Provisions in the Budget will enable CSIRO to become more involved in marine research.

A new laboratory complex costing $10.75 million for marine research has been approved by the Government on the 1981/82 Civil Works Program subject to the necessary Parliamentary approvals being obtained.

The new complex will be built for the Divisions of Fisheries Research and Oceanography at Hobart, Tasmania, and will be known as the CSIRO Marine Laboratories.

The complex will provide accommodation for 210 scientific and support staff, many of whom will be relocated from existing facilities at Cronulla, near Sydney.

The site at Castray Wharf in Hobart will provide deepwater wharfage for research vessels, close to laboratories and support services.

The Budget also makes provision for a new oceanographic research vessel for CSIRO. An amount of $3 million has been set aside for the vessel.

BUILDING WORKS

In addition to the direct Budget Appropriation for CSIRO, $54.2 million has been appropriated to the Department of Housing and Construction for expenditure on the Organization's behalf on works and building and maintenance of existing facilities. Of this amount, $35 million will be spent on the construction of the Australian National Animal Health Laboratory (ANAHL) at Geelong, Victoria.

OTHER PROJECTS

An allocation of $3,543,000 has been provided to meet the costs of the following projects in 1981/82:

- increased costs associated with the planning and development of the support infrastructure and microbiological security at the Australian National Health Laboratory (ANAHL) at Geelong, Victoria;
- salaries and operating funds for research support for the computer chip industry and the VLSI project located in Adelaide, which has been established to design the next generation of silicon chips;
- operating funds for Project Aquarius, a three-year survey being undertaken at the request of the Prime Minister to determine the effectiveness of the aerial bombing of bushfires. The project will be carried out by the Divisions of Forest Research and Mineral Physics;
- additional costs associated with the provision of research support to the Department of Primary Industry in its role of monitoring and managing the resources of the Australian Fishing Zone;
- increased support for new and existing Research Associations.

Other budget details on page six

New Division for tropical animal research

CSIRO is to form a Division of Tropical Animal Science.

This follows recent visits to Queensland, the Northern Territory and Western Australia by Executive Members and consideration by the Executive of the Divisional Review report of the Division of Animal Production.

Executive Member Dr Keith Boardman said it was "probably the most detailed and comprehensively researched Divisional Review report which has been placed before the Executive in recent times".

The new Division will be primarily concerned with studying ways to improve the efficiency of cattle production in Australia's north.

It will come into being as soon as a Chief has been chosen—probably early next year.

Some 180 scientists and support staff drawn mainly from the Divisions of Animal Production, Animal Health and Entomology, most of whom are presently working in Queensland laboratories, will comprise its staff.

It will occupy existing CSIRO premises in Rockhampton, Townsville and Brisbane, and will work closely with the three Divisions from which it will draw staff and with the Brisbane-based Division of Tropical Crops and Pastures.

Staff to be transferred to Tropical Animal Science are experts in the adaptation, nutrition, reproduction and diseases of cattle in the tropical north.

The Division will be part of the Institute of Animal and Food Sciences within CSIRO.

The Institute's Director, Dr Ken Ferguson, said that a possible area for future research would be sheep production in the arid tropics.

Initial planning approved by the Executive at its 13 August meeting held at the Prospect (NSW) headquarters of the Division of Animal Production involved:

. **Tropical Cattle Research Centre (Rockhampton):**

Dr Ferguson said that here the new Division's research emphasis would be on the determination of the physiological and immunological characteristics which

Continued on page six

From the Chairman—

A regular column by the Chairman of CSIRO Dr. J. Paul Wild

In the 1981/82 financial year, as a result of the Razor Gang's activities, all Government Departments and Authorities have suffered across-the-board reductions in staff ceilings of about 2% and CSIRO is no exception. But the most devastating threat built into the Government decisions was that operating funds allocated to all instrumentalities would be provided on the basis of the same number of dollars as last year (i.e. a cut of 12% or so) unless exceptional circumstances were evident. We began to prepare for this bleak prospect which meant further severe staff cuts, the shedding or postponement of commitments and a general shrinkage of our activities. Meanwhile, the Executive, supported by our Headquarters finance staff and by the Advisory Council, engaged in considerable behind-the-scenes activities designed to make it precisely clear to the Government and its bureaucracy what the consequences would be if this formula were applied to CSIRO. I sensed that our Minister, who was briefed with particular thoroughness, and whose vocation is closer to fighting than to science, relished the battle that was before him. We must thank him and others that an outcome of the budget is that our operating funds have been conserved essentially in real terms and, apart from the 2% staff reduction, we can set about our business with renewed confidence and heart. I understand that our thanks are especially due to the Government at its topmost level.

On a recent ABC 'Nationwide' telecast I was asked by the interviewer why CSIRO was not seen to be out there doing battle like the Premiers do. I replied that, unlike the Premiers, we do not perform in public. I hope the small but noisy minority of our staff who expend much effort in ceaselessly voicing their opinions on the Executive and its Administration, and who suggest we make public remonstrations, will take note of this turn of events.

The fact that we have been given a measure of respite in our budgetary allocation does not mean that we should slacken our efforts to concentrate resources on the most vital research programs. Indeed, I believe that our vigorous conduct of this activity has contributed to the outcome of the budget.

• •

In the past, the Government's contribution to our Superannuation has not been charged to our budget. From now on, these contributions will be paid from within our allocation and for this purpose we have been provided with an extra $29M in this year's budget. This change in procedure is part of a trend towards making our budgetary appropriation a self-sufficient 'global' allocation.

• •

Last week's Executive meeting was notable for the fact that, as part of the current reorganization of Institutes, including the absorption of staff from Lucas Heights, three new Divisions were created. The Division of Tropical Animal Science (Queensland) will provide a new focus for animal production and health under tropical conditions. The Division of Energy Technology (Highett) is to include a large part of the former Division of Mechanical Engineering, and the Division of Energy Chemistry (Lucas Heights) will be mainly staffed by former employees of the Australian Atomic Energy Commission.

We have inherited many talented research and support staff from the Australian Atomic Energy Commission. May I offer them a special welcome to CSIRO.

Paul Wild

Letters to the Editor

Dear Editor,

Three senior scientists (Tom Biegler, Dennis Minson and John Corbett) have responded to my letter deploring the OA's bid (which has since proved unsuccessful) for a massive salary rise for scientists.

John's and Dennis's letters had a common theme. They maintained that CSIRO scientists' salaries had declined by comparison with those of academic staff, which would adversely affect the Organization's competitiveness in the marketplace, if not rectified.

I agree that this would be a major concern. But have John and Dennis got their facts straight? Mr third protagonist (Tom Biegler) analysed this very question in a letter printed in CSIROOA Bulletin No. 176. He showed 'a similar pattern of salary movement for academics and CSIRO research staff over the 16-year period' from 1964-1980. He suggested that 'we have to be careful in deriving arguments from the kinds of statistics Dennis uses!' The third member of the well-known trilogy rears its head again?

Tom Biegler makes much of the claim that a relationship between wage restraint and unemployment has not been proved.

I guess it never will be proved by the experimental method, any more than the link between smoking and lung cancer will be. But the circumstantial evidence is pretty good and neither major political party denies it.

Reflect on the rapid growth of unemployment in 1974-75 when the wage scramble was on for young and old, compared with the slow and fluctuating increase under a policy of wage restraint since then.

Unless my opponents can do better, I remain unrepentant and happy that we continue (albeit involuntarily) to enjoy the benefits of wage restraint.

Yours faithfully,
'Observer'.

• •

Dear Editor,

For a number of years now there have been discussions in various areas of CSIRO about creating a science journalism award but nothing has ever got off the ground.

CSIRO staff might be interested in a project across the Tasman where the New Zealand Association of Scientists (Inc) instituted such an award last year in recognition of outstanding science journalism.

The association is now calling for entries for this year's competition.

The New Zealand Association of Scientists was founded in 1940 to unite scientists of all disciplines into one body which can speak without political bias to government and the community on matters affecting science and scientists.

Its Certificate for Science Journalism is designed to encourage public appreciation of scientific objectives, methods and achievements through recognition of outstanding science journalism in broadcasting, newspapers and magazines.

The award must be given for an original piece, or a series of articles published during the preceding year. It applies only to writing produced in New Zealand for a *non-scientific* audience.

Articles published in popular weekly magazines and newspapers, as well as radio or television scripts (including interviews), are eligible. Material published in trade or other special interest journals is not eligible.

In making the award, the judges attach importance to the way science is interpreted for the public.

Items which analyse the implications of scientific developments for New Zealand are accorded special attention, as are those which explain the impact of scientific discoveries of society.

Also accepted is matter which analyses the administration, structure and emphasis, or funding of science.

'The Journalist', the official publication of the Australian Journalists' Association, frequently carries advertisements for various competitions in a similar vein but so far there is no science one.

Encouragement of this nature could spark off a greater interest in science in all forms of the media in Australia. All we need is a sponsor or for the Organization itself to find a way to fund such an effort.

Those with ideas on the matter might like to express their interest through this column.

Dorothy Braxton
Science Communication Unit
Canberra.

• •

Dear Editor,

Mr R. W. Cullen writing in Co-Research 241, complains of this paper's standard of scientific journalism.

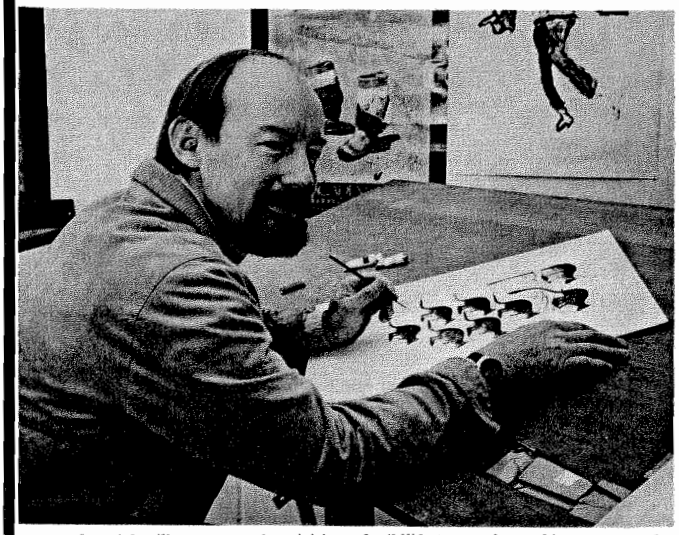
Mr Cullen may be interested to know that lesser mortals than he read Co-Research, but we obviously lack his scientific bent.

I thought CoResearch was, as stated on its cover, a CSIRO staff newspaper. That is, a paper which must cover the widely diversified work of a large organisation, giving snippets of interesting information to a differing range of CSIRO employees and their families. The type of detailed scientific information Mr Cullen wants should surely be found in Scientific Journals.

Please keep CoResearch on an intellectual plane that I, a M.W. (New Idea journalism), can understand.

Yours faithfully,
(Mrs.) Erica Grant
Narayan Research Station
Mundubbera, Qld 4626.

workplace



Frank Knight, illustrator at the Division of Wildlife Research, working on a set of drawings for a divisional publication. Frank is the designer of the newest set of stamps issued by Australia Post, featuring six of Australia's endangered species of animals.

Frank Knight, illustrator at the Division of Wildlife Research, became something of a celebrity in a Canberra post office recently, as local philatelists queued to have him autograph newly released first day covers carrying a set of stamps he'd designed.

Six Australian animals considered to be species in danger of extinction, are depicted on the stamps which were released throughout Australia on July 15.

The stamps are Frank's second commission for Australia Post. He designed two wildflower stamps issued as 18 and 45 cent denominations several years ago.

The latest stamps feature the Tasmanian Tiger as the new 24 cent base rate stamp, the Queensland Hairynosed Wombat (five cents), the Greater Bilby (25 cents), the Bridled Nail-tailed Wallaby (30 cents), Leadbeater's Possum (50 cents) and the Stick-nest Rat (55 cents).

Each of the animals is shown in its natural habitat, and Frank has tried to create backgrounds accurate to the locality. For example, the Stick-nest Rat crouches on the red earth characteristic of the Nullabor country where it is most commonly found, and the Bridled Nail-tailed Wallaby rests on the dark earth of Queensland's Brigalow country.

Preparing designs for a stamps commission can take more than a year. Frank chose the animals from a list of endangered species prepared by the National Parks and Wildlife Service.

He carried out a good deal of research to determine accurate colourings, using fur studies and observations of closely related species.

Preliminary drawings were submitted for approval in March last year, and the final gouaches, each taking about eight hours, were supplied about a year ago.

Frank has been painting and drawing Australia's flora and fauna since his childhood in the Marble Bar area of Western Australia, where he was surrounded by a wealth of sketchbook material.

He became involved with CSIRO in the early '50s when a survey of Euros was carried out in his area, and finally joined the Organization in 1959 as a junior technical assistant.

Frank transferred to Canberra in 1960, to work on red kangaroos with Dr Harry Frith.

He began drawing diagrams for divisional publications and became the Division's illustrator in 1966, the first person to be appointed to the position.

Frank has held two highly successful exhibitions in Canberra and has provided illustrations for a number of books and journals.

He is currently illustrating a mammal field guide and a book on Australian vertebrate fossils. Recent paintings have included ACT landscapes, although Frank professes no particular preference for subject matter.

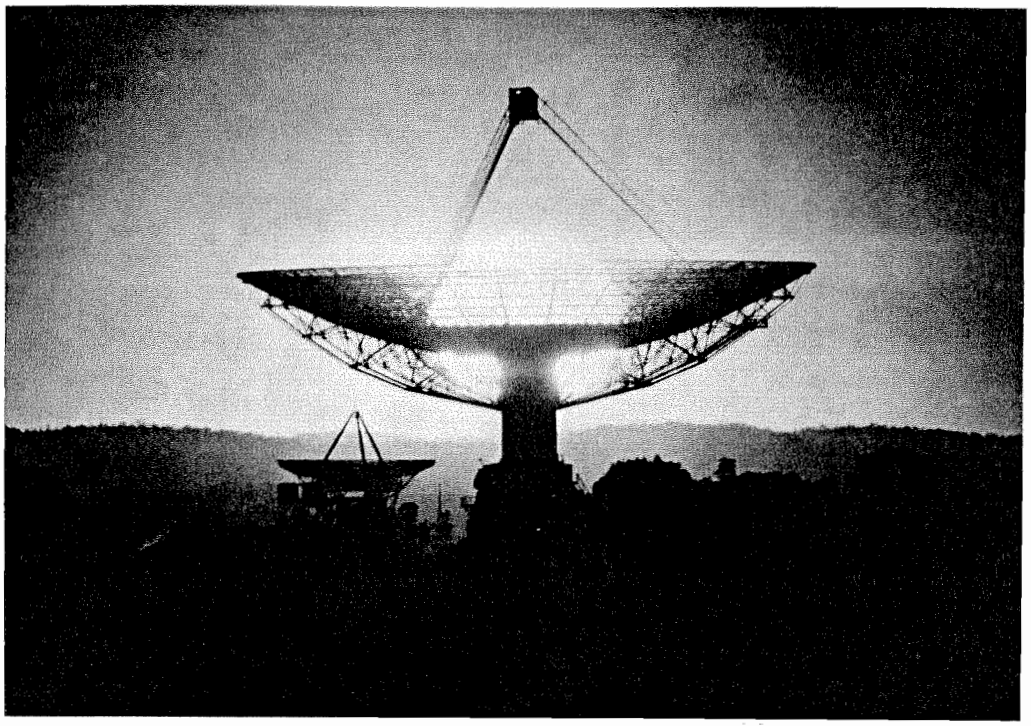
Looking at a new logo

CSIRO
SCIENCE FOR AUSTRALIA
CSIRO

The topic of a logo for CSIRO is often aired in tea room and other discussions, and the official view is that 'CSIRO' is the Organization's logo and letterheads carry that imprint.

However, a number of people in Divisions have requested something a little more informal, incorporating the words 'Science for Australia', for use on displays, labels, T-shirts, packages and livery.

The illustration shown here has been drawn by Brian Gosnell, a graphic designer in the Science Communication Unit in Canberra. It was submitted for opinion to members of CAT when it met in Canberra last month. We are publishing Brian's design for comment by interested individuals.



This black and white picture of the sun rising behind the Parkes Radio Telescope is a reproduction of a spectacular colour shot taken by Bob Maccoll, a senior photographer with the Australian Information Service. In recent months Bob, accompanied by either Dorothy Braxton or Natalie Provis from the Science Communication Unit, visited many locations where CSIRO staff are working to put together a new collection of photographs which could be used for audio visual, display and other PR purposes. Throughout they had the cooperation of Divisional staff, especially CSIRO photographers who are helping to extend the collection.

The assignment took the team down mines, up in RAAF aircraft, into industry, to field stations where they had good cause to be wary of some of the activities associated with bulls, to nocturnal efforts to get time exposure material on such facilities as the Parkes telescope. This particular picture was taken a few hours after Bob had photographed the telescope ringed by a rainbow following a dramatic storm the night before.

What happens when machines replace people?

Two CSIRO researchers are among a number of contributors to a book published recently in Canberra, 'When Machines Replace People'.

The book is edited by Dr John Kirk, of the Division of Plant Industry in Canberra, and includes a chapter written by Henry Nix of the Division of Land Use Research in Canberra.

Dr Kirk, a member of the Society for Social Responsibility in Science (A.C.T.) explained that the book marked the tenth anniversary meeting of the Society and contained a collection of papers on the theme of technological unemployment in Australia. "The book is in two parts, the first consisting of those papers delivered at the tenth anniversary conference, and the second section including a number of papers specifically requested after the conference to cover issues not fully dealt with," Dr Kirk said.

He explained that the broad aim of the book was to examine ways in which society would be changed if, and when, a large proportion of the workforce had been replaced by microprocessor-controlled machines: to consider what changes in lifestyle and attitude, what governmental measures, will be required to give people both a meaningful role and an acceptable standard of living.

Contributors have been drawn from trade unions, the universities and the political sphere. They include the former President of the A.C.T.U. Mr Bob Hawke, the Shadow Minister for Science Mr Barry Jones, Senator Peter Rae, a Liberal senator from Tasmania, Professor John Bennett of the Department of Computer Science at the University of Sydney and Professor Sol Encel of the Department of Sociology at the University of New South Wales.

Mr Henry Nix's chapter entitled 'The Rural Solution' discusses the effect new technology will have on the rural population of Australia. He claims that alternative lifestyles, subsistence farming and low-technology systems will add needed diversity, but are unlikely to provide a general solution to the problem of what people will do.

Dr Kirk said copies of the book, costing $5.95, are available from the Society for Social Responsibility in Science (A.C.T.), P.O. Box 48, O'Connor, A.C.T. 2601. Mailing costs of $1 should be included with cheques for books to be posted.

Newspaper for school students

The Australian Academy of Science has launched a special student newspaper aimed at stimulating interest in the biological sciences.

Biology in Action, a four-page newspaper prepared especially for Australia's 80,000 'Web of Life' school students, reviews recent developments and ideas from a wide spectrum of biological sciences.

The project was initiated by the Chief of CSIRO's Division of Plant Industry, Dr Jim Peacock, who wanted to convey the excitement and dynamism of modern biological science to senior secondary school students.

A small team of science writers including Graeme O'Neill from the Science Communication Unit, extracts articles from scientific literature and magazines, paying attention to their potential for stimulating discussion on subjects covered by the 'Web of Life' course. The light, entertaining style of the articles is complemented by an imaginative design, incorporating cartoons and line drawings by Brian Gosnell of the S.C.U. Photographs and the use of a second colour highlight headlines.

The July issue, designed as a pilot for the three-times-a-year series, contains articles on:

- The probability that an asteroid striking the Earth caused the mysterious extinction of 75 per cent of the planet's animal species, including the dinosaurs, at the end of the Cretaceous period 65 million years ago.
- Speculation by a New Zealand scientist that the classic double-helix model for DNA may be flawed.
- A new theory which proposes that gaps in the fossil record can be explained by evolution proceeding in fits and starts, with long periods of relative stability in between.
- A radical new approach to pest control in the cotton industry, which uses a computer to reduce reliance on insecticides.
- The possible effects of increased atmospheric carbon dioxide upon crop yields.

'Web of Life' teachers are being supplied with a list of original references for each of the articles, so they can assist with discussion or inquiries generated by the newspaper.

Biology in Action is published by the Australian Academy of Science, and is printed by Messenger Newspapers of Adelaide. The first edition was provided through the resources of The Advertiser Group of Companies. The newspaper is free to all 'Web of Life' students.

Study awards announced

Four CSIRO men have been granted CSIRO Study Awards to allow them to carry out research overseas.

Recipients of the awards are:

Mr Harold Kirkman, an experimental officer at the Western Australian laboratory of the Division of Fisheries Research.

Harold will spend 14 weeks at the California Institute of Technology, studying the possibility of growing kelp in Australia for the production of non-polluting gaseous fuel. Harold plans to leave for California early next year.

Mr Dan Smith, a scientific services officer in Melbourne with the Meat Research Laboratory of the Division of Food Research.

Dan will leave early next year to spend several months travelling in Canada, Europe and the United States of America, discussing the production of flaked meat and flaked meat products. He also plans to discuss with industry, the processes involved in the production of low-moisture meat.

Mr Ian Johns, a senior technical officer at the Baas Becking Laboratory in Canberra, leaves in October for a study tour in the United States of America, visiting various research institutions to review advances in scanning electron microscope techniques and oceanographic monitoring systems.

Ian plans to return to Australia in March 1982.

Mr Harold King, a technical officer with the Division of Animal Production at the McMaster Laboratory at Prospect, New South Wales, will spend 17 weeks in Europe, Britain and the United States of America, surveying the structure, design and manufacturing techniques in overseas applied research groups within organizations similar to CSIRO.

Research award to Chem. Tech.

Research in CSIRO's Division of Chemical Technology has won a highly commended award from the Institution of Engineers, Australia.

The annual awards are made to projects, including works, studies, processes or designs, which are judged to have engineering excellence.

The highly commended award was made to Mr John Coleman for his research on corrugated waxing techniques.

A process improvement was developed by the Division of Chemical Technology for the application of wax to corrugated fibreboard containers to replace the formerly accepted process of single batch dipping in a hot wax bath.

CSIRO's new process of waxing containers in two stages with an initial shower of hot thin wax followed by a shower of cold wax, reduced wax consumption and improved quality.

The judges were impressed with the engineering skill displayed in developing a commercial machine which enabled a high quality product to be achieved.

A machine incorporating Mr Coleman's technique was developed by the Andax Company in Melbourne, and has subsequently been successfully marketed in North America.

The award was presented at a function held in Melbourne on July 16.

Dr Neil McKinnon and his wife Judith were principal guests at a Dinner held in Melbourne in June to mark the occasion of Dr McKinnon's retirement from CSIRO.

Neil McKinnon first joined CSIR in 1945 when he became a member of the Aeronautical Research Laboratory with special responsibilities in the field of powder metallurgy. He left CSIR without changing employment when ARL became part of the Department of Supply in 1949. Between 1951 and 1953 he spent two years in England where he worked on the growth and deformation of single crystals of aluminium at AERE Harwell and Birmingham University.

In 1953 he returned to ARL where he became head of the Defect Assessment Group.

In 1965 he rejoined CSIRO as a member of the Engineering Ceramics Group in the Division of Applied Mineralogy where he worked on cermets. Soon he became the leader of the group, and when the major part of Applied Mineralogy was relocated in Perth in 1970, Neil McKinnon's group remained behind in Melbourne, took the name Engineering Ceramics and Refractories Laboratory, and became part of the Division of Tribophysics.

As Officer-in-Charge of his laboratory Neil McKinnon directed two extremely important projects. The first of these was the development of the oxygen probe system, now well known as the $SIRO_2$ oxygen sensor. The second project grew from the spectacular discovery made by the laboratory that zirconia particles embedded in a ceramic matrix could transform crystallographically in such a way that the composite ceramic could exhibit anomously high toughness. The importance of this discovery is being realised today as zirconia ceramics with consequent high strength, high toughness, high thermal shock resistance, and excellent thermal insulation properties are finding new applications almost daily.

These successes are the basis for much of the work in the laboratory today, and whilst "Tribophysics" has given way to "Materials Science", and "Engineering Ceramics and Refractories" has transformed to "Advanced Materials Laboratory", the foundations laid by Neil McKinnon remain.

All his friends in CSIRO wish Neil McKinnon health and happiness in retirement.

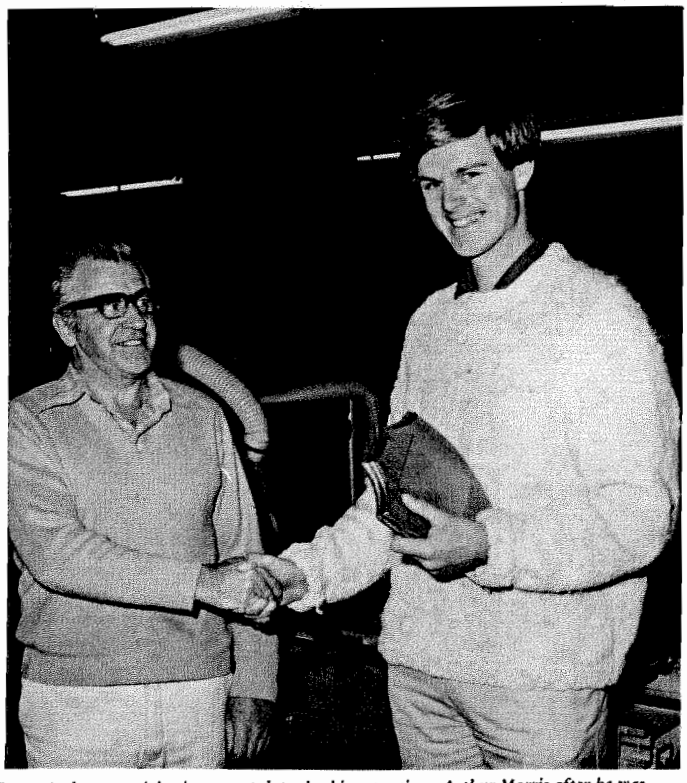
Just back from a three-week tour of Japan visiting centres of research and development in polymer science is **Dr David Solomon**, Chief of the Division of Applied Organic Chemistry.

The trip was made available under the auspices of the Japan/Australia Science and Technology Agreement for Dr Solomon, on behalf of Australian polymer scientists, to seek out fields of research where collaborative projects could be pursued.

He's at present preparing a report on the excursion, including recommendations for exchange visits of polymer scientists.

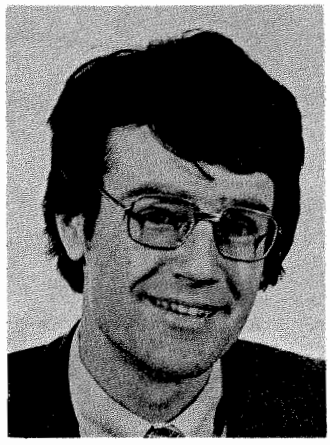
□□

Dr George Bornemissza of the Division of Entomology's Tasmanian laboratory, is sporting a new Rolex oyster watch. He was among 29 selected winners of an award sponsored by the watch company, allowing for five international winners and two honourable mentions for work which broke new ground. George was one of two Australian winners and was chosen from about 3,000 entrants for the personal enterprise award on his efforts to introduce and establish the dung beetle in Australia.



Peter Tuckerman, right, is congratulates by his supervisor, Arthur Morris after he was presented with the Arthur Frost Memorial Award in a ceremony held recently in Canberra.

Peter, an apprentice carpenter at Black Mountain Site Services, received the award as the CSIRO apprentice who was judged to have achieved the most significant improvement in all-round performance in his final year. He was presented with the award by the Chief of the Division of Entomology, Dr Doug Waterhouse. The award was established as a memorial to Arthur Frost, a supervisor at the Division of Textile Physics at Ryde, Sydney. Arthur took a keen interest in the work of apprentices and was at one time Federal Secretary of the Laboratory Craftsmen's Association. He retired from the Division through ill health and died in the early seventies.



Dr Brian Haynes.

Dr Brian Haynes, an Australian combustion engineer who has been lecturing in America, has begun work at the Division of Fossil Fuels in Sydney as a Queen Elizabeth II Fellow.

He is one of four fellows named recently by the Minister for Science and Technology, Mr Thomson, and the only one who will be working within the Organization.

Dr Haynes, who was born and educated in Perth, is a graduate of the University of New South Wales in Sydney, where he received his Bachelor of Engineering with first class honours and the University Medal in 1973. He obtained his PhD from the same University in 1976, and later worked in Germany as a Humboldt Fellow with Professor Wagner at the University of Gottingen until his appointment in 1979 to the Massachusetts Institute of Technology's Chemical Engineering Department and Energy Laboratory where he has been a visiting engineer and lecturer.

Dr Haynes will work for two years within the Fuel and Atmospheric Chemistry section working with Dr Maurice Mulcahy.

He is studying the chemistry of the gasification of carbon, part of the process of liquefaction of coal under study within the Division.

In the spirit of friendly competition, a group of sportsmen in the Regional Administrative Office, Canberra, have issued a challenge to cricketers in Melbourne or Sydney offices of CSIRO.

They are keen to arrange a weekend challenge in Canberra or perhaps half way, for a Melbourne team.

Interested individuals or groups should contact **Michael Avent** at the Canberra RAO.

□□

Bark is the imaginative new name chosen by the Division of Forest Research for their newsletter. It seems **David Brett** developed the name over a few glasses of champagne with colleagues.

Other suggestions included "bark and bite", "roots and shoots" and "biorotica".

The fortnightly newsletter is being used by the new Chief, **Joe Landsberg**, as a tool of internal communication.

□□

Kevin Handreck, scientific assistant to the Chief of the Division of Soils in Adelaide, has been awarded a Churchill fellowship to study the use and management of soils used for horticulture in Europe, the U.K. and the U.S.

Kevin is interested in new developments in soils used in pots and for growing turf and plans to write a textbook on the subject for Australian students.

CSIRO's Chairman, **Dr Paul Wild**, delivered a timely message to La Trobe University graduates when he told physical and biological science graduates that the world would be a better place if more scientists 'broke loose' from their laboratories and sought roles as top policy makers.

He concluded by telling the students: "Scientists, often wrongly, but sometimes rightly, are time and again accused of failing to communicate their message to the population in general and the policy makers in particular.

"The more you can get the true message of science and what science is all about across to the layman, the more you will ensure that science has a positive future in this country and that the country derives positive benefits from science."

A recent "science at play" photograph, published in CoResearch of the specially bred cow with two short front legs so it could graze up-hill, led **Ross Mackenzie** of the Film and Video Centre to purchase, in Scotland, a postcard showing a similar new breed, the "shy, highland haggis" an animal with right legs longer than left, to enable them to run around the Scottish mountains at great speeds in an anti-clockwise direction without falling over.

However, the post card reports that those attempting to run in the other direction roll helplessly down-hill and are collected by Highland Haggis gatherers and sold as a great delicacy.

Ross spent almost a month in Britain but reported seeing neither haggis or gatherer.

In retirement

The following CSIRO staff have or will shortly be retiring. Divisions are invited to send the details of retiring staff to CoResearch for inclusion in the column.

Kris Kaldma from the Division of Computing Research after 30 years.

Henry Hunter from the Division of Building Research after 18 years.

Ken Plomley from the Division of Building Research after 42 years.

Anne Triggs from the East Melbourne offices after 24 years.

Wal Clarke, from the Division of Animal Production, after 42 years service in charge of laboratory services and later as Industry Liaison Officer.

Rodney Powning, of the Division of Entomology, after 45 years service, latterly working on insect physiology and biochemistry.

Heinz Gruetzmacher, from the Division of Applied Physics after 26 years where he was Chief Draughtsman.

Bob Parker, from the Division of Fisheries after seven years with the Division.

Madge Hennessy, from the Division of Fisheries after 11 years in the computing section.

Dr Peter Maxwell has begun work as a visiting scientist with Computing Research's VLSI program. Peter is a senior lecturer in computer science with the School of Electrical Engineering at the University of New South Wales. He and his family will move to Adelaide later this month.

□□

Telephone callers to the communications nerve centre in Albert Street, Melbourne, will miss the friendly voice of **Anne Triggs**, who retired recently after operating the East Melbourne switchboard since May 1957, with a short break about 11 years ago.

During her career, Anne made a valuable contribution to the Organization, servicing Head Office, till the move to Canberra in 1970, the Melbourne Regional Office, the Melbourne DCR Group, Film and Video Centre and CILES. She is wished a long and happy retirement.

□□

Clive Coogan, Chairman of A.S.I.A., reports that he often has enquiries based on misunderstanding of the initials of his organisation. He is frequently accused of links with ASIO, but Clive was tickled when he recently received a letter asking if his organisation, A.S.I.S. would like the services of a particular firm in publicising its activities. Since A.S.I.S. is the Australian Security Intelligence Service, Clive felt quite confident in replying, "not ..... likely!"

□□

Spending four months in Mexico City is **Marina Tyndale-Biscoe** from the Division of Entomology in Canberra. Marina is working at the Institute of Ecology studying the physiology of dung beetles.

Her visit follows a visit by a delegation from Mexico last year and is a co-operative venture with the Mexican Government.

Marina, who works with **Murray Wallace's** group at the Black Mountain laboratories, is particularly interested in aspects of the dung beetle's reproduction.

She is due back in October.

Health reasons have forced **Kelly Kelsall** to step down from his position as Chief of the Division of Applied Geomechanics. He will, however, continue as Chief of the Division of Mineral Engineering.

Ken McCracken is acting as Chief of the Division of Applied Geomechanics, while also continuing as Chief of the Division of Mineral Physics.

□□

Robin Austin, who was well known as the Information Officer for the Division of Fisheries and Oceanography for the past ten years, died on May 29 after a prolonged illness.

He contributed a number of articles on fisheries and oceanographic research for 'Australian Fisheries' and other journals and was active in organising displays illustrating the Division's work for open days and scientific conferences, and for organising seminars. But perhaps he was best known as the source of information to the media and for the inquiring general public and for his contact with schools, students and visiting scientists.

He was also the very independently-minded editor of the Division's in-house journal 'Fish-O'. Robin had a long interest and involvement in astronomy and his light-hearted seasonal notices wishing the staff a happy summer solstice, but he was also the principal author of a paper on a method for calculating moonlight illuminance at the Earth's surface which was of direct application to the study of the behaviour of rock lobster larvae movements.

This was published in 'J. Appl. Ecol.' in 1976 and created a lot of interest among biologists. He leaves a young daughter, and many friends in CSIRO.

□□

The Chief of the Division of Plant Industry **Dr Jim Peacock** was delighted when his son Steven took out a national art award recently with a painting called "Crow, Crow". Steven's prize was a cheque for $2,000 from the Commonwealth Bank and The Australian newspaper.

E. L. Deacon, previously an SPRS of the Division of Atmospheric Physics, has been awarded the degree of Doctor of Science by the University of London for collected works on meteorological research.

Twenty-four of the 30 papers submitted describe Len's CSIRO work and a further three were published after his retirement in 1972.

□□

As part of the initiatives in Industry/CSIRO cooperation **Jonathon Hodgkin** of the Division of Applied Organic Chemistry has just completed a year's work at the Central Research Laboratories of ICI Australia, Ascot Vale.

Part of his work involved the transfer to industry of technology associated with recent metal selective ion-exchange resins synthesized at the Division.

However, the major area of his research was concerned with an ICI project on the use of plastics to give more environmentally acceptable methods of manufacturing chlorine and caustic soda on a large scale. It is hoped that his secondment will be the first part of a reciprocal agreement whereby an ICI research scientist is transferred to work at the Fishermen's Bend site of Applied Organic Chemistry.

□□

A former CSIRO post graduate student, **Richard Sadlier**, has recently been appointed Director of the DSIR's Ecology Division at Lower Hutt in Wellington, New Zealand.

Richard, a West Australian, was awarded an overseas post graduate studentship in 1962 and went to Canada. He has most recently been Professor of Biological Sciences at the Simon Fraser University, Burnaby, Canada.

□□

Dr Larry Smith, from the Ohio Agricultural Research and Development centre at Wooster, Ohio, is presently working with **Dr Dennis Watson** at the Pastoral Research Laboratory in Armidale. Larry and Dennis are working on mastitis.

The difficulties facing Australian archivists were spelled out recently by CSIRO archivist, **Colin Smith**. Speaking at a conference at the Academy of Science in Canberra, Colin described archives as "a cinderella among the cinderellas in the world of cultural conservation."

□□

Dr Frank Forcella of Montana State University has taken up a three-year appointment as a research scientist in the Division of Plant Industry's ecology section. Frank will be working in the research program concerned with the ecology of weeds in natural and agricultural plant communities.

□□

Among the members of the community who find CSIRO a "mine of information" are miners whose hard hats often carry stickers advertising CSIRO. **Christine Astley-Boden** at the Minerals Laboratory in West Ryde, Sydney, has a limited quantity of these blue and white stickers available free for those who contact her.

□□

Doug Little, of the Animal Nutrition group at Brisbane's Cunningham laboratories, has recently been elected President of the Queensland division of the Australian Veterinary Association.

□□

CSIRO's leucaena experts in Queensland, **Ray Jones** and **Bob Bray**, are used to the odd question about the plant, but even their eyebrows were raised recently when a fish farmer sought their advice on how to reduce the alkaloid content in the leaves because he was concerned about the effects it would have on the growth rate of yabbies.

□□

Dr Gordon Thomas of 'Agriculture Canada' is working with the Division of Plant Industry's ecology section for a year on weed problems.

TALKING POINT IN THE TEA-ROOM

Visitors to the staff lounge at the Division of Irrigation Research in Griffith can now see an artist's interpretation of the research work being carried out there. Ian Henderson, Chief Graphic Designer in CSIRO's Bureau of Scientific Services, was commissioned by the Division's Management Committee to prepare a striking wall feature which reflected the work being carried out and synthesized the Division's activities in visual form.

Ian, pictured above with the mural, has used oil paint on plywood in greens, yellows and blues and says the mural poses visual and philosophically enigmatic questions about the nature of man and the environment, with particular reference to irrigation research at Griffith.

"It is sufficiently ambiguous to be capable of constantly being re-appraised," Ian said.

Historic gathering at 'The Bend'

The four men who have headed Divisions which now comprise the Division of Applied Organic Chemistry, from left, Sir Robert Price, Dr Sefton Hamann, Sir Ian Wark and the present Chief, Dr David Solomon. The men gathered at Fishermen's Bend recently to see Sir Ian Wark officially open the new conference room which has been named after him.

Chiefs of all CSIRO Divisions from which the present Division of Applied Organic Chemistry derived, gathered recently at the Fishermen's Bend laboratories to see Sir Ian Wark officially open the new conference room which has been named after him.

Sir Ian Wark was Chief of the Division of Industrial Chemistry from 1939 to 1958, and was then Director of the Chemical Research Laboratories until 1960.

Others who attended included Sir Robert Price who was Chief of the Division of Organic Chemistry from 1961 until 1966, and Dr Sefton Hamann, who was Chief of the Division of Applied Chemistry from 1966 until 1974 when Dr David Solomon was appointed Chief of the Division of Applied Organic Chemistry.

After lunch with Dr Solomon, the three former Chiefs toured the Division and were looking particularly at the high level of instrumentation needed to conduct modern chemical research.

At the opening ceremony, Sir Ian spoke of the important place given the Fishermen's Bend site in the development of Australian chemistry, and complimented the Division on the relevance of its present research programs.

Sir Ian then presented the Division with a collection of his own papers on "Metallic Hydroxy-Acid Complexes".

The last note on this subject (*CoResearch* April 1981) concluded with a reference to those papers of official character which are in the custody of individuals rather than central registries.

I worry about these because they are so hopelessly scattered and variously organised; because they are so commonly disposed of when officers move or are promoted or retire or die, with no reference to CSIRO Archives; and because the possibility of permanent historical value is often overlooked when these disposals are made.

Ideally, I would like to be on the scene whenever the papers of a senior CSIRO scientist or administrator undergo a spring-cleaning. Since I can't be, I have prepared some guidelines for records disposal which set out archival interest in relation to other interests involved, and indicate the likely historical value or otherwise of various categories of records.

Following these guidelines, an officer could get rid of a lot of material by summary destruction or disposal to other appropriate custody (e.g. his successor, or the relevant registry or library) and present me with a residue of non-current material of possible historical value, such as general correspondence, minutes, disused data, photographs, and indexes to any of the above. This might include records of non-CSIRO activities such as committee work for a scientific society.

Archivists recognise the need to reduce a superfluity of paper by repeated culling. We do a lot of it ourselves. Our concern is that cullers should remember that to destroy an unpublished record is to destroy, irreversibly, some fragment of the past. And we also worry that some more discriminating cullers may be even more misguided than we are ourselves.

If you would like a copy of the CSIRO Archives guidelines for disposal of office records, please contact me at PO Box 225, Dickson, ACT 2602, phone (062) 484677.

Colin Smith, CSIRO Archivist.
Canberra.

New Division for tropical animal research

From page one

determine cattle's adaptation to thermal, nutritional, disease and parasitic stresses and permit high productivity in the tropics.

"This Laboratory will also be concerned with the inheritance and genetic interrelationships of adaptive and productive characteristics with a view to formulating selection criteria for cattle breeders," he said.

. **Long Pocket Laboratories (Brisbane)**

Research here would be done on endemic arboviruses and on the competence of the insect vectors to multiply and transmit the viruses. Field studies of vector distribution will also be carried out.

"Research will also be undertaken on the immunology of cattle tick resistance, on vaccines against tick fever and on the immunology, epidemiology and control of internal parasites," Dr Ferguson said.

"Collaborative research will be carried out with the Tropical Cattle Research Centre on the immunological mechanisms underlying genetic differences in resistance and tolerance to ticks and internal parasites."

. **Davies Laboratory (Townsville)**

Dr Ferguson said that the new Division would re-establish, in collaboration with the Division of Tropical Crops and Pastures, a nutrition laboratory in the Davies Laboratory.

Research there would be concerned with:

. the nutritional properties of tropical pasture species;
. grazing behaviour and dietary selection;
. calcium and phosphorus metabolism;
. the influence of the mineral status of the pasture on intake and nutritive value;
. methods of mineral supplementation; and
. genetic differences in feed intake and nutrient utilization in collaboration with the Tropical Cattle Research Centre.

The Chief of the Division would also assume responsibility for scientific oversight of CSIRO's contribution to the Project for Animal Research and Development in Indonesia which the Organization conducts on behalf of the Australian Development Assistance Bureau.

CSIRO Budget details

CSIRO
1981/82 Estimates

Annual Funds	Salaries	Operating	Total
Headquarters, Advisory Council and State Committees	9,520,500	14,068,300	23,588,800
Institute of Animal and Food Sciences	26,811,800	11,884,700	38,696,500
Institute of Biological Resources	44,874,100	16,750,900	61,625,000
Institute of Energy and Earth Resources	15,115,900	5,755,600	20,871,500
Institute of Industrial Technology	23,624,400	7,268,800	30,893,200
Institute of Physical Sciences	32,227,900	14,024,600	46,252,500
Bureau of Scientific Services	5,796,400	3,701,900	9,498,300
Miscellaneous	3,174,400	42,500	3,216,900
Other Contributions	—	781,800	781,800
	161,145,400	64,758,600	225,904,000

Showing the flag at Trangie AGSEARCH

Two CSIRO Divisions are taking part in AGSEARCH '81, two open days being held next month at Trangie Agricultural Research Station in New South Wales.

The Premier Mr Neville Wran will officially open the event on 11 September.

The Division of Entomology will mount a stand demonstrating biological control, genetic control, and insect migration. Ed Highley, the Division's Information Officer, and researcher Tim Woodburn will be on hand to answer questions, while Roger Farrow will advise on insect migration.

Their exhibit will show how the Division has been able to genetically breed male sterile flies which are released to prevent normal breeding by the blowfly.

The Division's biological control exhibit will show insect pests such as those which attack lucerne and skeleton weed, and the control of dung using the beetle.

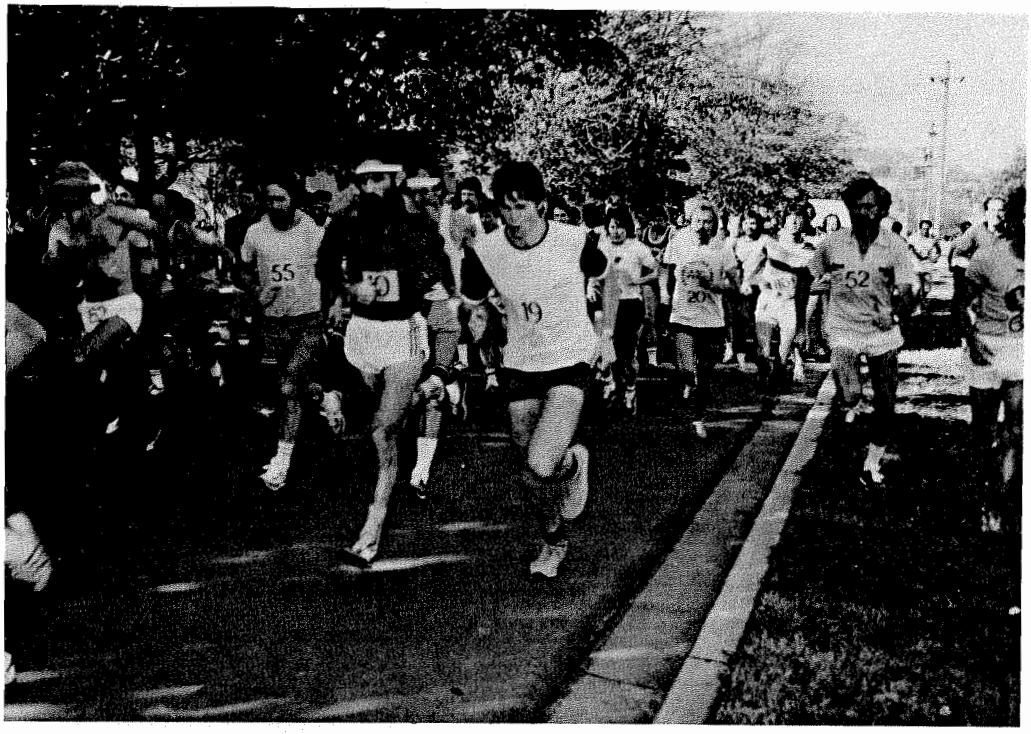
The Division of Textile Physics stand will be manned by Dave David and Joe Snaith.

The exhibit features displays showing the principles on which the measurement of wool is based and includes displays indicating the value of the measurements to a wool processor.

Also on display will be the "Sonic-Fineness Tester" (Model B), developed by the Division of Textile Physics as a do-it-yourself kit for breeders.

Members of the public are welcome to attend the open days on either September 11 or 12.

Funrunners on the road again



They're off on the 1981 Black Mountain fun run, and among the first of the bunch are, from left, Colin MacDonald, Division of Entomology, (No. 62), Lee Belbin, Division of Land Use Research (No. 55), Keith McNaughton, Division of Environmental Mechanics (No. 10), and Michael Neave, Entomology, (No. 19).

Funrunners from CSIRO's Division of Plant Industry in Canberra wrested the Black Mountain Cup from the Division of Entomology team in the annual Black Mountain run, held on July 17.

A total of 115 men and women took part in the 5.6 km run up the slopes of Black Mountain, and this year 94 runners completed the course within the target time of 30 minutes.

Two teams from Sydney and one from Melbourne travelled to Canberra for the challenge, and one individual came from Griffith.

This year the first runner home was Mike Halmy from the Australian National University who recorded a time of 20 minutes 11 seconds. The first CSIRO runner home was the second placegetter, Ken Lewins from the Division of Textile Industry who completed the course in 20 minutes 40 seconds. First woman home was Rosemary Longstaff of the Division of Entomology who recorded a time of 20 minutes 59 seconds. Tony Larkum of the Division of Plant Industry was the first 40-plus runner home, while Bob Costick of the Division of Fossil Fuels was the first runner aged 50-plus.

The Black Mountain Cup, previously held for four years by the Division of Entomology, was awarded to Plant Industry as the Division with the lowest total time of the first four runners completing the course.

One of the organisers, Greg Heath of the Division of Environmental Mechanics, said most runners this year recorded faster times than in their previous years, and the winner's time had been more than a minute faster than the 1980 winner, Rosemary Longstaff.

CAT

Jenifer North, liaison officer in CSIRO's Institute of Earth Resources, has contributed this month's CAT column.

I recently attended a conference entitled "Differing Perspectives in Human Communication" at Kuring-gai CAE in Sydney, run by the fledgling Australian Communication Association, which was founded in 1979.

The ACA exists to establish links between communicators of all sorts in Australia and to encourage research into and disseminate information about communication. It has about 200 members in all States.

The 160 delegates at the Conference reflected, I feel, the membership of ACA. About 78 per cent were teachers and researchers from universities, CAE's, institutes, etc.; 10 per cent came from government departments or agencies such as Telecom; 3 per cent from industry; and non-affiliated delegates made up 9 per cent. Only one member from the media came.

The Conference sessions were naturally inclined to the strong research and educational bias in the ACA. After the first day's keynote speakers, we broke into sessions for the next two days and covered interpersonal communication, organizational communication, issues in information dissemination, intercultural experience and analysis, and human communication technology.

The keynote speakers and most of the theoreticists were heavy going. The majority of educationalists (mainly teachers of communication skills in Business Administration courses) joined me in floundering in a sea of jargon. Professor Henry Mayer from Sydney University was the only Australian keynote speaker; he gave a lively performance but didn't say anything new.

The few practitioners amongst us enjoyed the sessions on issues in information dissemination and human communications technology. The former included two speakers from Fiji. One described how films are used as an information tool and the other gave a fascinating account of how frustrating it is to try and disseminate information in a multi-racial developing country where Western methods just don't work. Nearer home, two Canberra public servants talked about recent studies into the effectiveness (or otherwise) of the dissemination of government information in Australia. Despite the wide gaps between Fiji and Australia, our bureaucracies seem to impede information flow with equal success!

The communication technology session was very thought-provoking. At last we got away from the marvels of MIDAS, CSIRONET and the like, and concentrated on the human element. Papers were presented on teaching children to use computers, communications problems of the aged, technology to help the disabled communicate, and behaviour patterns that are developing in teleconferencing.

The last paper of the Conference added yet another voice to those of ours in CSIRO who have been concerned about self-indulgence in communicators. The speaker pointed out the increasing tendency of communicators to regard the act of communicating, and the techniques by which it is done, as an end in itself. He claimed that big institutions have now incorporated the process of information distribution so thoroughly into their structural patterns that it is becoming so formalised as to be meaningless. (Heartfelt mutter of Annual Reports from JFN!)

The theme of the Conference included "difference" and this was certainly demonstrated. However, this is regarded by ACA as being healthy, as long as Australian communicators don't start following their overseas counterparts into tight-knit little specialist groups which refuse to listen to other perspectives. Delegates were almost unanimous in their concern at the dominance of US and UK communications research in education, in textbooks—and especially in choice of keynote speakers at the Conference. All agreed that the tiny indigenous research effort needed expanding fast before budding communicators got swept away on a tide of irrelevancy.

[For those interested, I have copies of most of the Conference papers. Contact me at PO Box 225, Dickson, ACT 2602. Tel. (062) 48-4545.]

BARRY JONES VISITS THE DIVISION OF APPLIED PHYSICS IN SYDNEY

By Yvonne Esplin

The Division of Applied Physics in Sydney played host to Mr Barry O. Jones M.P., a Member of the CSIRO Advisory Council and Federal Labor's spokesman on Science and Technology on July 30, when he visited the Division's CAD (Computer-Aided-Design) facility and the High Voltage Laboratory.

An interdivisional lunchtime seminar, with Mr Jones as guest speaker, was held to give others an opportunity to hear his views.

The response was most rewarding, with 154 staff from many Sydney Divisions coming to the ploughman's lunch. More arrived later for the talk, and the large NML theatre was filled to capacity.

There were many threads woven into the fabric of Mr Jones's address, but the five most important recurring themes were:

1. The increasing *fragmentation of knowledge* in our modern society, in which there were a great number of highly specialized people but not many who could relate to other areas with any confidence.

Mr Jones said politicians might have trouble understanding what scientists were doing; engineers might not be able to grasp the complexities of commerce and many professionals might be unaware or inept at comprehending the social problems of the community.

Just as in the fable of the Four Blind Men and the Elephant, each might have a totally different view of the situation and yet be convinced of the accuracy of his own perspective.

In a world of accelerating technological advances and increasing specialization therefore, we needed to make extra special efforts to bridge the gaps between the various cultures and to try to see each other's point of view.

As an example of the difficulty people experienced with cross-cultural understanding, Mr Jones revealed that only one of the 874 Members of Australia's Parliaments had made a submission to the Myers Committee Report on Technology Change. Many others had readily admitted the importance of the topic but found the day-to-day pressures of issues in their own electorates forced them to defer study of these more important but also more difficult issues. Mr Jones quoted Edouard de Bono who said that 'In politics, the urgent always displaces the important.'

Science policy issues, like the issues concerned with technological change, tended to be put into the 'too hard' basket, sometimes being deferred interminably.

2. Another theme which recurred throughout the talk, was the apparently recent tendency, to *wind down emphasis on intellectual endeavour*—scientific research might be seen as a sub-set of this broader context. There existed in some quarters, an anti-intellectual climate, as witnessed by the rise of the 'Ocker' culture.

Mr Jones said it was not simply a matter of pouring more money into science and other intellectually-based agencies but, of urgently arousing the national consciousness to change the attitudes of Australian society toward intellectual effort.

The Federal Labor spokesman on Science and Technology, Mr Barry Jones, left, during a visit to the Division of Applied Physics in Sydney. With Mr Jones is the Assistant Chief of the Division, Dr Bill Blevin and researcher Mr Ian Chappel.

He pointed out a recent OECD report, which indicated that Australia could be rapidly slipping behind other developed countries into a kind of intellectual stagnation. The OECD ranked Australia 14th in the pecking order, equal with the United Kingdom and New Zealand in a report which ranked countries by the intellectual achievements of their peoples and the type of work in which they were involved.

For instance, in the US, the so-called 'information industries' accounted for 46 per cent or almost half of the labour force. The umbrella term 'information industries' encompassed all who worked with symbols and images which could be words, mathematical symbols, computing codes, scientific symbols, musical notation or ideas.

In Sweden 42 per cent of the workforce were in this category but in Australia there were only 33 per cent. This shortfall, according to Mr Jones, was shown up by the fact that we now had many PhD's and other specialized people unable to find suitable work in Australia because of the decline or perhaps the lack of increase in our information industries.

In the important information area of industrial R and D, the level of activity in Australia had decreased. Comparative figures quoted by Mr Jones for this area showed that in Sweden, for every $1 spent by the Government on R and D, industry spent $8; whereas in Australia, for every $1 spent by the Government, the industry contribution was only 63 cents.

There was a need to increase this knowledge base—not just by money, which alone was ineffective—but by a change in attitudes.

An example of an entrenched, antipodean attitude extant in Australia and New Zealand, and ripe for a change, was called by Mr Jones—'Pearse's Syndrome'.

3. *Pearse's Syndrome*. An 'interesting but rather cranky' New Zealand engineer named Richard William Pearse (1877-1945), made the first controlled man-made flight in a heavier than air machine, 8½ months *before* the Wright Brothers made their famous flight in March 1903, but did not report it.

As soon as he heard about the Wright Brothers' flight, he lost all interest in his own flying machine and never touched it again. According to Mr Jones, Pearse's reaction was typical and symptomatic of an entrenched attitude found in Australia and New Zealand, expressed as: 'What's the point? What's the use of my competing with *them* when *they* have better manufacturing ability and access to better markets?'

This attitude projected into industry which said: 'Why bother doing our own research when we can buy it off the shelf?'

According to Mr Jones, this ploy might seem economically rational, particularly in the short term, but it inevitably inhibited the growth of our own information industries and would confine us to an ever lower level in the international pecking order of nations.

Simply selling our raw materials and increasingly buying our technology from overseas because of the '*They* must be able to do it better' Pearsian attitude would force Australia into an increasingly subservient position as the Age of Information took over. If, as Mr Jones said 'we abandon our intellectual activities to fit in with the market economy', we might end up as the'quarry of the world' and nothing else. The resources boom could be a trap.

4. According to Mr Jones we needed to think in a much wider way about *resources*.

'Resources' in Australia had become synonymous with 'minerals', while in other countries this was not so.

Japan and Jordan identified 'resources' with 'people'. They were resource rich, depending on the intellectual quality of their people and the activities which they performed. If 'resources' were not identified with 'people', then investment in people, such as education, became an expense.

5. An over-riding message which seemed to issue from the talk was the necessity for people to *communicate* freely, not only with each other and with people in other professions but also with politicians. Talk or write to your politicians, was Mr Jones's message. 'This is the democratic process'.

He said some people took an almost masochistic, self-deprecating view, that their work was not as important as that of others. The scientific lobby in Canberra was 'miniscule' and needed to be strengthened. He commented that the lobbying pressure was in inverse proportion to the subject matter, and that letters from scientists were practically non-existent.

During *Question Time* which followed, the originator of the Officers' Association 'Pairing' scheme, Dr Keith Bowling, said he was amazed to learn that Mr Jones had never even heard of the scientist/MP 'pairing' system! This scheme was initiated as one way in which CSIRO scientists could help to break down science-politics communication barriers. Dr Bowling said he plans to follow this up.

Mr Jones left some very clear messages. In a nutshell, I think they were:

- communicate, as much as you can, across interdisciplinary boundaries—even with politicians; and have an intellectual go, Australia! Don't slide into the slough of slow stagnation on the slippery slope of your mineral wealth! Treat these minerals as a bonus.

'CoResearch' is produced by the Science Communication Unit for CSIRO staff. It is also circulated to some people outside the Organization who have a professional interest in CSIRO activities. Members are invited to contribute or send suggestions for articles. The deadline for material is normally the 8th day of the month of publication. Material and queries should be sent to the Editor, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editor: Jeannie Ferris.

CoResearch

CSIRO's staff newspaper *September 1981* **244**

Plan for regular meetings

The first full-scale meeting between CSIRO's Executive and the National Farmers' Federation (NFF) was held at Headquarters in Canberra on 27 August.

The NFF represents at a national level, Australian primary producers.

A joint statement issued after the meeting by CSIRO Chairman Dr J. Paul Wild and President of the NFF, Mr F. M. Davidson, said:

"An open line of communication between CSIRO and the NFF on scientific research affecting Australia's primary producers has been created and will be fostered in the future.

"The two bodies have agreed to meet annually at Executive level and to hold other meetings as necessary.

"One matter on which close liaison will be maintained is the type of research to be conducted at the Australian National Animal Health Laboratory (ANAHL) now nearing completion in Geelong (Vic.)

"Both organizations are in agreement that no actual importation of live foot and mouth disease (FMD) virus will be made to ANAHL unless the use of live virus is required to protect Australian livestock against the disease.

"However, no such decision will be made until industry has been fully consulted."

ATOMIC ENERGY STAFF JOIN CSIRO

Two new energy divisions formed

CSIRO is stepping up its contribution to keeping Australia at the forefront of energy research particularly relevant to the nation's needs.

It has formed two Divisions to spearhead the work.

They are:

. the Division of Energy Chemistry, comprised of about 80 staff from the Australian Atomic Energy Commission's Lucas Heights (Sydney) Research Establishment; and

. the Division of Energy Technology, comprised of about 90 staff from the former CSIRO Division of Mechanical Engineering in Melbourne.

Both Divisions are located in the new Institute of Energy and Earth Resources within CSIRO which was formed on 1 September.

(The Government decision to transfer the non-nuclear research activities of the AAECRE to CSIRO was jointly announced on 30 April by the Minister for Science and Technology, Mr David Thomson, and the Minister for National Development and Energy, Senator J. L. Carrick).

Announcing the Executive's decision on 26 August, Mr Thomson said these new Divisions, together with the decision to form a Division of Tropical Animal Science announced on 13 August, were "a clear indication of the initiatives being taken by CSIRO to enhance research effort in areas of perceived national priority even during a period of constrained resources."

The Division of Energy Chemistry, located at Lucas Heights, will concentrate on chemical research directed towards the development of energy resources particularly relevant to Australia, such as the extraction of oil from shale and the exploitation of deep coal reserves.

It will also support other CSIRO research on the conversion of coal into oil, energy storage and the conversion of the sun's rays into readily usable energy.

Dr P. G. Alfredson, at present the Chief of the AAEC Division of Chemical Technology, has been appointed the foundation Chief of the CSIRO Division of Energy Chemistry.

The new CSIRO Division of Energy Technology, headquartered in Melbourne, will be engineering-oriented.

Its long-term goal will be to investigate and develop the technology necessary to ensure a balanced utilization of Australia's energy resources.

In the short-term its objectives will include work to:

. reduce industry's use of liquid fuels for heat generation and to generally improve the utilization of heat in industrial processes; and

. improve the engineering efficiency and mobility of Australia's surface transport systems.

Dr D. C. Gibson, formerly a principal research scientist with the Division of Mechanical Engineering, has been appointed Acting Chief of the new Division.

Research priorities

CSIRO's Chairman, Dr Paul Wild, explains the Organization's research priorities to members of the National Farmers' Federation at their first joint meeting in Canberra. From left is Dr Keith Boardman, Member of the Executive, Dr Wild, Mr N. T. Gorman, of the Wool Council of Australia, Dr K. Ferguson, Director of CSIRO's Institute of Animal and Food Sciences, Mr F. M. Davidson, President of the National Farmers' Federation and Mr V. G. Collins, President of the Cattle Council of Australia.

Waterhouse retires from Entomology

As a sometimes fractious baby, Doug Waterhouse's mother would give him a diamond beetle (Chrysolopus spectabilis) to distract him as she walked him in his pram through the leafy streets of Sydney's upper North Shore.

It was, according to Dr Waterhouse, his earliest introduction to entomology, the scientific discipline that has fascinated him for the rest of his life.

Dr Waterhouse retired at the end of last month as Chief of the Division of Entomology, ending an association with CSIRO which goes back to the thirties, when as a fourth-year honours student at Sydney University, he spent a period as a student labourer in the Goulburn Valley as part of CSIR's study of oriental fruit moth.

Doug Waterhouse joined CSIR in January 1938, working as a young graduate in the Division of Entomology's sheep blowfly section. Two permanent positions for entomologists were created later that year—one went to Waterhouse and the other to Dr Max Day, who retired late last year as Chief of the Division of Forest Research.

Doug and Max, as childhood friends, had both been interested in insects, and had acted as field assistants when Doug's uncle, G. A. Waterhouse, collected material for a book on butterflies which was published in 1932.

Through his family's interest in science, Dr Waterhouse had met many of the eminent scientists of the day during his childhood. Julius, Rivett, Tillyard and Nicholson had all come into his life by the time he completed university studies.

"The total CSIR staff in the Division in Canberra when I joined was probably no more than 50, with perhaps 15 or so professionals, so scientists rapidly got to know one another well," he said.

During World War II, Dr Waterhouse joined the Army Medical Corps, and found himself working under Ian MacKerras, who had previously acted as Chief of the Division of Entomology during the absence overseas of the then Chief, Dr John Nicholson.

continued on page two

New faces on CSIRO Advisory Council

The 10 new members of CSIRO's Advisory Council attended their first meeting in Canberra on September 2.

Nine men and one woman were appointed to the Council by the Minister for Science and Technology, Mr David Thomson, for renewable terms of up to five years.

The appointees, whose average age is 45, reflect rural, business, technology and trade union interests.

They are:

- Dr Graham Alexander, Director General, Queensland Department of Primary Industries.
- Dr Susan Bambrick, Senior Lecturer in Economics and Sub-Dean of the Faculty of Economics, Australian National University.
- Mr Robert Footner A.M., Chairman and Joint Managing Director, Bridgestone Australia Pty Ltd.
- Mr Kevan Gosper, Chairman and Chief Executive Officer, Shell Company of Australia.
- Mr David Hartley, Managing Director, Hartley Computer Applications Pty Ltd.
- Mr Denis Horgan, Chairman of Directors, Metro Industries Ltd.
- Dr G. A. Letts CBE, Director, Conservation Commission of the Northern Territory.
- Mr Peter Marsh, Industrial Officer, Victorian Trades Hall Council.
- Mr Keith Satchwell, Managing Director AFL Holdings Ltd.
- Mr Michael Shanahan, Vice President, Australian Wheatgrowers' Federation.

Mr Alexander will serve on the Council as the Chairman of the Queensland State Committee; Mr Footner as the Chairman of the South Australian State Committee; Mr Horgan as Chairman of the West Australian State Committee; Dr Letts as the Chairman of the Northern Territory Committee, and Mr Satchwell as Chairman of the NSW State Committee.

The committees, which have an advisory role in relation to CSIRO activities in each State and the Northern Territory are each represented on the Advisory Council by their chairmen.

Members appointed for additional terms were:

- Mr Jan Kolm, formerly Executive Director ICI.
- Professor Peter Scott, Pro Vice-Chancellor University of Tasmania.
- Mr John Heussler, formerly President U.G.A. Queensland.
- Dr Brian Scott, Queensland Managing Director, W. D. Scott & Co.

The retiring members of the council are:

Mr Alex Boden, former Chairman of the NSW State Committee; Mr John Harris, former Chairman of the South Australian State Committee; Mr L.C. Brodie-Hall, former Chairman of the West Australian State Committee; Sir Ian McLennan and Mr Jack Michael.

Increase in interest rates

CSIRO Co-operative Credit Society in Melbourne has increased their interest rates for term deposits from 12½% p.a. to 13½% p.a. effective from October 1st, 1981.

Payroll Deduction (No. Min.) 11% p.a. at call; Direct Deposits (No Min.) 11% p.a. at call; 12 month Fixed Deposit ($200.00 Min.) 13¼% p.a.

Interest on the above is calculated daily and credited to the account on each 1st April and 1st October.

Cheque-a-Month Scheme (Min. $9,600.00) 13¼% p.a. Interest Cheque forwarded monthly.

The interest rate on loans has been increased to 14% p.a. with effect also from the 1st October, 1981.

Enquiries to Keith Minney, (03) 268-7287.

Royal Society sponsors new fellowship

A new fellowship scheme to further scientific collaboration among Australia, New Zealand and Britain is to be established by the Royal Society.

The Society has announced that it has set aside the equivalent of $A90,000 for the scheme which is also being financially supported by British Petroleum.

In an announcement in the Society's July newsletter, the Foreign Secretary Sir Michael Stocker, said the scheme particularly intended to improve access to major 'facilities' including specialised laboratories, nuclear, astronomical and space science facilities, ships and unique features of the geological or biological environment.

"The scheme included applied science and engineering as well as fundamental aspects," Sir Michael said.

The Society has invited applications from United Kingdom postdoctoral scientists who wish to visit Australia or New Zealand to undertake research or learn new techniques or both in the laboratory or in the field. Support, where given, would be in the form of fellowships normally of three to 12 months duration.

Alternatively, where especially fruitful collaboration could be expected from a visit by an Australian or New Zealand scientist to the United Kingdom, a potential host could submit an application on behalf of the visitor.

The newsletter announced that the grants would be made for travel to and from Australia or New Zealand, with subsistence expenses and special research expenditure.

Sir Michael said preference would be given to applications in subjects heavily dependent upon unique 'facilities'—for instance in high energy physics, remote sensing, biotechnology, oceanography, meteorology, environmental biology, earth sciences or astronomy.

"However, applications in other subjects will be welcome", Sir Michael added.

Waterhouse retirement

from page one

By the time Dr Waterhouse became Chief of the Division in 1960, there had been a three-fold increase in staff, and he retired leaving a staff of 350.

Under his guidance, the Division of Entomology has placed increasing importance on biological control against weeds and insect pests, and up to 15 per cent of the total Divisional staff have been stationed overseas in the search for suitable natural controls for Australian conditions.

"The Division has never been particularly impressed with short-term solutions using pesticides because it believes that, in the end, the answer lies with the appropriate use of biological agents and other means of control," he said.

Discussing the recent changes within CSIRO, Dr Waterhouse recalled periods of major change throughout the years of his association with CSIRO, particularly when the Act was changed and CSIR became CSIRO.

However, he sounded a somewhat critical note on the Birch Committee which enquired into CSIRO in 1978.

"I don't really think there was enough opportunity for the three members of the Committee to discuss their ideas before they became crystallised on paper or it may have been possible to provide them with additional relevant information," Dr Waterhouse said.

"Be that as it may, I think it was symptomatic of changes that were occurring elsewhere in the community in relation to accountability," he added.

Discussing the amount of communication between Chiefs and the community, Dr Waterhouse confessed that, although he agreed with the philosophy of communication, he was concerned at the amount of time spent on it.

"The main purpose of CSIRO is to gain research results which are relevant and all the things we do other than research distract us from this major objective and the proportion of time spent by research staff and the Chief on research is being seriously eroded.

"If CSIRO doesn't produce research results, we'll have nothing to justify our existence and the Organization will wither rapidly on the vine.

"I'm critical of the public forces that are exerted on us to do many things which although desirable, weren't an essential part of our activities in the past.

"I'm talking about things like management courses, counselling, both of them admirable in their way, but taking up a disproportionate amount of dwindling resources and I wonder whether we don't spend too much time communicating at the expense of our major product—research," Dr Waterhouse added.

Following retirement, Dr Waterhouse will return to the Division as an honorary research fellow to enable him to have access to facilities for the preparation of a book on biological control in Australia since 1960.

He still has a number of commitments to the international scientific community, and will remain Chairman of the Council of Canberra College of Advanced Education.

As well, he plans to put together material for a book on gyotaku—the Japanese art of fish printing for Melbourne University Press.

The end of an era

The retiring Chief of the Division of Entomology, Dr Doug Waterhouse, left, with his wife Dawn, photographed at his farewell with CSIRO's Chairman, Dr Paul Wild and his wife Elaine.

People... People... People... People

Congratulations to **John Birch** of the Division of Applied Physics, who has been awarded a 1982 Churchill Fellowship to study the relationship between voluntary aid organizations and Government Development Assistance Programs. The award will finance travel to North America, Western Europe, India, Bangladesh and South East Asia for 10 weeks.

□□

In his spare time, **Dr Arch Dyer**, acting Chief of the Division of Atmospheric Physics, is Musical Director for an amateur theatre group in Melbourne. For their April show, "Gaslight Gaieties" Arch was one of three Victorians nominated as Best Musical Director. Although he did not win first prize, Arch said the atmosphere of the "Academy Awards" in the Melbourne Town Hall was equally rewarding.

□□

Dr Jack Shepherd of the Division of Mineral Physics, Sydney, has been invited to Britain next month to contribute to a meeting to discuss current developments in Australian Mining. Dr Shepherd will present a paper on the surface and underground geological prediction of bad roof conditions in collieries in the New South Wales western coalfields.

□□

Ian Henderson, Chief Graphic Designer in the Science Communication Unit in Canberra, is one of the lecturers at a two-week course in the design and marketing of small publications, being held at the University of New England from November 20 to 27. Also lecturing at the course is **Yvonne Roberts**, who is in charge of sub editing and production management of CSIRO's publications 'Ecos' and 'Rural Research'.

Travelling extensively throughout the United States and Canada during a year's leave of absence is **Mark Palandri**, from the Division of Computing Research.

Mark is working with a small software company in San Diego, developing a typesetting package for the Xerox 9700 laser printing system which is not yet available in Australia. The device is capable of producing two pages of typeset text per second.

□□

Mr Brian Le Breton, a carpentry and joinery apprentice at the Division of Food Research, has been awarded first prize for his second year studies in his trades course at Bankstown Technical College in Sydney.

□□

Dr Bill Blevin, of the Division of Applied Physics, has accepted an invitation from the Australian Academy of Science, to serve on the National Committee for Physics for a three-year term. Also on the Committee is **Dr P. Hariharan** of the same Division.

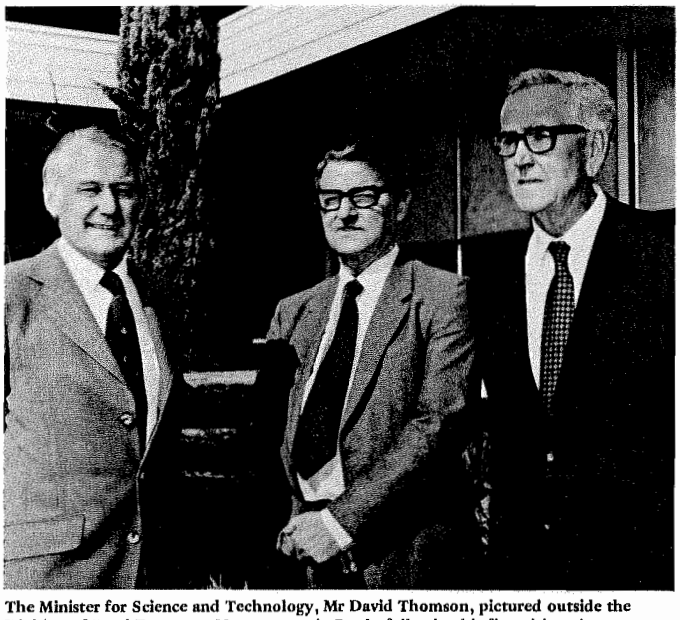
□□

Jan Grant, an honours graduate from Massey University in New Zealand, has taken up a two year appointment in the Division of Plant Industry's Genetic Resources/Herbarium section.

Budget Correction

The table presented on page 6 of the last CoResearch contained some errors. The entry for Headquarters, the Advisory Council and the State Committees should have indicated $9,520,500 allocated for salaries and $4,547,800 for operating costs —a total of $14,068,300.

Perth lab visited



The Minister for Science and Technology, Mr David Thomson, pictured outside the Division of Land Resources Management in Perth, following his first visit to inspect research being carried out there. With Mr Thomson is the Chief of the Division, Mr Ray Perry, centre, and at right, Mr L. C. Brodie-Hall, Chairman of the West Australian State Committee. Following the visit, the Minister went on to formally open the first SIROFLOC pilot treatment plant at Mirrabooka, one of Perth's northwest suburbs. The plant has been built by the Perth Metropolitan Water Board as part of its treatment system for Perth's shallow groundwater, which now makes up a sizeable proportion of Perth's total domestic water supply.

From the Chairman-

A regular column by the Chairman of CSIRO Dr. J. Paul Wild

The Organization in which we work, like the Universe in which we live, is an evolutionary system and not a static or even steady state system. Continual changes are taking place and have taken place over the years. Nevertheless, this year has had more than its fair share of structural change: there has been the formation of Divisions of Cellulose Research, Energy Technology, Energy Chemistry and Tropical Animal Science and the new Industrial Microbiology Unit and the termination of the Divisions of Mechanical Engineering and Chemical Technology.

Although this is all part of a continuing process, there are special reasons why 1981 has seen an unusual amount of structural change. Some are due to external factors such as the influx of staff from Lucas Heights. But more significantly the changes are a sign of the times. Now that we, like the rest of the world, have entered a phase in which financial support for scientific research is no longer expanding, the need for introducing change is becoming greater—since change is now the only means of starting or enhancing areas of research of increasing importance. We cannot afford to take the easy way, which would mean ignoring new opportunities and limiting our efforts to present activities.

CSIRO Divisions vary in character. At one end of the spectrum we have 'discipline-oriented' Divisions, which are centres of expertise in specific areas of science, and whose customers are diverse. At the other end, there are 'industry-oriented' Divisions whose research is dedicated to the needs of specific industries (or community interests) and whose skills are often inter-disciplinary. Most Divisions fall somewhere between these extremes. In the future, as in the past, there will be a need to create new Divisions or Units throughout the spectrum; often this can only be achieved by closing down existing Divisions, which may also belong to any part of the spectrum. The criteria for creating a new Division or Unit relate to the promise of future opportunities or important needs in industry, or in an area of science relevant to Australia's national interests. Conversely, the closing of a Division is related to the perception of diminishing opportunities in the future, whether in an area of science or industry. The central criteria are always relevance and research opportunity.

Before implementing a structural change in the Organization, the Executive gives the matter extremely careful consideration. No changes are made without proper examination, exhaustive discussions and wide consultation. The final decision must then be made by the Executive, which takes particular note of the collective view of Directors. When the decision is made, it is announced with the minimum of delay so that staff involved can participate in and influence the re-organization.

The decisions are neither arbitrary nor hasty, but their announcement can still come as a shock to some. Staff should know that the speed with which a decision is announced is not related to that with which it is formulated.

• •

Over the years, CSIRO's biggest customer has been the Australian farmer. Countless valuable contacts have been made between individual CSIRO scientists and individual farmers, but never has there been any top-level link between the Executive and the industry—as has existed with other industries such as the mineral industry. On 27 August 1981 history was therefore made when, for the first time, we met with the Executive of the National Farmers' Federation. This is the peak council of Australian agriculture and speaks for 170,000 primary producers. As an exercise in communication the meeting was highly successful and will be repeated at least at annual intervals. Perhaps the most significant issue discussed was the controversial question as to whether live foot-and-mouth disease virus should be imported into Australia for the purposes of research, diagnosis and vaccine production when our new high security laboratory is built at Geelong. The Industry was assured that nothing would be done without the fullest consultation with them; and now we have the means of consultation.

• •

This year has seen the retirement of a number of Chiefs of Division, mostly legendary characters who have spent most of their working life with the Organization. Their farewell celebrations are moving occasions. They also bring to light revealing documentation hitherto hidden away in Divisions or Head Office files. As an example, here is a letter I was able to quote at Harry Frith's retirement. It was written by Harry on 20 February 1956 to his Chief, Francis Ratcliffe, from somewhere in the Northern Territory.

Dear Francis,

The Humpty Doo circus continues with mud, slush, mosquitoes and bastardry on all sides. We arrived to find no truck, no hydroplane, no cartridges and no co-operation. I put up with it for a week and today had it out, no holds barred, with 'Y'. Getting no satisfaction there, I approached 'Z' in his ivory castle and told the truth that without some means of moving on either land or water I was frustrated and we would have to abandon the project and return to Griffith. There then seemed to be a lot of buck passing, the upshot of which was we now have a landrover and the hydroplane is being fixed up tomorrow. I think we have won but time will tell.

The wet season is hell as the Humpty Doo quarters are in the middle of a pandanus swamp, and so every day or so a few inches of water goes through the hut and the frogs leer in the doorway all night and the flies, mosquitoes and general filth has to be seen to be believed.

I am beginning to wonder is 'Y' fair dinkum or not. Today I heard him tell the chap who is in charge of the rice experiment, and at the moment struggling with a six foot flood going through the crop, that as a public servant his job is not to think and not to work on the levees but to write reports and "put 'Z' in the picture so he can answer questions from Canberra". The man's a bloody fool.

However, now we have the truck and a promise of the boat we hope not to have any more dealing with 'Y', and will concentrate on the geese who at least don't answer back.

Cheers,
(Signd) HARRY

Paul Wild

Gathering at Glenormiston

Delegates to the recent wool researchers' conference, held at Glenormiston Agricultural College in Victoria. The conference brought together researchers from the Divisions of Protein Chemistry, Textile Industry and Textile Physics. Those in the front row are, from left, Dr Jack Delmenico, Assistant Chief, Division of Textile Industry, Dr Bob Haly, Chief, Division of Textile Physics, Dr Don Taylor, Chief, Division of Textile Industry, Dr Hill Worner, Director, Institute of Industrial Technology, and Dr Gordon Crewther, Chief, Division of Protein Chemistry.

Getting together to talk about wool

Scientists from three CSIRO Divisions met recently at Glenormiston Agricultural College in South Western Victoria for the CSIRO wool researchers' 1981 Interlaboratory Conference.

These conferences—held every eighteen months or so—are one of the means whereby scientists at the Divisions of Protein Chemistry, Textile Industry and Textile Physics co-ordinate their efforts in wool-textile research.

Hosted this time by the Division of Textile Industry, Geelong, the conference was attended by 63 scientists including the Director of the Institute of Industrial Technology, Dr Hill Worner, and the Chiefs of the three Divisions represented, Dr D.S. Taylor (Textile Industry), Dr W. G. Crewther (Protein Chemistry) and Dr A. R. Haly (Textile Physics).

The three-day conference (July 22-24) began at the Division of Textile Industry with an introductory address from Dr Worner outlining the possible future for wool research funding.

Talks and tours of some of Textile Industry's major projects followed, before the Conference travelled to the Glenormiston Agricultural College near Terang in South Western Victoria.

In the following two days a series of lectures, colloguia, and a debate formed the program. Topics covered included, "Wool Structure and Composition", "Cuticle Properties", "Genetic Considerations" and "Fibre Histology".

The debate argued the proposition that "Research on short staple processing of wool is not in the best long term interest of the Australian wool grower". Included in a number of interesting views expressed was an illustrated exposition of possible wool marketing strategies by Dr Bob Haly.

The conference also toured two local wool processing companies—Warrnambool Woollen Mills, and Fletcher Jones and Staff Pty Ltd. Both places provided a practical perspective against which much of the conference proceedings could be viewed.

The Managing Director of Fletcher Jones & Staff Pty Ltd, and Chairman of the Wool Textile Research Advisory Committee, Mr David Fletcher Jones, spoke at the Conference Dinner on a range of issues, from tariff protection for the Australian clothing industry, to the relationship between research and development in wool textile technology.

During the three days of the conference, Victoria experienced extremely cold weather, and a strike by power workers which caused electricity rationing and blackouts. As a parting shot, at the conclusion of the Conference, Textile Physics delegates were faced with an aircraft refuellers strike that threatened to strand them in Melbourne! Nevertheless, there was a consensus that this conference had been one of the best ever.

Bill van Aken, Justin Murphy and Maurie Woodward of LRM's Communications Group need little or no reminding that Audio Visual in its many and varied forms is highly regarded as a flexible, relatively inexpensive and efficient medium for setting the scene on research projects, or so they hope!

For now they have an opportunity to put their theories and style to an international test, the results of which will be known at the end of a Conference marking the end of ten years of MAB, UNESCO's Man and the Biosphere program. The international conference and exhibit will be held in Paris from 22-29 September, 1981, under the general theme "Ecology in Practice".

THE EXHIBIT

The exhibit will present results acquired within MAB during the last ten years. It will draw on different communications media including graphics, audio visual, competition and games, etc., and 100 copies of the exhibit will be produced for world distribution to countries where MAB is working. It will also be used to demonstrate MAB's activities to potential customers.

UNESCO, through MAB, approached the Group in January 1981 to make a documentary that could be incorporated into the exhibit as well as setting the scene for one of MAB's international projects, IPAL—The Integrated Project on Arid Lands. This project was established by UNESCO with financial support from UNEP in 1976 with the aim of finding direct solutions to the most urgent environmental problems associated with desert encroachment—desertification—and ecological degradation of arid land.

OBJECTIVES

IPAL's objectives, very simply, are to:

- Describe the processes of desert encroachment and the ecological degradation of arid lands.
- Predict their consequences.
- Design and implement management guidelines.
- Educate the people of the region and train scientists in this field.

Field work is taking place in the arid zone of Northern Kenya in a working area of 22,500 km^2. The site is large enough to be representative, covers the major biotic communities and the processes leading to desertification can be observed and studied at first hand.

INTEGRATED APPROACH

IPAL uses an integrated approach: interdisciplinary teams are used to study the complex inter-relationships of the whole ecological system—people, livestock and the environment. The blending of specialists for research on, and the management of ecosystems, is the main principle behind the UNESCO Man and the Biosphere (MAB) program and consequently that of IPAL.

THE DOCUMENTARY

The inter-disciplinary team approach was our working procedure also. We collected as much background material here in Australia as we could; colleagues also provided reading matter that they came across and of course UNESCO provided other relevant publications, etc. When we arrived in Nairobi we had a reasonable background to the project.

The first five days were spent on discussions with the Project Leader and the various ecologists—and a film shooting script evolved. The next ten days were in the field. We travelled mainly by light aircraft, landing at the field stations, being met by the field technicians and transported by land rover to the areas of interest. One hundred and twenty rolls of 36 exposures passed through the 'Leica' without any problems, lenses were changed nearly as often!, and film roll descriptions taken.

The last six days were spent producing as near to final a script as possible, and collecting all the background and details for the graphics. We found our hosts had an infectious enthusiasm for their project and work and just an equal amount for the necessary substances that are required to keep a team performing at full pace.

The documentary will use 180 slides, two full Kodak magazines and be shown through Kodak's latest A.V. dual projector presentation unit. The screening will take 20 minutes—that's long compared to all other documentaries we have made, but as pointed out, it is a complex research program covering human, rangeland, woodland and livestock ecology. All of these needed to be treated fully, along with the education, training and communication aspects.

The opportunity to create the documentary was highly appreciated by the CSIRO team, for it provides recognition of our efforts in producing mediums for better science communication. We look forward to the reactions of the UNESCO audiences. Science communication is still finding its place in CSIRO and in Australia, and we are proud to be able to bring CSIRO communication practice into the international arena.—Maurie Woodward

Service ends

The Chief of the Division of Building Research, Dr Lex Blakey, has closed down the Division's Technical Enquiry Service, resulting in a cancellation of the morning telephone service for consumers.

In a message to staff, Dr Blakey said in future staff would answer incoming consumer enquiries which came by letter, and some personal visits by consumers would continue to be handled by research staff.

'CoResearch' is produced by the Science Communication Unit for CSIRO staff. It is also circulated to some people outside the Organization who have a professional interest in CSIRO activities. Members are invited to contribute or send suggestions for articles. The deadline for material is normally the 8th day of the month of publication. Material and queries should be sent to the Editor, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editor: Jeannie Ferris.

CoResearch

CSIRO's staff newspaper *October 1981* **245**

Radioheliograph to be 'mothballed' in 1984

CSIRO's Executive has agreed that the Organization's radioheliograph at Culgoora in northern N.S.W. should be closed in 1984.

This follows consideration at its 8th October meeting in Geelong of a recommendation by the Chief of the Division of Radiophysics, Dr Bob Frater.

The only event (barring an unexpected influx of funds) which will delay the radioheliograph's closure, the Executive decided, will be the reactivation of the Solar Maximum Mission satellite.

This instrument, launched in February 1980 by the U.S. and designed to transmit information back to Earth about the Sun, is currently out of commission.

SHUTTLE REPAIRS

U.S. scientists are considering the feasibility of sending technicians into orbit in the space shuttle to repair it. It is believed a decision on this matter will be made by the end of the year.

However, even if the space-repair mission is successful, the radioheliograph's operations might only continue until mid 1985—a six month "reprieve" on the foreshadowed closure date.

OPTICAL OBSERVATORY, RADIO SPECTROGRAPH TO STAY OPEN

(The satellite and the radioheliograph provide complementary information about the Sun. As well, U.S. scientists using data provided by the radioheliograph are able to more effectively point some of the satellite's instruments.)

The Executive also decided that when it is closed, the radioheliograph will be "mothballed" to permit its recommissioning should the need arise.

The 8th October Executive decision also allows for the continued operation at Culgoora of the optical solar observatory, run by the Division of Applied Physics, and the radio spectrograph operated by the Division of Radiophysics.

In June, Dr Frater alerted Narrabri staff that he would be recommending to the Executive that the radioheliograph should close down at the end of 1984, unless some alternative funding source was discovered.

Continued on page 8

Deniliquin centre faces closure

CSIRO is considering closing down the rangelands research program at Deniliquin.

This follows an independent review of the Division commissioned by the Executive, which among other things recommended that the arid zone work be relocated.

Chief of the Division of Land Resources Management, Mr Ray Perry, told a meeting of 50 Deniliquin staff that he intended to recommend the closure to the CSIRO Executive.

"The recommendation would be for the closure of research programs over a three-year period," Mr Perry said.

An Executive decision, based on Mr Perry's recommendations, would affect the Falkiner Memorial Field Station at Conargo and the Charlotte Street offices in Deniliquin.

However, Mr Perry explained that he hoped alternative uses for the facilities would be found. The Executive would certainly be considering that possibility.

"CSIRO, along with other Government-funded organizations, is going through a period of both staff and financial stringencies," Mr Perry said.

"As a result, I have been faced with the difficult decision of consolidating the research activities of the Division.

"The choice lies between allowing the quality of research in several areas, including Deniliquin, to suffer through lack of financial and staff support, or to take a decision now which will consolidate research work for the future.

"On that basis, CSIRO could close the Deniliquin research programs and concentrate rangelands research at the Central Australian Laboratory at Alice Springs.

"The Alice Springs area offers a more appropriate scientific setting for the research that is now being undertaken."

Mr Perry said that if the Deniliquin programs were closed, staff members would be offered alternative positions at other CSIRO laboratories and research stations, including Alice Springs and Perth (W.A.)

"Although a decision to close would obviously pose problems for many of the staff—a three year staged closure period should enable them to decide on alternative positions," he said.

Government policy is questioned

The Chairman of CSIRO, Dr J. Paul Wild, has questioned the Federal Government's across-the-board cuts in funding for scientific research.

In an address to the National Science Forum in Canberra on September 24, Dr Wild said he accepted that it was the prerogative of democratically elected Government to determine the level of resources it devoted to scientific and technological research.

"It is my job first to make the Government aware of the needs of its principal research organization, and then to get on with the job of making the best possible use of whatever resources we are given," he said.

A full text of the Chairman's address and selected questions are on page 6.

Chairman's Column has been replaced for this issue by his address to the National Science Forum.

Harry has a place in the sun

The retiring Chief of the Division of Radiophysics, Dr Harry Minnett, left, with the new Chief, Dr Bob Frater. Dr Minnett is holding a model of the Parkes radiotelescope, made by technical staff at the Division as a farewell gift. Dr Minnett and the retiring Chief of the Division of Atmospheric Physics, Dr Jack Warner, were farewelled at a barbeque held at the Division in September. (report page 3).

Letters to the Editor

Dear Editor,

Without having contact with the "noisy minority" to whom our Chairman referred in August CoResearch, I still do not share his seeming pride in claiming that "we do not perform in public". Granted that for once CSIRO has achieved something better than total failure in this budget—hardly resounding success—backroom advocacy has not brought the support to R and D which most scientists consider to be needed here.

As I see it, every year the Executive must refight the same secret battle over funds with much the same repeated arguments (and counter-arguments if any are given). Is there nothing better to do but seek, like Alice in Wonderland (or is it Blunderland where *they* have to operate?), to run ever faster in order to stay in the same place—if lucky?

The process is exhausting, demoralising, counter-productive and has not been able to win acceptance of what most of us would consider proper priorities for scientific and technological R and D in Australia.

Sidestepping argument as to the *need* for drastic expenditure cuts, one can still question whether slashing "across the board" is any more than an authoritarian reaction, *evading* responsibility.

Surely a responsible government would perceive some priorities at any particular time, publicise them and act accordingly. Of course such perceptions depend on advice to the government, often conflicting and competing. However, finally the public have a chance to support or reject the government's choices.

That public endorsement will be only as sound as the information on which it is based. Governments rarely, if ever, confide to the public or reporters the conflicting facts and opinions submitted to them but tend to put, unopposed, the arguments which prop up their policies. Characteristically, Australia's media do not publicise facts and opinions contrary to Conservative political policies. Most people gain little sense that choices are made by governments on their behalf and less awareness of the discarded options. So where can interested citizens learn of the contributions which R and D might make to the true welfare of this country if those with freedom and knowledge to speak decline to do so publicly?

Up to now, no tenable strategy has been put forward to alleviate Australia's economic problems. As a consequence it is possible that a properly promoted pro-R and D submission could attract much public support looking for a rational focus. With such public backing, governments could more confidently increase funding for R and D, create opportunities for industry to diversify and lessen its dependence on the advances which overseas interests deign to share with us.

Dare one hope also that scientists might cease to be projected as purveyors of gadgetry and be credited with a small measure of social awareness and responsibility?

Yours faithfully,
"Disillusioned"

O O

Dear Editor,

In CoResearch 243/244, CSIRO estimates for 1980/81 were broken down into salaries and operating funds for the various institutes and for headquarters. If one divides operating funds by salaries, a wide range of ratios is revealed. The ratios vary from 0.64 for the Bureau of Scientific Services down to 0.31 for the Institutes of Industrial Technology.

Why does the Institute of Industrial Technology appear to be so hard done by for operating funds, or does it show excellence in its efficient use of funds, or is its staff not as active as those in other Institutes? Perhaps, we are just not interested in Industrial Technology in Australia.

If one examines figures for previous years in the CSIRO Annual Report 1979/80, one finds that the salaries component for Headquarters, advisory council, state committees and RAOs has risen over 2 years from $ million 6.97 to $ million 9.52—a rise of 36.5%. About two-thirds of this would be gobbled up by wage adjustments and promotions, but does the remaining 12% increase indicate an increase in headquarters staff numbers? Is this the price of our restructured CSIRO? Unfortunately, it is not possible from the Annual Report to examine previous levels of operating and salary components for each Institute.

Answers to these questions from our budget formulations would be much appreciated. Ratios of technical and support staff to research staff in Institutes and Divisions would also make revealing reading, but perhaps that would be too much to ask!

Martin Playne, Division of Chemical Technology, Melbourne.

O O

Dear Editor,

Through CoResearch the Telephone Working Party would like to thank all the Switchboard Operators and Divisional Administrative Officers who took so much trouble to answer our questionnaires about telephone operations. Most Divisions responded enthusiastically and have given us a lot of comments and suggestions upon which we now have to ponder. Thank you all for your cooperation.

You won't hear from us for a while as we have to—

- sift, analyse and interpret the information we have;
- go into our second phase, which is finding out what new systems and procedures are available in Australia.

However, if any changes or new experiences occur in your Division's telephone system, we'd still be pleased to hear from you.

Jennifer North
Convenor
Telephone Working Party.

O O

Dear Editor,

It is unfortunate that CoResearch has chosen to revive the hoary old chestnuts of "Awards to Science Writers" and "Logos for CSIRO".

At first glance, especially to new members of staff, both suggestions have merit but do they really? Why do Science Writers need greater recognition for their labours than all other members of CSIRO? Is their promotion rate slow or is there some other urge to be recognized? It is not too difficult to imagine that those writers who are spreading the "Good Word" of Science in general and CSIRO in particular could become better known to the public than the scientists who did the original work. Robyn Williams and David Ellyard from the ABC are two science presenters who immediately spring to mind.

With regard to the Logo, readers might wish to reread my fulminations in CoResearch 215 and the colourful suggestion of Neil Thomas in issue 211. One interpretation of the latest proposal is that CSIRO has the shakes. Maybe it has after the recent close shave with the "Razor Gang" but why let the rest of the world know?

In CoResearch 243, the Chairman was exhorting recent graduates to "ensure that science has a positive future in this country..."

Surely there must be better ways than Awards and Logos.

Mike Jones, Port Melbourne.

O O

Dear Editor,

The first thing I asked myself when I saw Brian Gosnell's logo in CoResearch was "What does it mean?" I quickly concluded that it meant CSIRO pounding Science for Australia into submission between its very substantial parts—hardly the picture of finesse and sophistication we ought to be conveying.

I can think of nothing better that the old, free-floating 'CSIRO'. For me this was a no-go logo.

Lyn Thompson, Canberra

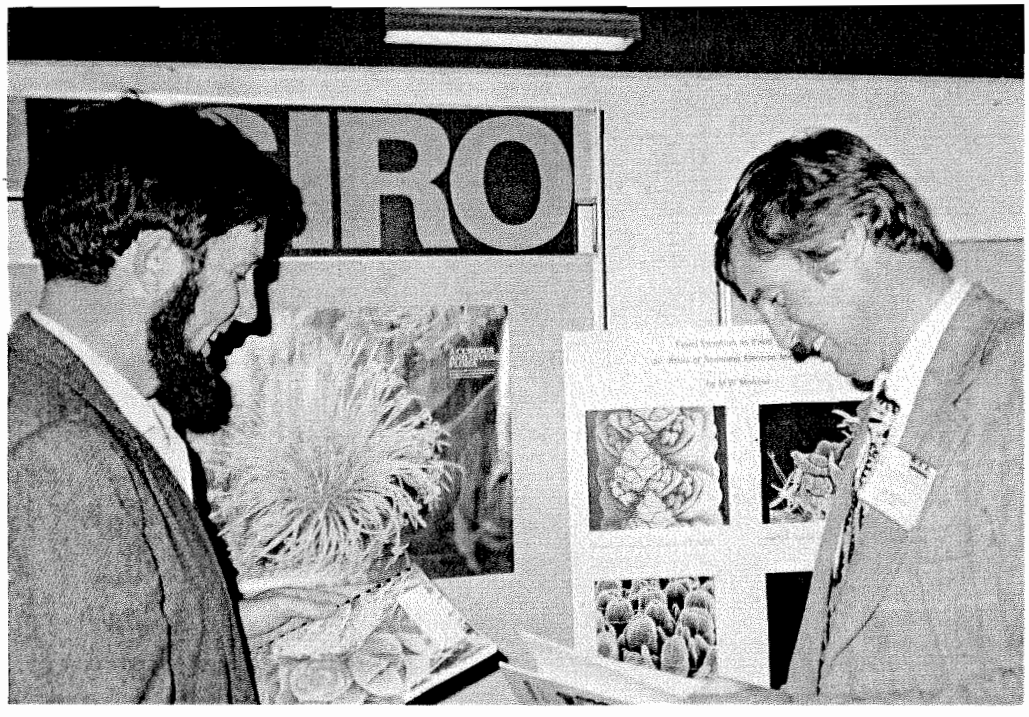
O O

Dear Editor,

I have always thought that the phrase 'Science for Australia' tended toward creeping to the masses for the sake of PR. Some of the said masses, outsiders, to whom I have spoken, have agreed. Why not an honest, sturdy 'Australian Science'? The new logo is good but is it small enough to fit on a small oval sticker on my kid's bike?

Mel Henderson
Division of Forest Research, Canberra.

CSIRO stand at Sydney Congress



Two interested visitors at the CSIRO's publications stand at the recent International Botanical Conference in Sydney are Dr J. Angus of the Division of Land Use Research, eft, and Dr J. Peacock of the International Crops Research Institute for the Semi-arid Tropics at Hyderabad, India. The pair are looking at a new book by M. W. Moncur of the Division of Land Use Research entitled 'Floral Initiation in Field Crops: An Atlas of Scanning Electron Micrographs.' Some of the photographs in the book are on the display board behind Dr Peacock.

Chiefs meet Executive in Canberra

A meeting of Chiefs, the Executive and the Institute Directors was held in Canberra on 8th and 9th September 1981.

During formal discussions on the first day the Chairman Dr J. Paul Wild, explained the Organization's budget strategy for 1981/82 and outlined the consequences of the various Divisional Reviews completed during the year. He also proposed a structure for reviews in the Organization consistent with the Executive policy of systematically transferring resources from low to high priority areas of research.

General discussion led by Chiefs then centered on administration, reviews, organizational staff policy and career expectations in CSIRO.

Following a meeting of Chiefs alone on the following day, there was further discussion with the Executive on these subjects, together with a general discussion on the problem of setting research priorities for the Organization in the presence of substantial and often conflicting external influences.

At the conclusion of the meeting it was generally agreed that a meeting of this type is necessary, and Dr W. J. Peacock agreed to coordinate arrangements for 1982.

Sydney barbecue to farewell two long–serving Chiefs

A barbecue luncheon was held in the courtyard at the Division of Radiophysics, Epping, on 3 September 1981 to farewell Harry Minnett and Jack Warner, the retiring Chiefs of Radiophysics and Cloud Physics.

Harry Minnett and Jack Warner graduated together equal first in engineering at Sydney University in 1940. They joined the nucleus of the CSIR Radiophysics Laboratory (as it was then) in April 1940 and both retired on 26 June 1981.

The Chairman, Dr Paul Wild, the Director of the Institute of Physical Sciences (Dr John Philip) and six other Chiefs of the Institute were present, together with three other Sydney Chiefs.

Among the guests were representatives from Amalgamated Wireless (Aust.), Interscan Australia Pty Ltd, Sydney Observatory, Mitsubishi (Aust), Krupp Australia Ltd, Macdonald Wagner and Priddle (Sydney engineering consultants), Anglo-Australian Observatory, Jet Propulsion Laboratory, Department of Transport, Department of Science and Technology, University of Sydney, University of New South Wales.

Professor F. J. Kerr, Professor of Astronomy at the University of Maryland and a member of Radiophysics during World War II was also present.

The Chief of Radiophysics, Dr Bob Frater, acted as Master of Ceremonies and Dr Wild made presentations to the retiring Chiefs. These included a model of the Parkes 64 m radio telescope for Harry Minnett and a model of the DC3 aircraft, used for many years for cloud physics research, to Jack Warner. Both models were made by members of Radiophysics workshop. Both ex-Chiefs were also presented with albums of photographs illustrating their research projects over the years.

At the conclusion of Dr Wild's address, Douglas Mudgway, Australian representative of the Jet Propulsion Laboratory, Pasadena, presented Harry Minnett with two plaques illustrating the 1980 Voyager encounter with Saturn.

In reply, Dr Minnett said that he felt like "one of the last of the Mohicans". He recalled that the Radiophysics Laboratory, as it was called then, was set up in 1939 to carry out secret research on radar; and that there were three founding members present at the barbecue who predated Jack Warner and himself by about six months, namely: V.D. Burgmann, L. U. Hibbard and J. H. Piddington.

The Laboratory was then housed in an extension of the National Standards Laboratory in the grounds of Sydney University. Although separated by a security barrier, the RP and NSL staff formed strong social and professional bonds during the war, which still existed. Harry Minnett paid tribute to the great contribution which NML staff, Maurice Puttock, Len Loughry and Fred Lehany, had made in helping Don Yabsley and himself to extend the short-wave limits of the Parkes radio telescope. About eight members of the NML staff were present at the barbecue.

Harry Minnett singled out three people who had made tremendous contributions to the Division: Joe Pawsey, the "father" of Australian radio astronomy; Taffy Bowen without whom the Parkes radio telescope would not have existed and which served as a model for the antennas of the NASA/JPL Deep Space Network; he also did much to ensure that the Anglo-Australian Telescope became probably the finest optical telescope in the world; and Paul Wild, who created the Interscan concept.

He felt sure that the Radiophysics Division would continue to make great contributions in the future as in the past to radio science in spite of the decreasing resources, under the leadership of the new Chief, Dr Bob Frater.

Guidelines on CSIRO's annual reports

The Director of the Bureau of Scientific Services, Mr Sam Lattimore, has clarified the Executive's existing policy guidelines relating to the purpose, preparation and distribution of CSIRO's Annual Report and the Institute/Bureau and Divisional Annual Reports.

The guidelines are published here following a request from CSIRO's Communications Advisory Team earlier this year.

Annual Report

The Organization is obliged to report to Parliament each year and this requirement is outlined in Section 57 of the Science and Industry Research Act. The CSIRO Annual Report is basically an accounting/policy document to Parliament. Since Birch, its main aim is stated to be the provision to Parliament of a statement of CSIRO policies and how they have developed during the year.

The content of the Report is determined by the Executive, after discussion with the Office of the Executive and the Bureau. The responsibility for preparing the content is then given to the most appropriate person—generally a member of one of the three Headquarters Secretariats, but possibly a member of the Bureau. The Bureau looks after the general editing, design, printing and distribution.

In addition to policy material, this year's Report will carry four research articles designed to describe important areas of work being carried out by CSIRO. Because of the inclusion of these articles and material about the structure of CSIRO and the distribution of research effort, the Executive believes that the 1980/81 Report will be of interest to a range of bodies, as well as to Parliament. Some 8000 copies will be distributed within Australia and overseas to organizations such as universities, government agencies, major libraries, and selected companies.

Institute/Bureau Reports

The production of these reports arose out of the implementation of the Government decisions on the Independent Inquiry into CSIRO (the Birch Inquiry).

The practice has been for each Institute Director to appoint a report compiler, who has the job of assembling material for his Institute's report. A planning meeting of compilers is held so that the completed reports will be seen as belonging to one 'family'. The Bureau supervises the provision of typesetting and design services for the reports and arranges the printing of them.

Distribution of the reports and the size of the print run is the responsibility of each Institute, except for a core distribution of 1800 copies handled by the Bureau. The latter caters for a Parliamentary and CSIRO distribution and also for selected government departments, universities and major public libraries.

The Bureau Report, which is compiled by the Science Communication Unit, is included in the core mailing. In addition, about 1600 copies of the 1979/80 report were sent to private firms with a covering letter. Many of these firms asked to be put on the mailing list for this year's report.

Divisional Reports

The present policy, again arising from Birch, is that Divisions should continue to produce annual reports. These are mainly aimed at other research people in Australia and overseas, but they also have secondary audiences. The prerogative for producing Divisional reports rests with the Chief and, as you know, some Divisions produce formal reports only once every two or even three years.

Knitting for charity

Lady Elizabeth White, centre, with two of the members of the International Knitting Group, Lady Jessie Crawford, left, and Miss Eileen Nicholson.

Almost 20 years ago, a group of young Canberra women began knitting garments for charity using wool donated by the social club at CSIRO's Division of Textile Industry in Geelong.

Originally the garments were sent to refugee children in Eastern Europe through the Save the Children Fund, and among the knitters were wives of diplomatic missions in Canberra.

Over the years, as requirements and members changed, there remained a link with the Division of Textile Industry and the last consignment of wool raised to one tonne, the amount knitted by the women who form the International Women's Knitting Group.

Liaison between the group and the Division for many years has been through Lady White, wife of CSIRO's former Chairman, Sir Frederick White.

At her home in Canberra, Lady White recalled the early days when one of the first consignments contained a large quantity of pale blue two-ply wool left over from one of the Division's experimental programs.

"We knitted great quantities of babies' clothes on small size needles," she recalled.

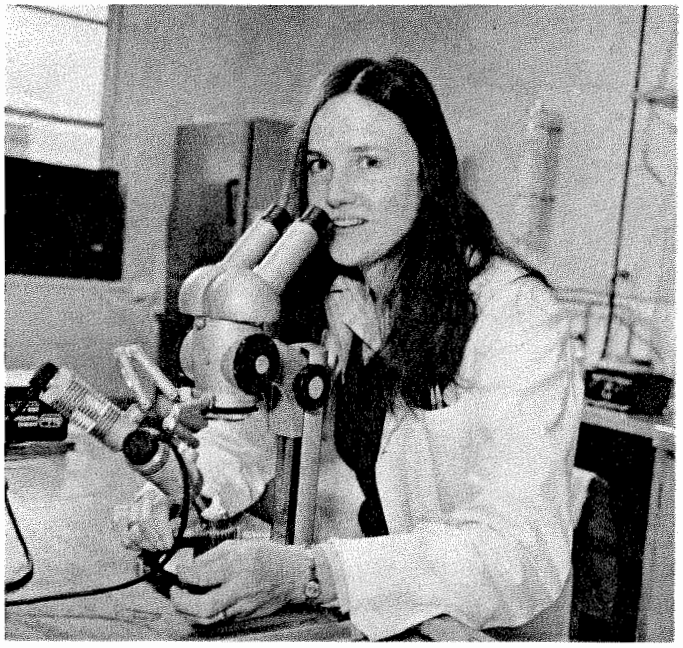
More recently, the group has knitted more than a dozen knee rugs for elderly residents at a convalescent home near Canberra.

The group has no committee, secretary or president, and meets on an informal basis each month with members bringing along whatever garments they have completed.

A spokesman for the Division said the social club purchased the wool at full book value when it was available on completion of experimental programs.

245-1981

Research award



Dr Margaret Sedgley of the Division of Horticulture Research.

Dr Margaret Sedgley, Division of Horticultural Research, was awarded the 1981 P.L. Goldacre Medal by the Australian Society of Plant Physiologists, at the recent International Botanical Congress in Sydney.

The medal is for original research by a scientist under 35, and was awarded to Dr Sedgley for her work on avocado and watermelon flower physiology and early fruit development.

The work forms part of the Division's plant improvement research and has involved detailed study of the morphology, ultrastructure and physiology of avocado flowers including examination of the pollen-stigma interaction as it relates to pollination and fruit production.

A controlled hybridisation program for avocados has been established by the Division based on the results of this research. The aim is to develop new high yielding varieties to extend the fruiting season beyond that now possible and with increased tolerance to cold temperatures and high levels of salinity.

Watermelons have been used by Dr Sedgley as a comparative crop. They have large, easily studied flowers and enable the development of techniques for later use with perennial species, which are often more difficult to study. The work is now being extended to include examination of the floral biology of other perennials such as mango, macadamia nut and quandong (*Santalum acuminatum*), with the eventual aim of developing varieties of these species that are better suited to horticultural production in Australia than existing varieties or types.

Those with long memories will remember that last November, two pairs of shoes, size six, were despatched to Tanzania at the request of the Librarian of the Forest Division of the Silvicultural Research Station in Lushoto. A letter recently received by **Elvie Anderson** of CILES, reports that Gideon received the shoes—seven months after posting in Australia.

□□

Dr Stephen Szirmai of the Division of Fossil Fuels in Sydney has received his PhD in physics from the University of Sydney. He has also been elected as an honorary visiting research fellow by the University Council.

A new face on the scene at Land Resources Management in Perth, is **Haris Surachman**, who is from the project for Animal Research and Development in Indonesia. Haris will spend six months at Floreat Park to gain site engineering experience. The Indonesian project, for which **Mike Black** has worked and **Barrie Purser** is working, is gradually moving towards complete Indonesian staffing and control, and Haris will eventually become one of the two site engineers at the Ciawi research centre, with a staff of about 45 people working for him.

□□

Settling back into Australia is **Dr Don Cameron**, who recently returned from South America where he spent 12 months, mostly in Brazil, as part of a scientific exchange system. Don was engaged on a study of a fungal disease on tropical pasture legumes, and as part of his research, undertook a number of field trips with scientists from the Cerrado Research Centre in Brazilia, during which he collected about 500 pasture plants for testing under Australian conditions.

A series of radio interviews with German research workers now living in Australia is being prepared by a NSW-based free-lance journalist, **Frank Walker**. The interviews, in English, will be broadcast from West Germany on the Asian network and later translated for other networks.

CSIRO staff members with a German background who are interested in taking part in a program could contact the Media Liaison Group on Canberra (062) 48 4484.

□□

Mr Bruce Butler, who retired from CSIRO in 1976 after 39 years' service in the Division of Soils, has been awarded the Prescott Medal of Soil Science from the Australian Society of Soil Science, in recognition of his new approach to soil study.

□□

Dr John Winder of the Division of Entomology's biological control unit in Curitiba, Brazil, has resigned to join a private company in Brazil. John was with the Division for eight years and during that time, made major contributions to the Division's biological control of weeds program.

□□

Visiting the Division of Applied Organic Chemistry in Melbourne is **Yves Tricot**, from the Federal Institute of Technology, Lausanne, Switzerland. Yves is working for one year with Wolf Sasse and is under sponsorship with a grant from Switzerland.

Bill White, the cartographer from Land Use Research who last year published an illustrated map of Australia, has had requests for copies from all over the world. Norway, Sweden, Germany, France, Monaco, Italy, 12 States of America and three Canadian States, now have copies of the map. Bill still has some copies left, and has recently completed a portfolio of hand finished prints of four species of penguin found on Macquarie Island. Although he hasn't been to the island, Bill was greatly assisted by photographs taken by **Andy Gillison** and **Ernst Loffler**, researchers who have made several visits to the island. Bill has a limited number of the signed portfolios available at $25 for the set plus mailing costs.

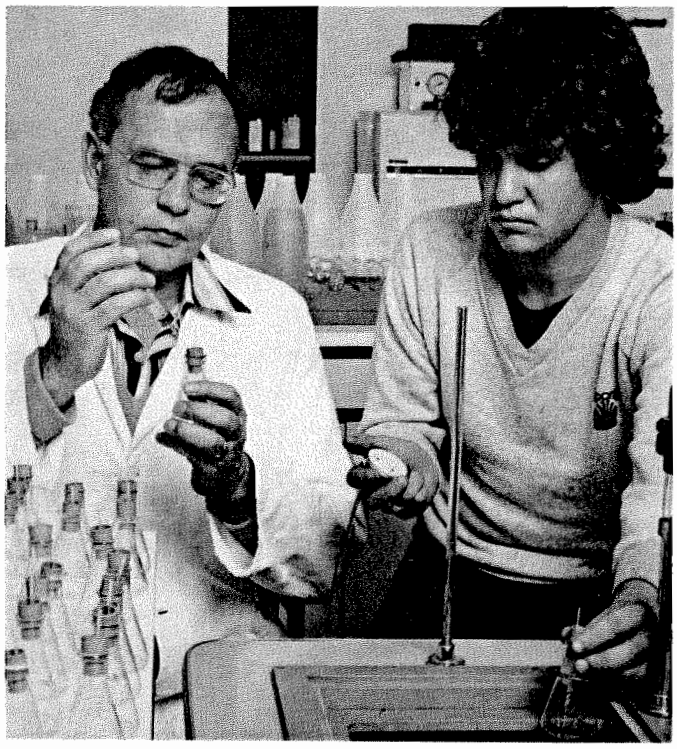
□□

Professor Peter Howard, from the School of Earth Sciences at Macquarie University, Sydney, is spending the latter half of this year with the Division of Mineralogy at North Ryde. **Alan Horne** of the Division is working with him and contributes his expertise in X-ray diffraction.

Professor Howard is using this study leave to follow up some of his previous research on the geochemistry of phosphorites which are a valuable source of fertilizer.

Professor Howard is particularly interested in the character of the clays contained in the heavily weathered phosphorites of Northern Australia. He believes that the mineralogy of these clays will reflect the degree of leaching of both major and trace elements from phosphorites.

South African visitor at Irrigation Research



Professor Daan Toerien from Bloemfontein, South Africa, left, with Russell Lane, at the Division of Irrigation Research, Griffith. Professor Toerien is spending a six month sabbatical period at the Division, participating in research on the use of macrophytes in the treatment of waste water. He is Director of the Institute for Environmental Sciences of the University of the Orange Free State.

Dr Richard Schodde, a senior research scientist in the Division of Wildlife Research in Canberra, has been elected a Corresponding Fellow of the American Ornithologists Union for services to Australian ornithology. The Union is one of the most prestigeous and august ornithological bodies in the world and Corresponding Fellows are limited to 70 ornithologists chosen from around the world. Dr Schodde is understood to be only the third Australian to have been elected to the position—the other two are the former Chief of the Division, Dr Harry Frith, and Mr Ian Rowley, a senior principal research scientist with the Division's Helena Valley laboratory.

□□

Twenty-first birthdays can sometimes pass unnoticed. But in the case of **Margaret Jack's** recent 21st, the whole of the Division of Textile Industry were able to share the occasion.

Unknown to Margaret, her family had arranged for the delivery of a singing telegram during afternoon tea, and the birthday eulogy was delivered before 100 or so of her workmates.

□□

Former computer operator with the Division of Fisheries, **Madge Hennessey**, was recently stunned to find herself the star of an article concerning a New Zealand war veteran who was searching for "a beautiful blond Australian who stole his heart" 40 years ago in Perth.

Madge recognised herself in the Sydney newspaper article and has until next June to decide whether to arrange a reunion with **Arthur Ivory** who plans a visit to Australia.

Visiting the Division of Plant Industry's group working on the measurement of nitrogen fixation in the field is **Stewart Ledgard**, of the Ruakura Animal Research Institute in Hamilton, New Zealand. Stewart will spend three years working with **John Freney**.

□□

Dr Sarah Corbet has begun work as a visiting scientist with the Division of Entomology's program on the biological control of Patterson's Curse.

Dr Corbet is a lecturer in applied entomology at the University of Cambridge.

□□

A member of staff of CSIRO received a little more than was bargained for when she recently wrote to a Senator as part of a campaign against sales tax, using her personal note paper, but mailing it in a CSIRO envelope sent through the franking machine.

The Senator passed the letter to our Minister with a formal complaint about the use of official stationery, typing and franking facilities for this purpose.

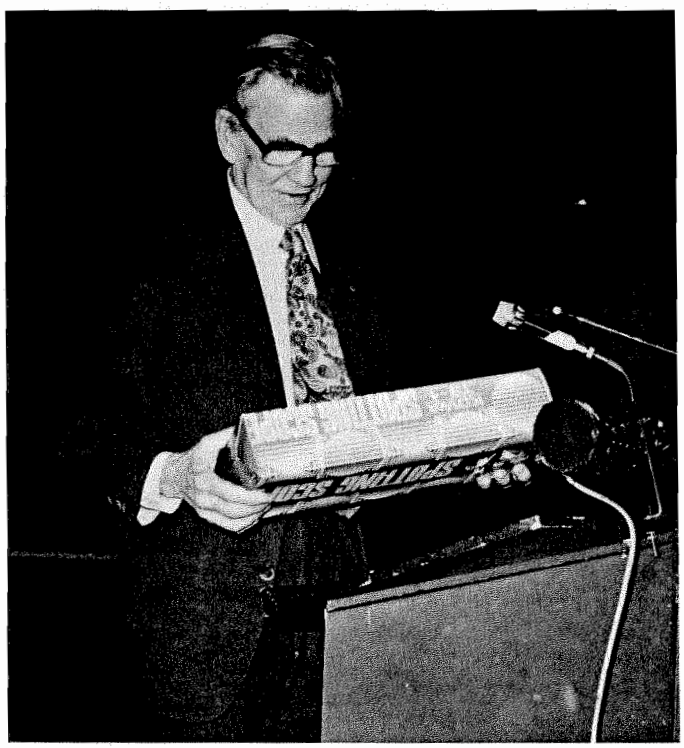
□□

Dr Don Marshall, formerly at Plant Industry, has been appointed Director of the University of Sydney's Wheat Research Institute at Narrabri, New South Wales.

□□

Professor Ken Atkins, head of the school of civil engineering at the South Australian Institute of Technology, is spending a few months with the Division of Building Research's structures section.

Chief's retirement



Dr Harry Frith with the spotting scope presented to him by colleagues at the Division of Wildlife Research. Dr Frith retired as Chief of the Division earlier this year due to ill health.

Urrbrae award to CSIRO scientist

Dr Ken Whiteley, a scientist in the Division of Textile Physics, Sydney, has been awarded the 1981 Urrbrae Award, in recognition of his outstanding contribution to Australian agriculture in the field of wool marketing.

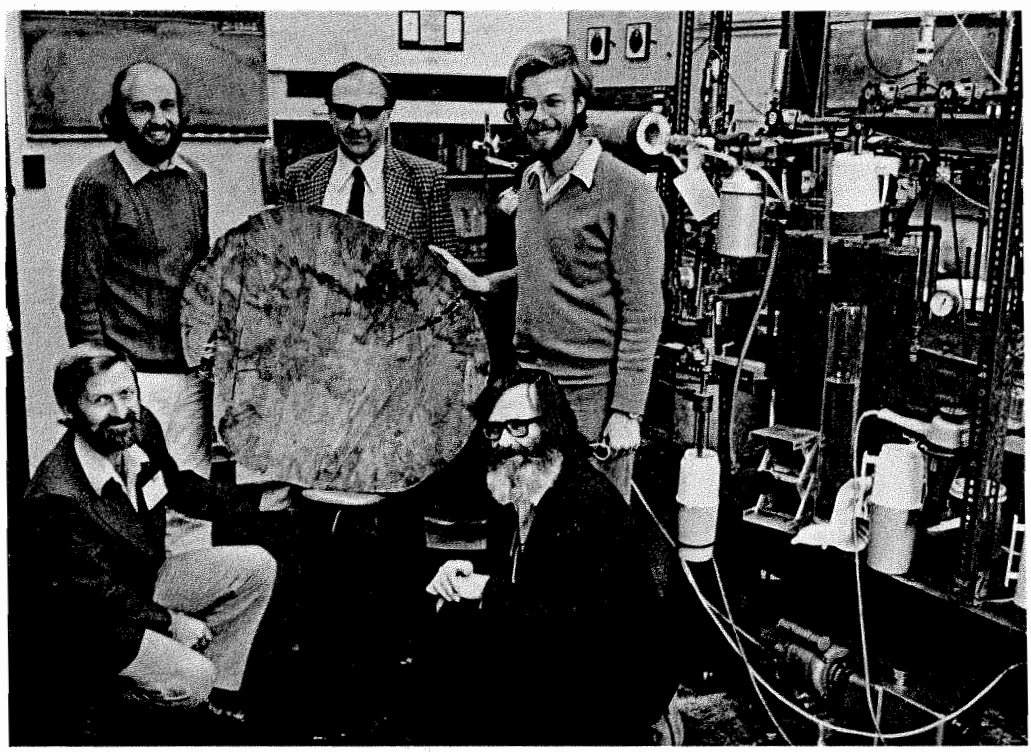
The Award, consisting of a gold medal and $1,000, is being presented to Dr Whiteley this month at a ceremony to be attended by the Governor of South Australia, Sir Keith Seaman.

The citation accompanying the award refers to Dr Whiteley's involvement with the Australian Objective Measurement Project, including his membership of the Policy and of the Technical Committees directing the project, during his period as an Associate Professor in the School of Wool and Pastoral Science at the University of New South Wales.

Dr Whiteley was the author of 19 of the 51 chapters in the Technical Report produced on the project. He spent a year on sabbatical leave with the Australian Wool Corporation, developing a program in Australia and overseas for the marketing of wool by specification.

Dr Whiteley joined the Division of Textile Physics in July 1980 and is continuing his research in wool marketing in the field of improved testing methods and instrumentation.

A slice of history



A slice from a Huon Pine trunk thought to be 7,500 years old, is examined by CSIRO researchers and scientists in the radiocarbon laboratory at the University of Sydney. The original tree grew beside the Stanley River in Tasmania, and researchers believe the tree-ring sequences will help unlock some of the secrets of the earth and sun in ancient times. The dating of the Huon Pine means that the trees have the second longest sequence yet discovered, following the Bristlecone pines of North America which extend back 8,000 years.

Pictured with the tree slice are standing, from left, Dr Mike Barbetti, Dr R. Temple and Dr S. McPhail all from Sydney University, and in the foreground, from left, Dr Roger Francey of CSIRO's Division of Atmospheric Physics, and Dr G. Dolezal, of the Division of Forest Research, Hobart.—University of Sydney photograph.

CSIRO's Chairman at the National Science Forum

The Chairman of CSIRO, Dr J. Paul Wild, addressed the National Science Forum in Canberra last month. His address, and a selection of the questions he faced, are published below.

Something of a revolution is taking place in CSIRO. CSIRO, which is Australia's major scientific research body, is markedly different in the 1980s from what it was in the 1970s and before. Part of this change is due to the change in our enabling legislation following the Birch Inquiry; part of it is a consequence of the Government policy of economic containment of public expenditure; and I believe part is due to the fact that CSIRO now has an Executive that is grasping the nettle of change.

LOOKING BACK

Perhaps through rose coloured spectacles the old CSIRO is now seen as a pretty gentlemanly affair in which the philosophy of laissez-faire prevailed; the scientist went about his task as of divine right, largely free and unhampered, basking in the reputation of numerous success stories that seemed to claim that the Organization was paying for itself several times over. Approaching a new problem area or entering a new field of science or technology was quite simple: the Executive of the day would open a new Division, find the best man available for its Chief, and let him get on with the job. This was the philosophy of CSIRO's father figure, Sir David Rivett, and a splendid philosophy it was—while the flow of new resources lasted. Things began to change in the 1970s when funds for new programs ceased to be forthcoming and, indeed, took a negative turn. The Executive of the day reacted by making across-the-board cuts, an appropriate reaction if the reductions had not persisted; but bit by bit, as the situation continued, Divisions sagged under the effect of the erosion of resources; and new initiatives were out of the question.

BIRCH INQUIRY

By this time we are dealing with an Organization of 7000 people—including 2000 scientists, of which some 1000 are PhD's—placed in about 40 Divisions, located in more than 1000 laboratories across the country, somehow co-ordinated by a full-time Executive of 5 who themselves were so swamped by routine trivia that they hardly had time to think. Following the Birch Inquiry, this situation was changed—and to be fair to the Executive of the day, they may well have implemented the change even earlier had it not been for the freeze on change necessitated by the Inquiry. And so we now have 5 Research Institutes plus a Bureau of Scientific Services and a clearly defined system of accountability. Each Chief of Division is responsible and accountable to his Institute Director for the performance of his Division; each Director is responsible and accountable to the Executive for the performance of his Institute; and the Executive (now consisting of 3 full-timers and 5 part-timers) is responsible and accountable through the Parliament to the nation—to our ultimate customer, the taxpayer—for the performance of the Organization. I believe the ship is now on an even keel as it ploughs through seas that are altogether more stormy and hostile in the 80's than they were in the 50's and the 60's.

NEW PHILOSOPHY

The new Executive has adopted a simple, but quite new, philosophy on how to handle the situation of dwindling resources. It took heed of a saying of Edmund Burke while reflecting on the French Revolution that "A state without the means of some change is without the means of its conservation".

In consequence, the Executive has largely abandoned the notion of across-the-board cuts. It has resolved that the quality of our research shall not suffer; so if the funds are less we must do less things, but everything we do must be done well. Our approach involves firstly consolidation of our research effort in areas where CSIRO has traditionally been involved and where important research remains to be done. Secondly, we have defined a number of high priority areas where a strengthening of the research effort is required.

The challenge then is how to expand these areas of research in a climate of dwindling resources. You do not need to have a knowledge of Gauss's Theorem to come to the conclusion that new things can only be started by stopping others. It is much easier to start something than to stop something, and that really is the nettle we have had to grasp. I shall return to this question in a moment.

MAIN PRIORITIES

There are three aspects of this matter of priorities I now want to touch on: How do we arrive at our high priority areas; what are our priority areas for the 80's and how do we implement our priorities in a climate of static or dwindling resources?

The process of defining high priority areas, and the important problems within each, is not an arbitrary one. As an organization we have an elaborate network of advisory channels. We have our own Advisory Council on which industry, the community and government are powerfully represented. We have 7 State Committees (including the Northern Territory). We obtain advice from a great many national committees and councils that represent individual industries. Then there are numerous Government initiated reports of inquiries, many of which have special advice for CSIRO. Then again of course the Executive obtains much advice from within its own Institutes and Divisions, particularly on research opportunities. Finally, we have our own Planning and Evaluation Advisory Unit whose initial task is the development of a data base to help us make the right strategic decisions.

Ultimately it is the Executive itself which must take the responsibility to blend the various inputs and set the course for the future.

Secondly—what are the high priorities that we have actually arrived at for the 80's?

ENERGY

Our energy research concentrates on conserving and developing liquid fuels and working on problems of special relevance to Australia (e.g. oil shale and deep coal mining). This whole matter has been so thoroughly aired that I need not comment on it further here.

MARINE SCIENCE

As an island continent with an extremely long coastline and the responsibility for managing the biological resources of the very large area of sea within the Australian Fishing Zone, and ultimately of all the resources within any future "Exclusive Economic Zone", Australia must have an adequate program of marine science.

We know surprisingly little about the whole science of the oceans around us—the actual dynamics of the oceans, how they interact with the atmosphere, the climate and the biological side of ocean life, including fisheries. Comparatively little research work has been undertaken in the extensive waters of the Southern Hemisphere. Australia is ideally situated to carry out this work and has the necessary expertise.

And so in 1980 the Executive identified marine science—particularly oceanography—as an area of high priority.

The Chairman of CSIRO, Dr J. Paul Wild, addresses the National Science Forum in Canberra.

To a great extent Australian manufacturing industry operates by importing foreign technology and foreign components. It manages to be profitable through the artificial means of tariff protection. We believe—and are supported by a number of Government-commissioned reports—that Australian industry must become more independent and innovative. Hence we have rated it as one of our highest priorities.

I should point out that we face two special difficulties:

1) Unlike primary industry, manufacturing industry is not organized to identify its strategic problems for future research. It is too fragmented and internally competitive to interface easily with CSIRO. We are campaigning to correct this.

2) Although the Government is time and again advised to step in and prime the pump for industrial research, there is an entrenched doctrine within the financial arms of the Australian bureaucracy that the user must always pay on the dot. There seems to be no awareness of the fact that if you can start a flourishing industry, the revenue from taxation will far outweigh the trivial cost of priming the pump.

BIOTECHNOLOGY

Recombinant DNA or genetic engineering is to the revolution now taking place in biotechnology what the microchip is to the computer revolution. It is an area of research with enormous and pervasive potential. Possibilities in this area over the next 10 to 20 years are almost limitless. While the genetic engineering industry has more potential than products at the moment, it promises advances that could radically change medicine, agriculture, and the food, chemical and mining industries.

WATER

The proper management of our water resources is emerging as one of the key elements in Australia's development. Pricing policies, constitutional matters and engineering and management practices are of prime importance in utilizing our scarce water resources in a way that satisfies the multiplicity of demands—agricultural, urban, industrial, mining and recreational. Scientific research will take on increasing importance in generating the information necessary for decision-makers to enable proper control of these resources.

At present we are engaged in an extensive examination of priorities for water research in CSIRO including the full range of catchment studies, agricultural including salinity and other problems associated with river water, especially the water of the River Murray, mining and industrial requirements and effects and water treatment and purification processes.

Now I come to the last of my questions: How does one implement the enhancement of research of high priority when resources are static or dwindling? This is a question of management. Let me illustrate the methods we adopt by telling you about some of the things we have done during the past year:—

REORGANIZATION

To provide a focus for our energy work we have re-organized our Institute structure: one of them is now the Institute of Energy and Earth Resources. We have closed down the Division of Mechanical Engineering and transferred the majority of its staff and resources to the new Institute in a new Division of Energy Technology. This Division will investigate and develop the technology necessary to ensure a balanced use of Australia's energy resources. We have accepted with enthusiasm the Government's decision to transfer a third of the staff of the AAEC to CSIRO, and the bulk of them now form a new Division of Energy Chemistry. Concentration in this Division will be on chemical research directed towards the development of energy resources particularly relevant to Australia, such as the extraction of oil from shale and the exploitation of deep coal reserves.

MARINE LABORATORIES

The former Division of Fisheries and Oceanography has been restructured as two Divisions which will form the CSIRO Marine Laboratories. It will be housed in a $25 million marine science complex to

Continued on page 7

CSIRO's Chairman at National Science Forum

From page 6

be established in Hobart. This includes the acquisition of a new oceanographic vessel.

The Government agreed to all these actions as part of a total package which has enabled us to maximize scientific opportunities by taking account of political realities.

MANUFACTURING INDUSTRY

Last year, to provide a focus for strategic research for manufacturing industry, we took part of the Division of Materials Science, found some extra resources here and there and formed the new Division of Manufacturing Technology.

Also, as part of the Division of Computing Research we have set up a research laboratory in Adelaide for the advanced design of very large-scale integrated (VLSI) systems of the future. This deals with the design and construction of circuits on silicon chips with the equivalent of 100,000 transistors in a single chip. They will be applicable to a whole range of products to be manufactured by the Australian electronics industry.

BIOTECHNOLOGY

Research in biotechnology takes place in several CSIRO Divisions. Recently we have formed a new one, the Industrial Microbiology Unit, to provide a focus in this area. This was made possible by transferring resources from another Division, Chemical Technology, which is itself being radically redirected.

Finally, water: well there is nothing yet to report on our new arrangements in this area because the whole question is under intensive review at the present time. But we do hope to provide a focus both for this research and the dissemination of research results.

I might mention two other new Divisions that were formed last month—as a result of reorganization rather than new resources. One is the Division of Tropical Animal Science, a Queensland-based Division to provide a focus for our tropical livestock research. The other is the Division of Cellulose Research to provide a focus for research not only on timber but all the products of the plant stem including pulp, chemicals and energy sources.

There is one other class of priority research I might mention in passing. Occasionally we get a particular request from the Government to do something specific. We are not compelled to comply but we naturally co-operate all we can. A recent example is our move to undertake a scientific evaluation of fighting bush fires by aerial bombing with water or chemicals. Some details of this project, called Aquarius, were announced by our Minister today.

POLITICAL PRESSURE

My final message to you contains a hint of propaganda. I accept that it is the prerogative of the democratically elected Government to determine the level of resources it devotes to scientific and technological research. It is my job first to make the Government aware of the needs of its principal research organization, and then to get on with the job of making the best possible use of whatever resources we are given. I believe that as the economy of the world becomes based increasingly on science and technology, Australia—with its affluence on the one hand and its very special problems on the other—should make quite sure it is investing sufficient of its resources in this area. And when the time comes at roughly annual intervals to apply the razor to the staff ceilings of the public service, I ask: is it really in the national interest for that razor to sweep right across the board, and cut down each time a resource dedicated to the country's future growth and vitality?

QUESTIONS

The following are edited questions and answers which followed Dr Wild's speech.

Question: You referred in your speech to some of the difficulties of getting research carried out for manufacturing technology. I would like to ask you how you see the long-term balance between carrying out research for manufacturing industry and instilling into manufacturing industry the ability to carry out research for itself?

Dr Wild: I believe we have to work across the whole front—the type of research which CSIRO is particularly responsible for is strategic research, long-term research which looks 10 years ahead. We try to avoid getting too much involved in the individual immediate problem-solving questions which industry is wanting us to get involved in.

We have to be involved in a certain amount of problem-solving research in order to establish a good interface with industry but at the same time I think we are continually trying to coax industry to take on its own particular problems itself. As far as possible we should get industry to do more and more of its own research.

Question: There is concern, particularly among some university people that they are going to be cut short of funds when money has to be found to meet the costs of administering the Animal Health Laboratory at Geelong. Do you have any assurances from the Government that this money will be found without their fears being realised?

Dr Wild: I think there is a complete confusion of issues between a national high security laboratory on the one hand and university funding on the other. As far as I am aware, the two issues are quote separate.

The funds that came for ANAHL to CSIRO, in particular the building funds, were quite additional to the funds which come to science in general.

In this last budget, the Government gave special provision for funds for operating and development costs for ANAHL. The one battle we have with Government —I shouldn't call it a battle, an unresolved question—is the question of staff ceilings. We need to increase our staff by some 200 over the next few years and we are actively engaged with the Government at the present time to ensure that they give us an extra 200 positions. We haven't got a definite answer yet. Any expenditure towards ANAHL will not affect university or CSIRO funding.

What's in an angel — CSIRO has the answer

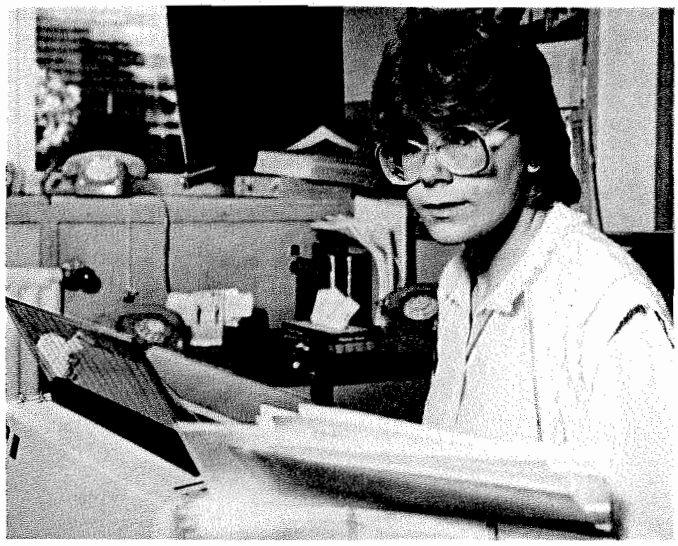
Have you ever wanted to know the chemical make up of an angel? Just ask the Division of Mineralogy in Sydney. It has come up with the surprising news that not all angels are the same.

A few months ago, Mr Tyrell asked the Division to compare the compositions of two angels. Two intrepid researchers, Alan Horne and Graham Taylor, volunteered for the journey through the Pearly Gates.

They sampled two angels and—lo and behold—one was vastly superior to the other. In fact, the luckless second angel would have slowly vanished before your eyes had it ventured down to the earthly climate for a few years.

That is just what Mr Tyrell wanted to find out. He needs angels that can stand up to the rigours of our weather—he's a monumental stonemason next door to the Division's laboratories in Sydney!

Typewriting winner



Susan Allen, of the Division of Protein Chemistry in Melbourne, who recently achieved the highest standard of typewriting in the State of Victoria. Susan last year completed a two year course at the Royal Melbourne Institute of Technology, and was recently presented with her Certificate of Business Studies - Secretarial. Susan achieved the highest standard of typewriting in her course and received a cheque from the Australian Institute of Private Secretaries.

Two other girls who completed the course with Susan, also joined CSIRO—Christine Crisp, with CILES, Melbourne, and Robyn Campbell, Division of Animal Health, Melbourne, Melbourne.

OPEN DAYS

at

CSIRO Division of Radiophysics

Cnr Vimiera and Pembroke Roads,
Epping, N.S.W. 2121

SATURDAY 28 NOVEMBER 1981
1.00 pm — 5.00 pm

SUNDAY 29 NOVEMBER 1981
11.00 am — 5.00 pm

This year marks the 20th anniversary of the Parkes 64-m radio telescope. Displays detailing the achievements of the telescope over this time will be a highlight of the Open Day. Approximately 30 displays and laboratories will be open for inspection. The diversity of activities within the Division will be presented under the theme

UTILIZING RADIO WAVES

Astronomical research in the Division includes theoretical astrophysics and observational astronomy of the Sun, planets, the Galaxy and extra-galactic objects. Unusual objects such as quasars, pulsars, neutron stars and black holes are being investigated. Applied projects also cover a wide range: the Interscan microwave landing system for aircraft; the use of radio waves for non-invasive measurements of cancerous tissue; the use of lasers in the frequency analysis of signals; and the signal analysis of the voice recordings of infants.

Further enquiries: Mrs McIntosh, telephone 868 0222
Parking is available on site or nearby

CSIRO in Victorian Medical Research Week display

The Division of Protein Chemistry was one of seventeen exhibitors at the Victorian Medical Research Week "Hall of Health" Exhibition held in the main foyer of the Bank of New South Wales, 360 Collins Street, Melbourne from 27 to 31 July.

The Division's display highlighted the central contribution that the amino acid sequence data had made to the recent advances in understanding, at the molecular level, the process of antigenic variation in influenza virus.

Dr Colin Ward, a research scientist in the Division, explained that their amino acid sequence data in combination with the recent gene sequence and X-ray crystlalographic studies in other laboratories, has revealed that antigenic variation in influenza virus coat proteins does not occur in a predictable or consistent fashion.

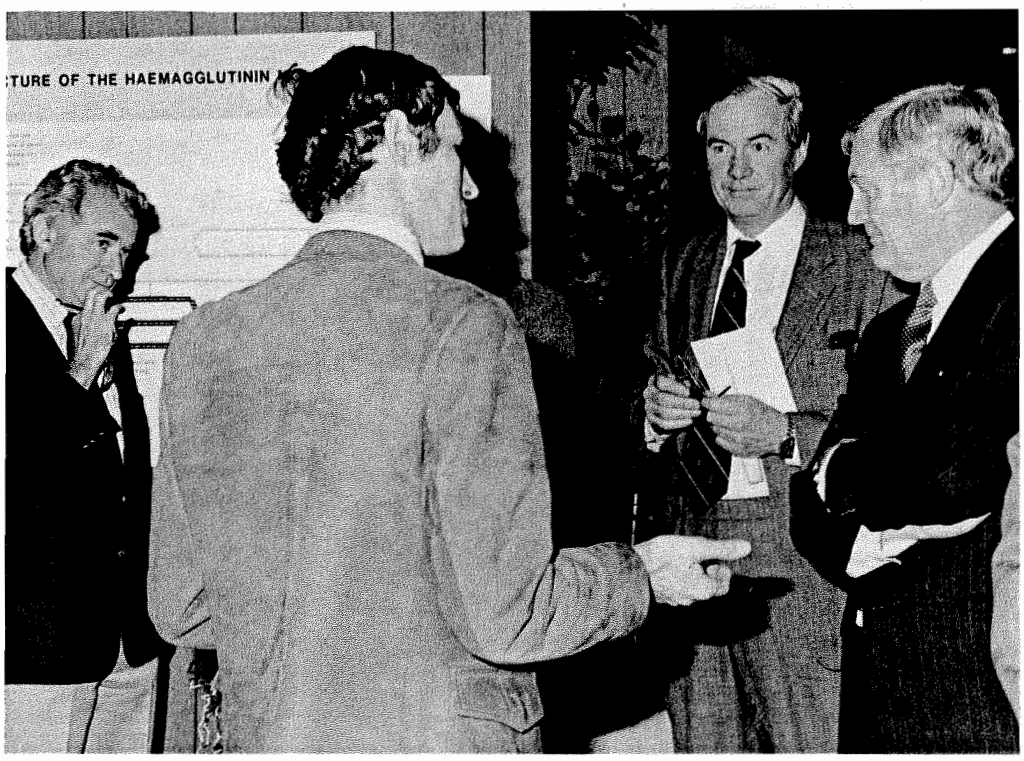
Antigenic variation within sub-types such as the Hong Kong family, involved the gradual accumulation of amino acid sequence changes at an increasing number of positions in the polypeptide chain. When the location of these amino acid sequence substitutions were characterized in terms of the three-dimensional structure of the protein (determined at Harvard University, USA) it can be seen that these substitutions were concentrated at four major regions on the surface of the protein.

These are the four regions against which the protective antibody molecules are produced. The comparative amino acid sequences indicate that each new Hong Kong strain of epidemic importance had at least one amino acid substitution at each of these four regions on the hemagglutinin protein.

The sequence data also show that the major antigenic changes associated with the transition to new sub-types e.g. Asian flu to Hong Kong flu in 1968 included the exchange of genetic information between avian and human influenza viruses.

Dr Ward pointed out that the work on influenza reflected the growing awareness that the solution of complex biological problems required the combined expertise from several different disciplines.

The rapid developments in understanding how influenza virus continues to cause repeated epidemics in man were the result of an integrated international research effort involving virologists, immunologists, protein chemists, molecular biologists and X-ray crystallographers from different research institutions in Australia, the U.S.A. and the United Kingdom.



Dr Colin Ward of the Division of Protein Chemistry explains the recent findings on the structural basis of antigenic variation in influenza virus, to the Victorian Deputy Premier and Minister for Health Mr Bill Borthwick, at the recent Victorian Medical Research Week Exhibition. From left, Dr Derek Denton, Director of the Howard Florey Institute; Dr Colin Ward, Dr Tom Hurley and Mr Borthwick.

Radioheliograph to be closed

From page 1

He had already decided to close the accommodation quarters at the facility, used by visiting solar astronomers, at the end of June next year.

NO ALTERNATIVE

In his address to staff and his recommendation to the Executive, Dr Frater stressed his reluctance to close the radioheliograph, but said he saw no alternative, given the cutback in funds available to the Division.

He had said: "What I am faced with now is the problem of having to consider the various programs in the Division and try to assess ways of making some more viable at a time when the general level of resources is being reduced..."

CAT

Dr Michael Dack, Secretary of the Communication Advisory Team, examines some of the reasons why CSIRO needs to communicate with various audiences.

Wouldn't it be a good idea for the Chairman to appear on the ABC's 'Nation wide' program once a month, or for CSIRO Divisions to hold open days for the public every couple of years? What about running more workshops for industry, more events for teachers and students, more services for the consumer? The mind can run riot devising new ways of communicating with people who have an interest in our operations. Like motherhood, everyone agrees that this type of communication is a 'good thing'. After all, doesn't the public have a right to know what we are doing; isn't research valueless until communicated to a potential user?

But these oft-used justifications at best contain only partial truths. At worst, they throw up a smokescreen to a deeper understanding of why CSIRO should divert part of its scarce resources to communication activities.

We should take advantage of the recent belt-tightening exercise in CSIRO to revert to square one and ask ourselves *why* we are carrying out our present communication programs. New activities should also be rigorously examined for degree of spin-off and for sympathy with the needs and priorities of CSIRO.

Take as an example the hypothetical appearance of the Chairman on 'Nationwide' mentioned earlier. Many would say that it is an excellent way of alerting sections of the community to CSIRO's policies and problems. However, a closer analysis would reveal other benefits and some drawbacks.

Firstly, Philip Adams talked of the 'human embodiment' of science during his address to the CSIRO Communication Symposium last year. Just as Ralph Nader has become identified with the consumer movement in the United States, he thought that science and scientific issues would only capture the public's imagination if the personalities of science became visible.

A second spin-off from this hypothetical public activity by the Chairman would be its effect on CSIRO staff. External communication is one of the most effective forms of internal communication—ask firms like BHP which spend vast sums on corporate advertising. It raises the staff's self-image and morale by demonstrating the newsworthiness of CSIRO, and gives visible form to the efforts of the Executive to promote CSIRO's cause in the corridors of power.

On the other hand, visibility can cause vulnerability: only the raised head can be knocked off! The Organization would need to assess carefully the impressions it wished to create and the messages it wished to convey in its public utterances. This applies to submissions to Senate inquiries, news releases and Annual Reports, as well as to personal appearances before the media.

However, this digresses somewhat from the question posed a few paragraphs ago: why should CSIRO devote resources to communicating with the public at large, and with particular groups? The basis for an answer was given by Dr Greg Tegart, member of the Executive, at the CSIRO Communication Symposium. He saw at least four reasons:

- By opening channels of communication with various sectors of industry and the community, CSIRO can obtain the knowledge it needs to determine the research requirements of those sectors.
- CSIRO has an obligation under its Act (the Science and Industry Research Act) to 'encourage or facilitate the application or utilization of the results of its research'. In other words, it must seek out applications of its work instead of adopting a passive, come-and-get-it attitude.
- CSIRO is accountable for its actions to Parliament and to the people of Australia. We can only expect to receive support from the Government and the community as long as we can demonstrate that the money spent on research is making a real contribution to the nation.
- CSIRO cannot operate in isolation from the rest of the scientific community, both here and abroad. The exchange of information between scientists is an essential part of furthering the development of research, and getting the best value for the research dollar.

Copies of the proceedings of the CSIRO Communication Symposium are still available from: The Secretary, CAT, c/-Science Communication Unit, PO Box 225, Dickson, A.C.T. 2602.

'CoResearch' is produced by the Science Communication Unit for CSIRO staff. It is also circulated to some people outside the Organization who have a professional interest in CSIRO activities. Members are invited to contribute or send suggestions for articles. The deadline for material is normally the 8th day of the month of publication. Material and queries should be sent to the Editor, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editor: Jeannie Ferris.

Printed by Pirie Printers Pty Limited, Canberra, A.C.T.

CoResearch

CSIRO's staff newspaper *November 1981* **246**

Space rock found in NSW farmer's paddock

A large, brownish-grey lump of metal unearthed on a property near Binya, NSW, in April this year and brought to CSIRO for identification has been shown to be an iron meteorite—only the 13th to be found in NSW.

The farmer who found this interesting, pockmarked lump of metal took it to his nearest CSIRO 'enquiry desk', which happened to be the Division of Irrigation Research in Griffith. Ted Trickett, in charge of the Division's analytical facilities, is used to being called upon to answer enquiries outside his own field—that sort of thing happens all the time in country-based Divisions.

Ted suspected it was a meteorite so, with the farmer's permission and a great deal of effort, he chipped off a sliver for energy-dispersive analysis. The results showed the rock was mainly iron with a high nickel content, so confirming Ted's suspicions.

The find was reported in the local paper, *The Area News*, where *CoResearch* spotted it for the 'People' column in July. This short note attracted the attention of Ray Binns, Assistant Chief of the Division of Mineralogy in North Ryde.

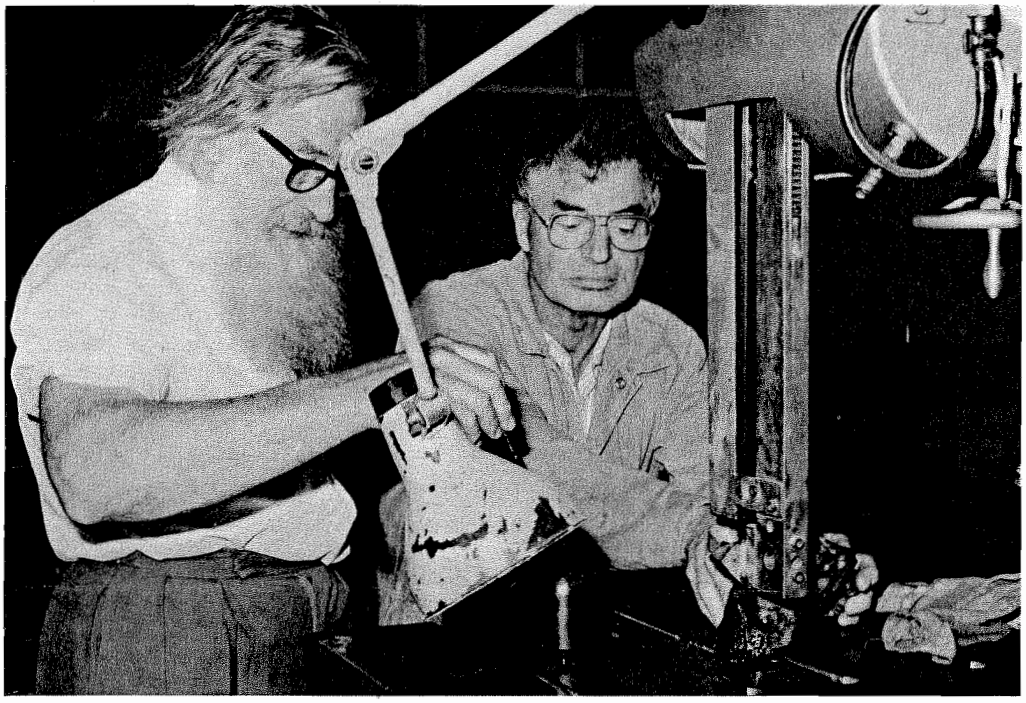
Ray is a meteorite enthusiast, having written around 20 papers on these 'space rocks', and is also a member of the International Meteorite Nomenclature Committee of the Meteoritical Society. He leapt for the phone to find out more about the meteorite in Ted's custody.

The owner agreed that Ted bring it to Sydney so that Ray could have a closer look and register the meteorite find with the appropriate authorities. Photographs were taken of the meteorite, and then it was sent to the Australian Museum so that a mould could be taken to make a replica. Back at the North Ryde Laboratory, a small slice was cut off with a tungsten-tipped band saw, which proved quite a job but was accomplished by Keith Spiers of the IEER workshop.

When the cut face was polished and acid-etched, it revealed the typical Widmanstatten pattern that clearly distinguishes an iron meteorite from an ordinary chunk of manmade iron. Microscopic and chemical analysis showed that the Binya find was 'coarse octahedrite'—a common type of iron meteorite.

Only 12 of the 37 meteorites found in NSW were iron meteorites and 4 of these were found in the same general area, within about 200 km of Binya. However, the microscopic structure of the Binya meteorite showed it to be very different from these others.

Rusting of the meteorite's surface was quite extensive and showed that this 11.3 kg chunk fell out of the sky quite some time ago. It is thought that such meteorites are space debris from the asteroid belt between Mars and Jupiter, and that they are pulled out by Jupiter's gravitational force to drift off out into space. Very few actually collide with the earth and manage to survive the heat of the fall through our atmosphere. In fact only about 3000 meteorites have ever been found on the earth's surface—one of which fell down in Binya.



Ted Trickett, left, from the Division of Irrigation Research in Griffith, NSW, watches while Keith Spiers of the Institute of Energy and Earth Resources' workshop in Sydney, makes light work of cutting a slice from the Binya meteorite, using a tungsten-tipped band saw.

The end of an era in cloud seeding research

CSIRO will continue to maintain expertise in cloud physics, although ending its cloud seeding research program.

The Chairman, Dr J. Paul Wild, said the CSIRO Executive's decision followed recommendations of an expert committee which reviewed the Division of Cloud Physics.

"The decision to end cloud seeding is based on scientific evidence and increasing costs," he said.

"The scientific evidence is made up of two factors—firstly, the increasing realization that cloud conditions suitable for seeding are far less frequent than previously thought, and secondly, the inherent natural variability of rainfall in Australia.

"For example, a cloud seeding experiment in western Victoria has recently been stopped after two years' work because of the lack of seedable cloud.

"It would have taken at least 20 years, rather than the planned five years, to produce reliable evidence on the effect of cloud seeding in the area."

INCREASING COSTS

Dr Wild said increasing costs were another important factor in stopping the large scale cloud seeding experiments.

"For cloud seeding to be worthwhile in rural areas, it must cost less than the economic benefits, in terms of additional rural production, which result from any increases in rainfall due to the seeding," he said.

"Unfortunately, the trend is the very reverse. The cost of flying and maintaining aircraft to carry out cloud seeding is increasing much faster than the returns on rural products.

"If there is to be a solution to this problem it lies in the discovery of much cheaper methods of detecting and seeding suitable clouds, or in a dramatic upturn in the return on rural products."

Energy medal award to Greg Tegart

The 1981 Australian Institute of Energy Medal has been awarded to CSIRO Executive member Dr Greg Tegart.

The AIE Medal is awarded annually to a member of the Australian community who has made significant contributions to, and has achieved a high level of excellence in, an energy discipline.

Dr Tegart was presented with the Medal at a function in Sydney on November 9, when he delivered a lecture on the theme, "The inter-relation between energy and materials".

Dr Tegart has been a member of CSIRO's Executive since 1979. Previously he was associated with BHP, from 1968 to 1978 as Manager of the Melbourne Research Laboratories.

Immediately prior to his appointment to CSIRO, Dr Tegart was Executive Assistant to the Chief General Manager of the Broken Hill Pty Company.

His particular research interests include solar energy and materials engineering, energy and manufacturing industry.

Letters to the Editor

Dear Editor,

Recently the Laboratory Craftsmen, employed in CSIRO workshops, were dealt a blow that will be felt by its members for years to come.

Despite the encouragement and well wishes from most quarters of divisional levels, the fight against our Uniform Hours Case was carried on by the Public Service Board, aided and abetted by one of the worst decisions handed down by a full bench for years.

The reasons for not granting us equal conditions, enjoyed by all the other eschelons in the Organisation were the weakest imaginable. A Union with the ability to apply industrial pressure would not have accepted the ruling for one day.

We first applied for equal rights in our work situation in 1974 and after waiting patiently all these years, were shocked to receive such an unfair ruling. This is in an age when most of industry is realising that 35 hours is the working week of the future, we were simply asking to be on a par with the rest of the work force in CSIRO on 36¼ hours.

No doubt in the future the shorter week will come automatically and all the arguments used against our requests will be forgotten.—R. A. Mott, Publicity Officer, Laboratory Craftsmens Association.

Dear Editor,

The suggested logo (CoResearch 243) is neat; its oblong shape is practical for inclusion on any rectangular format. It is not too cluttered and is straightforward. This bold design has plenty of impact for displays, T-shirts etc., and would easily lend itself to colour. Also, the typeface does not make it too different from the official logo, which gives a nice continuity.

The only misgiving I have is that it may date.

I have felt there has been a need for this type of semi-official logo, so good on you for doing something about it.

If this, or any other logo, is approved, I'd be grateful if it could be made known and copies of artwork distributed as I have always had difficulty in obtaining any standards.—Joanna Holdsworth, Graphic Designer, Division of Atmospheric Physics, Melbourne.

Flying the flag at Orange

"Irrigation Scheduling by Computer" is the title of the display being mounted by Division of Irrigation Research at Orange National Field Days.

The Orange Field Days are being held on November 16, 17 and 18 at Borenore, near Orange, NSW.

As part of the feature demonstration "Computers in Agriculture", the display will feature a micro computer programmed to interact with the user (the farmer) to indicate when irrigation is necessary.

Weather, plant growth and soil data are entered. Plant-available-water in the soil, days to next irrigation and how much water to apply is then made available to the farmer, via a VDU.

Pedal power in Canberra

Winners in the great bicycle race conducted by the Division of Forest Research last month. Back row, from left: Mick Crowe, Richard Vickers, Mike Cashmore, Barry Filshie, Barry Longstaff and Bruck Condon. Front row, from left: Phil Cheney, Jim Bropby, Peter Leppert and Ed Higbley.

His Worship the Mayor, P.R.S.

It is a nice turn of historical irony that Dr Geoff Wunderlich, an X-ray crystallographer of the CSIRO Division of Mineral Chemistry, having turned his back on the family business of manufacturing building materials should wind up as Mayor of that suburb of Melbourne which is probably richest in Wunderlich building memorabilia.

Wunderlich pressed metal ceilings, estate agents delight, add thousands to any building in the district.

Not many CSIRO people enter local (or any other) politics so how does a pleasant and handsome scientist end up in the mayoral robes?

In Geoff's case it is an interesting tale. He became incensed that there was no high school in reasonable proximity to his home and he felt the Great Call to campaign for one. One High School (John Gardiner, in Hawthorn) later, he supported a Community Chest scheme in Hawthorn (shades of Arthur Farnworth, then of CSIRO Textile Industry, who started the first in Australia, in Geelong), and saddled up again for another successful campaign.

Ten thousand pamphlets later he became, in 1974, a councillor of Hawthorn, and has played a vigorous and creative role in the Council ever since. His term, or rather his first term, as Mayor runs from 1981 to 1982.

Geoff grew up in Sydney. He reminisces that as a young boy he was often rowed across Sydney Harbour in a skiff by a 72 year old grandfather, the remarkable Alfred Wunderlich, who was not only a building materials tycoon supreme, and Chairman of Wunderlich in his nineties, but who was also an excellent sculler and Swiss Consul-General. The links with Switzerland still persist, as his mother lives in the idyllic lakeside village of Vevey, not far from Lausanne—Clive Coogan.

Can anyone please stop the Comet?

The Australian Bicentennial Authority is most anxious to find a scientist who knows how to delay the next appearance of Halley's Comet.

'The comet would make a splendid, low-cost focal point of a Bicentennial fireworks display,' said the Authority's Chairman, Mr John Reid.

'Unhappily, though, we learn that it is due in May 1986, two years early,' he said.

In a more serious mood, Mr Reid has appealed to scientists to come forward with imaginative projects to help commemorate the 200th anniversary in 1988 of European settlement in Australia.

'Australia has a proud record of scientific achievement and it would seem appropriate for the scientific community to play a major part in the celebrations.

He said several projects in different branches of the sciences had been proposed. They include:

- the publishing of a 10-volume series of Australian fauna
- a series of State and Territory conferences to identify and resolve water resource problems, culminating in a national conference in the Bicentennial Year
- the production of a major science and natural history television series on the Australian continent
- a Bicentennial history of science and applied science
- a national survey culminating in the publishing of a series of regional wildlife guides.

The Australian Bicentennial Authority was established by the Commonwealth, State and Northern Territory Governments to plan and co-ordinate a year-long program of celebrations in 1988.

There is a national board of 17 directors appointed by the Commonwealth, State and Northern Territory Governments and Federal Parliament.

In each State and Territory, the Authority has a representative Citizens' Council, supported by a fulltime executive director.

At present, the Authority is decentralising its operations further by establishing Bicentennial Community Committees in each of the nation's 839 government areas.

Mr Reid said the Bicentenary offered a unique opportunity for Australians to join together in a unifying experience, to examine their origins and assess future possibilities.

'The role that the scientist will play in protecting our country's future is evident to everyone,' he said.

'The Bicentenary is now a little more than six years away and people accustomed to long-range project planning will recognise that there is hardly a moment to be wasted.'

Anyone with an idea for the Bicentenary should write to The Australian Bicentennial Authority, GPO Box AUS 1988, Sydney NSW, 2000.

Blackall award to CSIRO Chief

The Chief of the Division of Manufacturing Technology, **Mr Bob Brown**, is a co-recipient of the Blackall Machine Tool and Gage Award, which was presented this month in Washington.

Mr Brown received the award for "investigations of complex dynamic problems of chip segmentation during metal cutting, using high speed photography and quick-stop techniques."

People... People... People... People

The Division of Soils at Urrbrae, South Australia, now has two staff members amongst the 17 elected members of the Mitcham City Council, in whose area the Division is situated.

Kevin Handreck has been a Councillor for two years for the ward in which he lives, which includes CSIRO and the Waite Institute. **Ted Radoslovich** has just been elected an Alderman, and so represents the whole city. Ted received the largest number of votes of any candidate in the recent local government elections.

Kevin is Scientific Assistant to the Chief and Ted is a Principal Research Scientist who has previously been President of CSIROOA.

□□

Gaie Hall, Editor of the Division of Fisheries' magazine 'Fisho', included in the latest issue, a letter which caused a few chuckles in the Division.

The letter, from a schoolgirl, requested information for a project she was doing on the ocean.

'Could I have some information and samples?' she asked.

□□

Dr Shirley Jeffrey has become acting Chief of the Division of Fisheries, taking over from **Dr Brian Stacy** of the Division of Animal Production.

Shirley joins the small band of female scientists who have acted as Chief of Division.

□□

The recent publication of a book entitled 'Plants of Western New South Wales' has involved years of work for two CSIRO researchers, **Bill Mulham** from the Division of Land Resources Management at Deniliquin, and **John Leigh** from the Division of Plant Industry in Canberra. Two members of the Soil Conservation Service, **Peter Milthorpe** and **Geoff Cunningham** also collaborated on the book which documents more than 2000 plants ranging from grasses to aquatic specimens. It contains 1500 full colour photographs and has taken about 10 years to finalise.

Newly returned to the Division of Land Use Research in Canberra is **Gavin Byrne** who has been visiting Europe where he was involved in remote sensing of rain-bearing clouds with particular reference to drought in Africa.

□□

Pat Castle of the Institute of Energy and Earth Resources' Melbourne office is Australian co-ordinator of the fifth Congress of Secretaries in Asia, being held from March 14 to 20 next year in Hong Kong.

Pat, who is Victorian President of the Institute of Private Secretaries, an Affiliate Member of Professional Secretaries (International) and a Fellow of the Institute of Directors in Australia, may be contacted for further information regarding the Congress at 9 Queens Road, Melbourne.

□□

Researcher **Malcolm Robinson**, of the Division of Textile Physics at Ryde, has been awarded the degree of Master of Science in Textile Technology by the University of New South Wales.

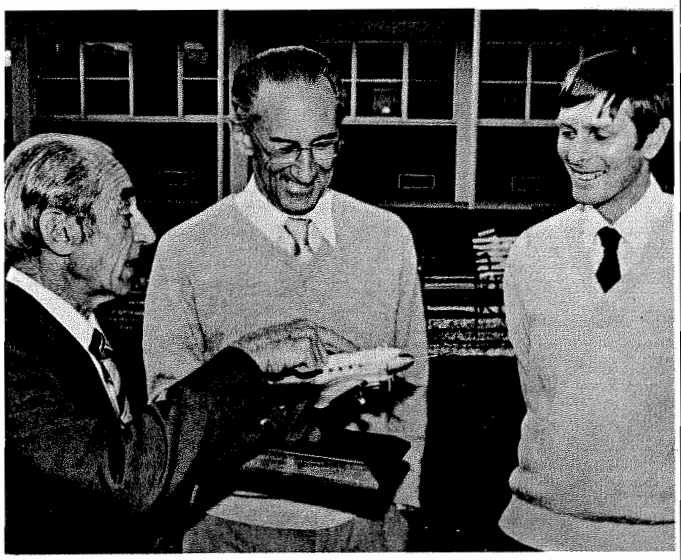
Malcolm presented a thesis as an external student at the University. He will be formally awarded the degree early next year at the annual conferring ceremony.

□□

A "personal demi-paradise" on the New South Wales South Coast has been chosen by **Harry Black** as the centre for his post-retirement, alternative lifestyle. Harry retired last month from CSIRO's Centre for International Research and Co-operation. He originally joined CSIRO as the first press officer for the Organization.

Although he will continue to commute to Canberra to take part in his many and varied hobbies, Harry's new life will revolve around 5.2 hectares of bushland, 600 metres from a surf beach on one side and 100 metres from Wallaga Lake on the other. There, from a caravan, he has been growing tropical and subtropical fruits surrounded by his personal bush and overseen by Mount Dromedary.

Farewell presentation



The retiring Chief of the Division of Cloud Physics in Sydney, Mr J. Warner, centre, with the acting Chief, Dr M. Manton, right and Mr A. Tapp, a former member of staff at the Division who retired last year. The group are admiring a model of a DC3 aircraft which Mr Warner received as a farewell gift.

From the Chairman -

A regular column by the Chairman of CSIRO Dr. J. Paul Wild

We held the last Executive meeting at Geelong, partly in the building of the Geelong Regional Commission and partly in the local park because of a forced evacuation of the building due to a phoney bomb scare. While at Geelong, we inspected the Australian National Animal Health Laboratory (ANAHL). This is the largest capital project that CSIRO has ever undertaken—at a total cost of $120 m. When fully operational in 1984, it will be the highest security laboratory in the world in which dangerous live virus of animals, such as foot and mouth disease, will be able to be handled with unparalleled safety. The functions of the Laboratory will be diagnostic support in the event of an outbreak of exotic animal diseases, related to research and training, and virus vaccine production. As far as can be judged, the funds have been supplied by the Government on top of our normal budget allocation. Our cattle export market alone is worth $1,400 m per year and the facility is an insurance policy for our livestock industry. The building is a fantastic affair with 5 storeys in which only the middle storey is used for laboratory operations—the other 4 floors are filled with plant whose function is to provide essential servicing, including the maintenance of a low pressure pattern in the operative storey and to filter all air. Everybody who visits the Laboratory is convinced by its security; but we yet have ahead of us a long task of instilling confidence throughout the farming community.

In other recent travels, I visited the headquarters and field stations of the Division of Tropical Crops and Pastures. I was especially interested in the Narayen Research Station where some 18 staff live with their families in unusually remote conditions—30 miles from the nearest township of Mundubbera which is itself 300 miles from the closest city (Brisbane). The Station is doing fine work in the development and introduction of pastures and crops for sub-tropical Queensland. And I was most impressed by the cheerful community spirit that was evident in circumstances that must sometimes be testing for the human system.

Another impressive visit was to the cotton district near Wee Waa on the Namoi River. Here is intensive farming with all the aids of modern technology, including the use of laser beams to ensure correct levelling of the ploughed paddocks. The star turn (being officially opened by the Minister) was SIRATAC, the computer controlled system which the Division of Plant Industry is developing with the NSW Department of Agriculture to tell each farmer what insecticides to use, how much and when. This year it is being used to protect one-tenth of the Australian cotton crop. The forecasts are next year, one-third; and the following year, one half. I believe the Division has its sights, beyond cotton, on the pastoral management of the whole continent.

● ●

The effect on staff of the decision of the Full Bench of the Arbitration Court to disallow the claim by the Laboratory Craftsmen Association for a 36¼ hour week is of considerable concern to me and must be a great blow to those involved.

Officially, of course, CSIRO must take a common stand with the Public Service Board in compliance with Government policy. The fundamental question is whether people working together for a common cause should have the same working hours. My personal feelings have been conditioned by close association and friendship with the workshop staff of Radiophysics, especially at the Dapto field station in the 1950's.

● ●

Fowler's 'Modern English Usage' contains many hidden gems of gentle humour. A favourite of mine is to be found under the heading 'misapprehensions'—e.g. that Frankenstein was a monster. During my wanderings and informal discussions with CSIRO staff of all kinds, I generally sense a splendid esprit de corps as well as a willingness by people to say what's on their minds. Occasionally I encounter recurring misapprehensions about the Executive and its policies. So, with deference to the memory of the late H. W. Fowler, I here submit a few CSIRO misapprehensions:-

- that the Executive is contriving to change the emphasis of our research from the strategic end to the tactical end
- that the Executive is contriving to change the emphasis of our research from strategic R & D to basic science
- that there is a deliberate policy to divert resources from the rural sector to elsewhere
- that there exists a table in Parliament House, or elsewhere in Canberra, that if thumped long and hard enough by the Executive will cause the Government to exempt the Organization from the application of its policy of containing public expenditure
- that the costly Australian National Animal Health Laboratory is being built in competition with rural sector research funding (CSIRO and universities)
- that the Executive policies and decisions are made by rubber stamping those of the Secretariat
- that the merit promotion system for Research Scientists is under threat by current budget strategies
- that the Personnel Branch controls promotions and appeals
- that the Executive lives in an ivory tower
- that there once existed a time when things were as good as they used to be
- that somebody else writes these articles.

Paul Wild

Tasty tidbit leads to CSIRO link

A CSIRO tag on a bird being roasted over an open fire on a South Pacific island in the Solomons, formed the basis for a link with the Division of Wildlife Research in Canberra late last month.

Word of the band reached the Solomon Islands Broadcasting Corporation in Honiara, and a reporter sent off a telex requesting information on the bird.

David Purchase, who administers the bird-banding scheme, was able to identify the bird as being a white-capped noddy, which had been banded as an adult at Vatu-i-Ra, an island near Fiji, on November 14, 1976 by an Australian, Mike Tarbuton who was then a biology lecturer at Fulton College, Suva.

CAT

CAT has a new chairperson

Helen Dornom, Liaison Officer at CSIRO's Dairy Research Laboratory in Melbourne, is the new Chairperson of the Communication Advisory Team. Helen replaces Wendy Parsons of the Division of Forest Research in Canberra, who did not seek re-election when CAT met recently in Melbourne.

The election of a new Chairperson arose from a change in CAT membership designed to broaden the regional representation on the Team and to give other information officers the chance to air their views.

New members are Helen Dornom (Institute of Animal and Food Science), Peter Beck (Institute of Industrial Technology), Christine Astley-Boden (Institute of Energy and Earth Resources) and Bill Silvey (Institute of Biological Resources). All original members retain their membership, and will attend meetings whenever they can.

CAT discussed a report of a meeting of the Melbourne regional group of information and liaison officers. Recommendations from the meeting urged the Organization to clarify the functions of Divisional information officers through a set of CSIRO communication guidelines.

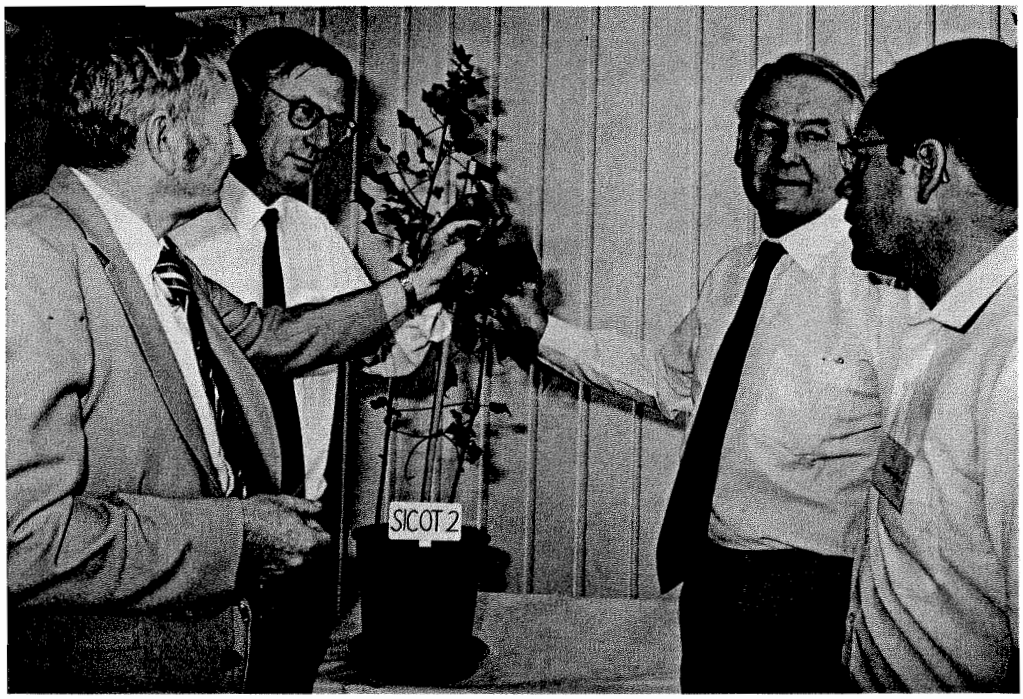
In the absence of such guidelines, the recommendations called for a withdrawal by Divisions from public communication activities, these functions to be handled by a central body. This would allow CSIRO to provide a more effective communication system with the present resources.

CAT noted the strong feeling of the Melbourne regional group. Members also noted that the Office of the Executive had been considering communication guidelines since before the Communication Symposium in November 1980—and apparently without consultation with the Bureau and Divisions.

CAT agreed to pass on the report from the Melbourne group to the Director of the Bureau, Mr Sam Lattimore, with the following request for action:

- to discuss the contents of the report with the Office of the Executive and develop a brief information paper on it for tabling at a meeting of the Executive Committee.
- to discuss with the Office of the Executive the possibility of establishing a working party to assist with the preparation of communication guidelines. CAT recognised the complexity of the job. It therefore suggested that the working party sound out the views of the Organization. It also suggested the following membership for the working party: one member from the Office of the Executive, the Bureau, Institute headquarters and Divisions.

New cotton varieties on show



Three new cotton varieties developed especially by CSIRO for Australian conditions, went on show in Narrabri recently, when the Minister for Science and Technology, Mr David Thomson, visited the Myall Vale Research Centre.

The leader of the plant breeding team, Dr Norm Thomson, left, shows one of the new varieties, SICOT-2 to, from left, the Chairman of CSIRO, Dr J. Paul Wild, Mr David Thomson, and the Chief of the Division of Plant Industry, Dr Jim Peacock. The Minister and the Chairman were in the Namoi Valley for the official launching of SIRATAC Limited, a company which will market a crop management system for cotton developed by CSIRO and the NSW Department of Agriculture.

L.R.M. pioneer party charts the Simpson Desert

A four-man team from the Division of Land Resources Management's Rangelands Group at Deniliquin have completed the field work for an ecological survey of the southern portion of the Simpson Desert.

Members of the team were Dean Graetz, David Tongway, Norm Hindley and Roger Pech.

The Group were contacted by Santos, Delhi and Western Mining to carry out the survey and provide a comprehensive summary of the land systems and the impact of past and present uses.

The desert is a large wilderness area in relatively pristine condition. However, with appreciable mining exploration and a high probability of a commercial find, the companies are concerned about the possible impact of future development.

Their concern is shared by the South Australian Department of the Environment. The presence of survey tracks through the Simpson Desert conservation park provides good 4-wheel drive access, with Peoppel's Corner being the local point for many tourist groups.

The third major user group, the pastoral industry, is also undergoing major restructuring with much of the desert margins being fenced to contain the incidence of brucellosis and TB by feral animals.

The survey started in the red gibber downs near Oodnadatta, and included the Dalhousie Mound Springs and the flood plains of the Macumba and Finke Rivers, before heading east into the desert.

In the desert, north-south and east-west traverses provided ground data to match Landsat-based assessment of land units, ecological gradients and major impacts such as wildfire.

A second stage of the field work was based at Birdsville. This involved an extensive aerial survey of the desert and its margins together with photography of the localized impacts of drill sites and roads.

The final phase of the study, which is currently in progress, is the enhancement and digital mosaicing of Landsat images to cover 100,000 km^2 of the southern Simpson Desert and its margins. With the inclusion of digital land system boundaries and property boundaries, this will be the foundation of an information system which can be readily updated to monitor future natural and man-made changes in the region.

Calling Kiwi scientists for 'Science Express'

Denis Harvey, producer of New Zealand TV's "Science Express" program made out of Christchurch, is looking for Kiwi scientists working in CSIRO.

He wants to visit them when next he is in Australia and possibly film some of their work for use in his popular science/technology show which has just now completed its first year on air.

In a note to Bill Kelly, OIC of CSIRO's Media Group, he said:

"...one of the things I became increasingly aware of while I was at ANZAAS was the number of New Zealanders working in Australia both for CSIRO and the universities. There could be material for us here...

"I am anxious to extend 'Science Express' beyond work happening only in New Zealand and I would like to think that the inclusion of Australian work could become a regular part of our program content..."

So, anyone interested in helping him out could contact Bill Kelly on (062) 48 4484, or write to PO Box 225, Dickson, ACT 2602.

The James Cook University of North Queensland is organising a symposium to commemorate the 100th anniversary of the death of Charles Darwin, on April 19, 1882.

The symposium, to be held from May 1 to 4 next year, will comprise eight sessions, dealing with the evolutionary paradigm, the social ethics of Darwinism, the evolution of the Australian biota and coral reef evolution.

Geologists and palaeontologists are being invited to express an interest in contributing to the relevant sessions.

They are invited to contact the Secretary of the organizing committee at James Cook University, Townsville, Queensland, 4811.

'CoResearch' is produced by the Science Communication Unit for CSIRO staff. It is also circulated to some people outside the Organization who have a professional interest in CSIRO activities. Members are invited to contribute or send suggestions for articles. The deadline for material is normally the 8th day of the month of publication. Material and queries should be sent to the Editor, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editor: Jeannie Ferris.

 Printed by Pirie Printers Pty Limited, Canberra, A.C.T.

CoResearch

CSIRO's staff newspaper *December 1981* **247**

Govt. approves extra 30 positions for ANAHL's Geelong laboratory

The Government will provide CSIRO with an extra 30 staff positions to help man the Australian National Animal Health Laboratory now nearing completion in Geelong (Vic.).

The Minister for Science and Technology, Mr David Thomson, said the Government's decision to make the extra positions available was a clear recognition of the importance of ANAHL to the primary producing capability of the nation.

(The $121 million Laboratory, which will be the world's foremost top security microbiological installation, is scheduled to be completed in 1983. It will come into full operation with a staff of about 200 after it has been tested for its microbiological security, probably after May 1984.)

Mr Thomson said the decision also reflects the Government's commitment to furthering CSIRO research, particularly in the rural sector.

"I appreciate the calls that have been made for more money for research in CSIRO, but they have to be seen in the light of other important Government projects and commitments and the Government's policy of public sector restraint," he said.

"Even under these circumstances CSIRO's total budget—about 90 per cent of which comes from Government funds—increased substantially in 1981/82 to $290.1 million compared with $260.7 million in 1980/81.

"The efficient use of resources is a prime essential in today's difficult economic climate.

"I am sure that the CSIRO Executive, which establishes the Organization's research priorities, is selecting the best possible research to meet national needs."

Welcoming the Minister's announcement the Chairman of CSIRO, Dr J. Paul Wild, said the Government's decision was a "heartening boost" for the Organization's ongoing research endeavours in the field of

Continued on page eight

ASLO offices to close on December 31

CSIRO will close its overseas offices in Washington and London on December 31. The Tokyo post, staffed by Dr Tom Grace, will continue to operate.

The decision to close the Washington and London posts was a recommendation of the Committee of Review into Commonwealth Functions which brought down its report earlier this year.

The closure of the offices, currently staffed by Dr Alan Pierce in London and Dr Dick Brock in Washington, bring to an end more than forty years, representation. Dr Pierce will retire and Dr Brock will return to CSIRO in Australia.

The offices were established in the early days of World War II, following a suggestion made by John Cockcroft to Dr Briggs of the Australian National Standards Laboratory, based on a concern about the transmission of information between Australia and the United Kingdom.

Dr Briggs, who had recently returned from a visit to the United Kingdom and Canada, was anxious that Australia should join the excellent liaison already established for exchange of scientific and technical information between Britain, Canada and the United States. The first appointments to the posts were Professor J. Madsen to London, and Mr G. Munro to Washington.

Primarily, the offices were established to serve the war effort, but early in 1945 it was decided to expand the roles of the representatives to provide a service to CSIRO administrators and staff.

Over the years, many of the liaison officers have distinguished themselves, and it's believed that Dr Taffy Bowen, who served in Washington from 1971 to 1976, was the only Fellow of the Royal Society to serve at an Australian mission. Other liaison officers have included Dr Max Day, who served in Washington, but returned to Australia and later became a member of the Executive before his appointment as Chief of the Division of Forest Research.

New Chief for the Division of Wildlife Research

One of the world's foremost animal ecologists has been appointed Chief of CSIRO's Division of Wildlife Research in Canberra.

He is Dr Charles Krebs who is presently Professor of Zoology at the University of British Columbia in Vancouver, Canada. Dr Krebs follows Dr Harry Frith, who retired earlier this year.

Dr Krebs is regarded as a world authority in the ecology of small animals.

Dr Krebs, 45, graduated B.Sc. from the University of Minnesota in 1957, and received a Ph.D. from the University of British Columbia in 1962.

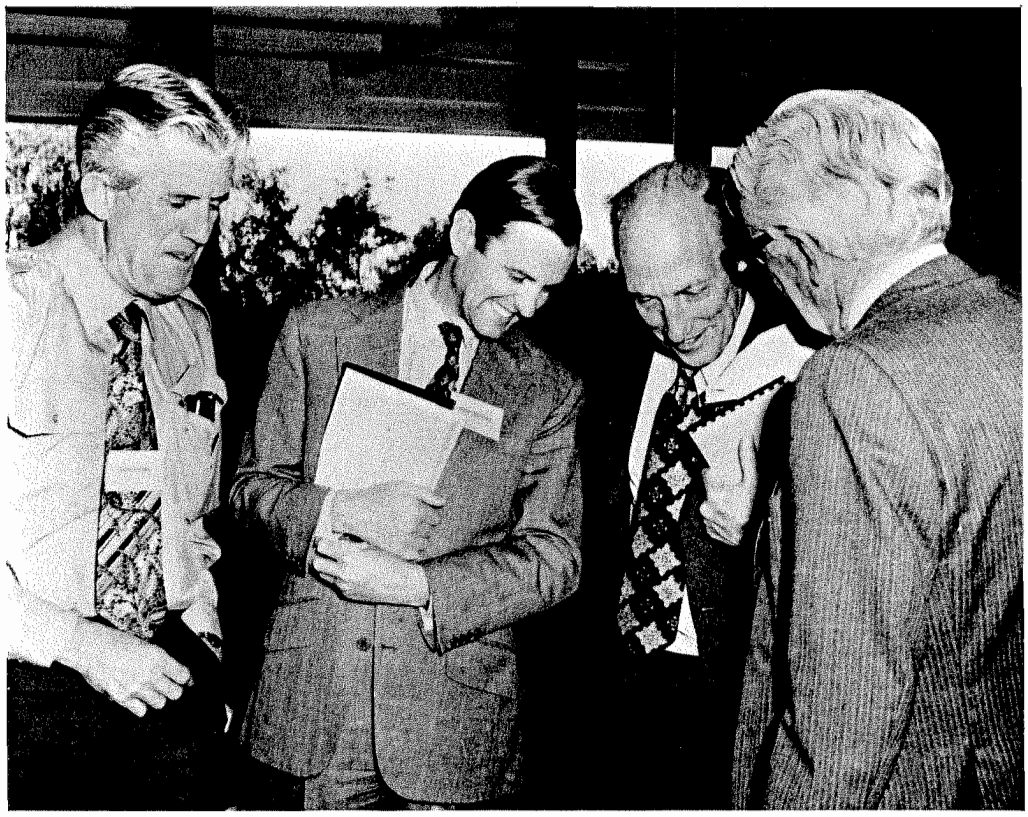
He is the author of a textbook 'Ecology', and is writing a book on ecological methodology.

Dr Krebs has been Professor at the University of British Columbia for 11 years and has been generally interested in the problem of population regulation in animals.

He is currently leading a ten-year investigation into the population dynamics of the Canadian showshoe hare.

Dr Krebs will take up his appointment in May, 1982.

Executive visit to Division of Plant Industry



Dr Dick Bouma, of the Division of Plant Industry in Canberra, left, explains aspects of his research to three part-time members of the Executive, during a visit to the Division. Dr Bouma is engaged in a research project which aims to provide an objective test of the phosphorous requirement for subterranean clover.

Part-time members of the Executive are, from left, Mr Hugh Morgan, Mr David Craig, and, partly obscured, Mr Walter Hughes.

Letter to the Editor

Dear Editor,

Recent correspondence has focused attention on the relative salaries of scientists working in CSIRO and the Universities.

Following the recent award to academics within the wage indexation guidelines and the end of wage indexation it is pertinent to consider how CSIRO scientists have been treated since the first pay rise was received in May 1975 under the indexation guidelines. The table shows starting and finishing salaries of CSIRO and University staff during this period.

Academics increased their average salary by 87.2% compared with 70.3% by CSIRO scientists. Professors in the Universities did remarkably well starting in 1975 with a salary slightly less than a Senior Principal Research Scientist and ending the indexation period with a minimum salary almost equal that of a Chief Research Scientist 2 (or Chief 2).

In the science-based faculties of Australian universities, 14.0% of all academics (i.e. lecturers and above) are full Professors. This should be compared with CSIRO where only 4.7% of research scientists and top administrators (e.g. RS to Chief 4, Institute Directors and the Executive) receive salaries equal to or above the minimum salary received by Professors.

I leave readers to draw their own conclusions from this information.

Dennis Minson
Division of Tropical Crops and Pastures, Brisbane.

Adelaide's fastest funrunners

Perhaps Australia's most highly qualified athletics team – runners from CSIRO Division of Human Nutrition in Adelaide. Back row, from left: Mr Spenser Knowles, Dr Leanna Reid, Ms Michelle Nield, Mr Colin Chandler, Mr Geoff Francis, Dr Frank Tomas and Dr John Ballard. Front row: Mr Don Leitch and Dr Mal Hopgood.

Biotechnology Research directory available

The most comprehensive review to date of biotechnology research in Australia and the possibilities of its future development has been published by CSIRO in book form.

Called "Biotechnology Research and Development" it is based on the reports of two reviews commissioned by the Executive of CSIRO.

- one on the use of recombinant DNA methods in biological research; and
- the other on the potential of biotechnology to benefit Australia.

CSIRO is currently spending about $4.5 million a year, involving some 110 staff, on biotechnology research.

The term biotechnology encompasses industrial processes based on biological systems, especially fermentations with microorganisms, and the genetic manipulation of cells to produce new strains of plants and animals.

Orders and enquiries about the 100 page book, priced at $8.50 (including postage), should be directed to CSIRO's Editorial and Publications Service, 314 Albert Street, East Melbourne. Cheques should be made payable to "The Receiver of Moneys, CSIRO".

Tapes wanted for the CSIRO archives

CSIRO's archivist, Colin Smith, and his assistant, Carolyn Macdonald, are interested in tapes of speeches, talks, symposiums and interviews involving scientists and administrators.

The archives already include a collection of taped material including press sessions and staff meetings concerning the proposed minerals and energy takeover in 1975, recordings of laboratory openings, Rivett memorial lectures and senior administrators and scientists talking on radio.

"The importance of this audio material reflects a growing interest in oral forms of history," Mrs Macdonald said. She said CSIRO archives staff were keen to gather information on tape from older scientists and administrators, reflecting on their early lives and careers as well as their view of current events.

Tapes already being held by Divisions would be copied and returned to their owners.

Those with material which might be suitable should contact Carolyn Macdonald at PO Box 225, Dickson, ACT, or telephone (062) 48 4564.

Industry liaison takes a new turn in S.A.

CSIRO involvement with industry has taken a novel turn with the Division of Human Nutrition in Adelaide.

In a city where the business lunch and an expanding corporate waistline has become something of a tradition, the Division has taken new initiatives and fielded two teams in the Adelaide Corporate Cup—the lunchtime fun run of the market place.

Every second Wednesday since mid August, the Division's teams have joined over 500 lunchtime runners who bolt from their offices, swap business suits for track suits, and run for their corporate lives.

The Cup is a teams' handicap event open to any organisation. Team members gain points based on improved time over the course rather than outright speed. As the organisers point out, you don't need an office full of Herb Elliots to win, just people with a lot of scope for improvement!

Having a corporate "heavyweight" in the team can have its advantages. They generally gain more points and highlight the regular David and Goliath spectacle of race days. Where else could Comley's Snack Bar take on the mighty B.H.P. and come out on top? The event takes place along the banks of the Torrens which has been the scene for many off-market take-over bids. Developments in this area have led to accusations of low cunning, but as yet these and various corporate conspiracy theories remain unproven.

In addition to the Cup, there are other awards of excellence. Appropriately the Division has good prospects of distinguishing itself here. In the company of Adelaide's fastest Managing Director and fastest male and female runner, the Division is currently placed first in the Fastest Team award. Whether this is a sustainable lead remains to be seen, but with a case of champagne at stake the competition promises to be fierce.

Led by Chief Research Scientist, Dr John Ballard, the Division must have Australia's most highly qualified athletics team, four PhD's and three graduates. If they win, this must surely be a performance to be recorded in the CSIRO hall of fame—Don Leitch.

'CoResearch' is produced by the Science Communication Unit for CSIRO staff. It is also circulated to some people outside the Organization who have a professional interest in CSIRO activities. Members are invited to contribute or send suggestions for articles. The deadline for material is normally the 8th day of the month of publication. Material and queries should be sent to the Editor, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editor: Jeannie Ferris.

CSIRO - and all that jazz...

Members of the original SIROCATS jazz band, photographed in 1946 at a function in the Camberwell, Melbourne, town hall. From left: Charles Proctor, clarinet, Dave Patton, second trumpet; John Moresby, trombone and Tony Evans, guitar, both from CSIRO's Division of Industrial Chemistry; Len Coe, trumpet; Horace Drums, drums, Ted Pilkington, piano, and Harry Simmonds, bass, both also from the Division of Industrial Chemistry.

The Melbourne tradition of forming a jazz band to play at Christmas parties dates back to 1944 when Peter Law—Sir Phillip's brother—formed one at Fisherman's Bend with five musos in the Aeronautical and Industrial Chemistry Divisions of CSIR.

Peter, who played part-time with the Graeme Bell Band, left for Shell, but as the photo shows, by 1946 three more had joined.

At the second Australian Jazz Convention in 1947, several played in a band organized by David Patton (2nd from left) at the Collingwood town hall. In fact, three in the photo are still with CSIRO in the Melbourne area, 34 years later!

One of them, John Moresby of Port Melbourne, has entered, with trepidation, the "SIROCATS" to play at the 36th Australian Jazz Convention at Geelong on December 26-31. The recent first rehearsal was a great success, but John is disappointed that Peter Law (now retired, but playing regularly) will not be available in Geelong.

Instead the Division has given "honorary" membership to two civil engineers, Ray Walls (cornet, leader) and Rod Neil (trombone) to support the "SIROCATS" who are Ian Harrowfield (clarinet), John Gardner (vibes), Duncan Constable (washboard), John Moresby (sousa) all of Mineral Chemistry; Cliff Restarick (bass) of Mineral Engineering; Barry Harrowfield (piano) of Textile Industry, and Shane Youl (guitar) of Mineral Physics.

...1981 style

The SIROCATS jazz band, rehearsing for the 36th Australian Jazz Convention. Front row, left to right: Rod Neil, Ian Harrowfield, Ray Walls. Back row, left to right: John Moresby, Julie Moresby acting as rehearsal pianist, John Gardner, Shane Youl and Cliff Restarick. Barry Harrowfield is absent from the photograph.

From the Chairman-

A regular column by the Chairman of CSIRO Dr. J. Paul Wild

One of the greatest changes that has come about in CSIRO in recent years is in the domain of finance and accountability.

Back in the 1960s, each Division negotiated with the Executive for its forthcoming requirements, staff numbers were agreed on and the Executive provided funds for their salaries, operating expenses, buildings and so on, while the Government looked after superannuation costs. The whole system was open-ended and depended on providing funds for agreed requirements. Now in the 1980s, when financial constraints are altogether tighter, we are working towards a closed system in which first our total ('global') budget is prescribed and then it is up to us to decide how best to use it: so the concept of *requirements* is replaced by that of *priorities*. This is a fundamental change and we have to adapt our management practices to suit it. This we are gradually doing, and I ask for your patience if there are some teething troubles during the transition. We now proceed (in principle) as follows:

(1) Deduct from the global figure the estimated costs of inescapable expenses and commitments.

(2) Prescribe, on the basis of experience within CSIRO and elsewhere, a ratio for salary/operating funds. This figure varies considerably among different Divisions because of special requirements, but we usually aim at an *average* ratio of about 70/30. This then provides a notional total salary allocation.

(3) The latter sum is allocated through the Institute Director to Divisions. Thus the Chief of each Division has a certain amount of salary *money* to use. Under present conditions this amount of money is normally a much more important constraint than staff ceilings. For instance, a Chief knows he may now have the choice of making one senior appointment or two junior ones at half the salary.

On the other hand, the system must never be allowed to affect the merit promotion system in the slightest way for that is a corner stone of the Organization. As well as making good sense in relation to our global budgeting, I hope this system will encourage Divisions to redress the imbalance of the ratio of support and technical staff to research staff that has crept into the Organization as a result of staff cuts over the last half dozen years. It should also help to maximize the research value we get for each dollar spent and increase our sense of accountability and financial responsibility.

The Executive delegates, through Directors and subject to general guidelines, as much responsibility to Divisions as possible. It does, however, maintain a close watch on, and control over, the ratio of operating to salary funds. There is no surer prescription to ruin a research laboratory in tight financial circumstances than to allow its operating funds to run down. Having said all this, I am deeply aware that some Divisions, through no fault in their management, are in a more difficult position than others.

• •

Last time I spoke of problems facing our Laboratory Craftsmen. Since then there have been two developments. One is that I have met with representatives of the Laboratory Craftsmen Association and as a result have set up a committee to review and report widely on their present circumstances. The committee of seven will be chaired by John Lowke and contain three Laboratory Craftsmen. The second development is that the Executive has been able, in consequence of other negotiations, to offer technical and laboratory staff an increase which varies from 7.5% to 10%. This is in addition to the recent increase of $9.30 per week for laboratory craftsmen and 5.6% for technical staff. This surely is a timely development in the right direction.

• •

The new era of CSIRO will have just about reached its 3rd anniversary (on December 13th) when this issue appears. Looking back over this period I wonder which was the stickiest moment it was my lot to survive. I think a good contender would be the time when I had a visit from the Soviet Ambassador. I had expected a private talk with him, but in the event, the Ambassador, a very large man, turned up with three other very large men. I hastily roped in the first person I encountered in the corridor to join me. 4—2 was better than 4—1 and that person happened to be the Executive Secretary Gratton Wilson. We sat formally round the table. The Ambassador, his eye fixed on me (ignoring Gratton), said his introductory piece well and the USSR emerged as a much misunderstood country in which peace, altruism and brotherhood were its dominating motives. At this point Gratton quietly asked a question of clarification. The Ambassador swooped his gaze round at Gratton as though he had not been aware of his presence. "Who's he?" he growled at me. I knew my reply would be critical, and I gambled. "He's my KGB man" I said. The painful pause that followed was broken by huge guffaws from our guests led by the Ambassador; and from then on we cut out all the nonsense and talked to one another amicably and straight. Long live *detente*! And apologies to my colleague, working mate and (occasionally) fall guy.

A very merry Christmas to you all.

Paul Wild

Advance Australia Award

The Chairman of CSIRO, Dr J. Paul Wild, has been selected as a recipient of an Advance Australia Award for his contribution to aviation technology.

Dr Wild's nomination was received from the Minister for Immigration and Ethnic Affairs, Mr Ian McPhee.

The Awards, a key part of the Advance Australia campaign, recognise outstanding contributions to the advancement and enrichment of the Australian lifestyle in such areas as industry, commerce, community service, arts, sport and science.

In a citation accompanying the Award, the Chairman of the Advance Australia Awards Committee, Geraldine Paton, said the Committee believed Dr Wild had met the high standards of the Award and had made a positive contribution to advancing Australia.

Inaugural information science award goes to CILES member

A member of CSIRO's Melbourne-based Central Information, Library and Editorial Section (CILES), received the first Robt. D. Williamson Award for outstanding contributions to information science in Australia.

He is Mr James Harold Gilmore, manager of Systems and Development who is involved in the development of automated library and information systems.

The award commemorates the late Bob Williamson who was one of the Australian pioneers in the computerization of information systems.

Mr Gilmore, 39, received the award for outstanding contributions to the development of information science in Australia and for "demonstrated potential for positively influencing the future development of information science in Australia".

The inaugural presentation of the $500 cash award was made by Mrs Enid Williamson at the National Conference on Library Automation dinner at the University of Melbourne on November 17.

Mr Gilmore, of North Balwyn, was born and educated in Brisbane, graduating from the University of Queensland as a Bachelor of Science in 1965.

He worked as an experimental officer and computer programmer with the Weapons Research Establishment in South Australia before joining CSIRO in 1969.

He has been involved in aid and information network projects in Asia and the Pacific and acted as a consultant for the Commonwealth Agricultural Bureaux in London.

Between 1978 and 1980, Mr Gilmore was the founding Chairman of the Victorian Association for Library Automation and co-editor of a national directory of automated library and information systems.

He is a member of the Australian Computer Society, the Library Association of Australia and the Victorian Association for Library Automation.

Mrs Enid Williamson presenting the Robert D. Williamson Award to Jim Gilmore at the Conference Dinner of the VALA National Conference on November 18th.

Seven members of the Chinese Association of Science and Technology recently visited the Division of Land Resources Management in Perth. The delegation is presently visiting Western Australia at the invitation of the University of Western Australia.

□□

Anne Wotton, who has been working with the Division of Land Resources Management in Perth, has left a trip which will eventually take her by sailing ship to South America. Initially she is touring the north of Australia, but will join the brigantine "Eye of the Wind" at Panama, bound for the south seas. Anne spent six months on the ship last year.

□□

Settling into Bendigo in Victoria for a year is **David Williamson** from the Division of Land Resources Management in Perth. David is project officer for a collaborative project funded by the Ministry for Conservation on aspects of the dryland salinity problem in the northern slopes of Victoria.

Two staff members of the Division of Manufacturing Technology have been appointed to executive positions in international societies.

Dr Warren Gellie is Chairman of the Technical Committee on Computers for the International Federation of Automatic Control (IFAC), and **Mr George Lorenz** is Vice President of the International Institution for Production Engineering Research (CIRP).

□□

Recently returned to the Division of Applied Organic Chemistry after a visit to Japan is the Chief, **Dr David Solomon**, and **George Holan** and **Bryan Loft**. The three were in Japan to attend the CSIRO-Nippon Kayaku-Roche Maag technical meeting on the development of insecticidal esters for commercial use.

George extended his visit by several days to talk to members of the Kyoto University about public disclosure of the insecticide development at next year's International Congress on Pesticide Chemistry.

□□

Ron Williams of the Division of Tropical Crops and Pastures, is settling back into work after a three week visit to China, heading a mission which included **Don Cameron** of the Queensland Department of Primary Industry and **Graeme Wilson** of the New South Wales Department of Agriculture. The trio were looking at the pasture potential of sub-tropical China. Ron reports that China wants Australian assistance in developing improved pastures and is keen to have CSIRO's help in setting up a sub-tropical pasture research institute near Nanning in Guangxi.

Graham Warden, Secretary to the Bureau of Scientific Services, is spending six months in the United Kingdom on a secondment to the Department of Industry. He is working in the areas of industry support and technology transfer, including, among other things, the funding of research associations and a program to encourage the application of microelectronics in industry. **John Russell** is acting as Bureau Secretary during Graham's absence.

□□

CSIRO's Media Liaison Group has just lost perhaps its oldest customer for media releases. **Bill Kelly** reports that **Mr H. C. Underwood** of Port Macquarie had received the releases as part of his freelance writing activities for the rural press. Mr Underwood, aged 79, began as a journalist in 1935 and has retired as the result of a stroke.

□□

Dr Yukio Togashi, Senior Geologist from the Geological Survey of Japan, has joined the Division of Mineralogy at North Ryde for one year. He is an Exchange Fellow under the Australia Japan Science and Technology Exchange Scheme.

While with CSIRO, he will conduct research into clay minerals and their significance in various mineral exploration problems. He is accompanied by his wife and 2 daughters, aged 8 and 5.

□□

Robin Brown, at present seconded to the Office of the Executive at Headquarters, has recently been elected to the Australian Federation of Consumer Organizations. Robin represents the Canberra area and fills the position of Treasurer.

□□

When **Vic Burgess** of the Division of Applied Physics in Sydney went to speak at a seminar on deafness recently, he was ably assisted by his wife **Elizabeth**. Vic, who demonstrated the wireless hearing aid, used Elizabeth, who is deaf, as his model. Vic took part in the seminar in Sydney as part of the National Deafness Awareness week.

□□

A wet Christmas and New Year in Brisbane and the Gold Coast has been forecast by **Rob Ormerod**, a former CSIRO researcher who has gone into business as a long-range weather forecaster. Rob plans to concentrate on weather forecasting in the northern half of Australia, and will be based in Brisbane.

□□

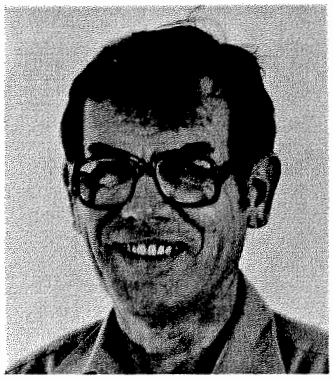
Don Thomas, of the Brisbane RAO, is Convenor of a new group established by Brisbane information officers who call themselves BIOTIC—Brisbane Information Officers, Tigers in Communication.

□□

Rob Wetselaar, of the Division of Land Use Research in Canberra, recently returned from Taiwan, where he presented a paper on nitrogen cycling at a seminar held in Taipei. He was invited by the Food and Fertilizer Technology Centre and also undertook a three-day field trip along the west coast of Taiwan.

Energy medal

Left: A Member of CSIRO's Executive, Dr Greg Tegart, receives the 1981 Australian Institute of Energy Medal. The Medal is awarded annually to a member of the Australian community who has achieved a high level of excellence in an energy discipline. Dr Tegart received the Medal at a function in Sydney on November 9.



Dr John Smith of the Division of Fossil Fuels, above, who recently celebrated his 30th year with CSIRO, has been awarded the degree of Doctor of Science by Macquarie University. The degree is the University's recognition of John's distinguished contribution to geochemistry. It will be conferred on 28th May next year, and is Macquarie's first Doctor of Science degree.

□□

The Chairman of CSIRO, **Dr J. Paul Wild**, has been invited to accept an Honorary Fellowship of Peterhouse, Cambridge by the Master, **Lord Dacre of Glanton.**

Fellowship of Peterhouse was offered to Dr Wild in recognition of his distinguished scientific achievements, and is the highest honour the College has at its disposal.

□□

Home just in time for Chrismas is **Dave Batten** of the Division of Building Research, who recently spent two weeks at the International Institute for Applied Systems Analysis near Vienna. Dave addressed an international conference on multiregional modelling and attended the International Housing Congress. En route to and from Vienna, Dave visited various universities and research centres in North America.

□□

Professor Murray Allen, now Professor of Computer Science at the University of New South Wales, has fecently been elected a Fellow of the Australian Academy of Technological Sciences. Colleagues may recall when Professor Allen began his career in 1951, as a research officer with CSIRO's mathematical instruments section.

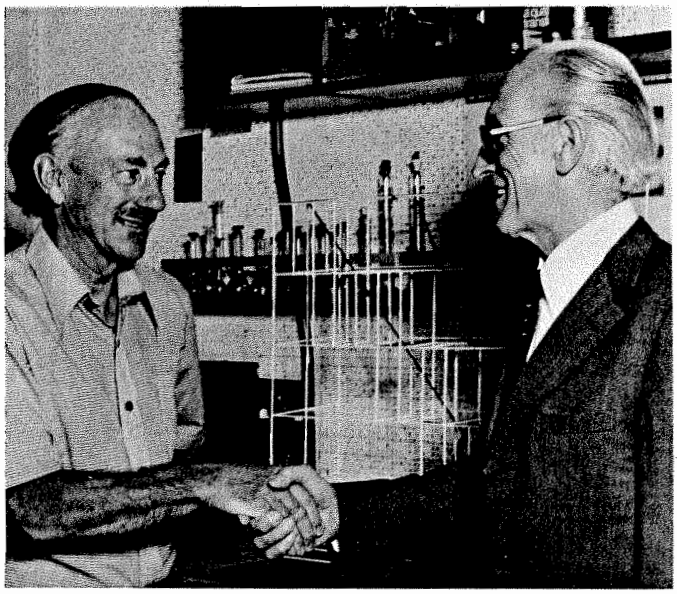
Dr Tegart off to Science and Technology

Dr W.J.McG. (Greg) Tegart, who since December 1978, has been a full-time Member of CSIRO's Executive, takes up a new position on Christmas Eve, as Secretary of the Department of Science and Technology.

He succeeds Dr John L. Farrands, who retires as Secretary of the Department on December 24.

Dr Tegart, 52, was previously Executive Assistant to the Chief General Manager of BHP. Previously he was Manager of BHP's Melbourne Research Laboratories, and was Professor of Materials at the College of Aeronautics at Cranfield, U.K. from 1966 to 1968.

Research medal



The Chief of the Division of Protein Chemistry, Dr Gordon Crewther, right, congratulates Dr Bruce Fraser, Assistant Chief of the Division, who has been awarded the 1981 Research Medal by the Royal Society of Victoria. Dr Fraser is a biophysicist and his major field of research is related to the structure and properties of fibrous proteins with particular reference to keratins such as wool and hair, and collagens, the major protein of hides, skins and leather. The Medal was awarded particularly for Dr Fraser's work on the structure of keratins and collagen. Dr Fraser will address the Society on some aspects of his research in May next year.

Applications sought for Churchill grant

The Churchill Trust invites applications from Australians, of 18 years and over, from all walks of life who wish to be considered for a Churchill Fellowship to undertake an overseas study project during 1983.

There are no prescribed qualifications for a Churchill Fellowship. Merit is the primary test, whether based on past achievements or demonstrated ability for future achievement.

Applicants will be required to demonstrate the value of their work to the community and the manner in which it will be enhanced by an overseas study project. Selections will be announced in July 1982 for Churchill Fellowships tenable in 1983.

Successful applicants will be awarded a return economy class overseas air ticket to the approved countries they wish to visit and an Overseas Living Allowance to assist in meeting expenses.

Completed applications forms and reports from three referees must reach the Churchill Trust by the closing date of 28th February, 1982.

Write now for details and application forms to:
The Winston Churchill Memorial Trust (P),
P.O. Box 478,
Canberra City, A.C.T. 2601.

Radiophysics shows the Australia telescope

The Chief of the Division of Radiophysics in Sydney, Dr Bob Frater, right, explains how the proposed Australia telescope would operate to Dr Harry Edwards, Chairman of the Federal Government Members Committee on Industry, Business and Science. Dr Edwards officially opened the Division's open days held late last month to show to the public research being carried out at the Division's Epping laboratories. More than 12,000 people visited the Division during the weekend of November 28 and 29.

L.R.M. team in UNESCO research project

Just after World War 2 Kenya's population was 3 million. Now it's 16 million, due to a population growth rate of over 4 per cent per annum—the highest in the world.

Today almost 80 per cent of this population lives on only 20 per cent of Kenya's land surface—the western and southern regions where fertile soils and abundant rainfall make for high agricultural productivity. But that 20 per cent is no longer enough for this burgeoning population. Kenya's ecologists now speak of the land as being beyond its human carrying capacity. For this reason, pressure for new land is leaking towards the marginal subdesert lands of the north.

LAND PRESSURES

Until quite recently, these arid regions of north Kenya were inhabited by pastoral nomads—tribes who have managed to survive well enough for thousands of years because they were truly nomadic. But now the pressure of population movements from the south, combined with other modern influences, have dramatically reduced the areas which the nomads can use. At the same time, modern veterinary medicine has allowed their flocks to increase in numbers. Decreased grazing lands and increased herd numbers in a fragile area can lead to only one thing—desertification.

UNESCO defines desertification as the "extension and intensification of desert conditions", generally as a result of man's use of the land. Regrettably, it is more often than not *modern* man's influence which has tipped the balance in many of the world's arid regions. The extent of the problem is potentially massive, particularly when we reflect that one-third of the world's land surface is arid, where over 600 million people live.

INTERNATIONAL PROJECT

Facing up to the problem is UNESCO's Man and the Biosphere Program (MAB). In 1976 MAB established the IPAL project (Integrated Project on Arid Lands), as part of its international network of scientific research and cooperation. Funded by the Federal Republic of Germany, IPAL has just entered its major work phase on the north Kenyan problem.

Justin Murphy, Liaison Officer in CSIRO's Division of Land Resources Management in Perth, has contributed this feature on the recent participation of a communications team from the Division in a UNESCO research project in Kenya. Justin and Maurie Woodward have recently returned from a UNESCO conference in Paris where they presented a short paper on CSIRO and science communication.

Like any scientific project that needs continuing support from funding governments, IPAL needs to get its message across.

So IPAL approached the Division of Land Resources Management's Communications Group, asking them to produce a series of audiovisual documentaries to satisfy different audiences with different requirements.

Justin Murphy (writer), Bill van Aken (photographer) and Maurie Woodward (graphic interpreter) went to Kenya in June to research and photograph the IPAL project so that a number of documentaries and other communication aids can be produced. The deadline for the main documentary was an international MAB Conference and Exhibit held in Paris in September, titled "Ecology in Practice". Other documentary versions will flow on after that date. Part of the reasoning behind the presentation at the Paris meeting is to demonstrate to the world scientific community what MAB is doing and why—attracting scientists from various countries to MAB's fraternity is an obvious and very important aim.

INFORMATION TRANSFER

But the main purpose of the documentaries is to inform the Kenyan people themselves, their politicians and their teachers. The IPAL project can only go so far with ecological solutions. Human problems like these need human solutions. These in turn rely on political decisions which, if they are to benefit the people, must be taken by well informed representatives of the people.

There are many reasons behind North Kenya's environmental and human decline, and why it's been going on for decades. They deserve some elaboration.

HISTORICAL CHANGES

For a start, much nomadic grazing land has been lost, simply because of pressure from the over-crowded south. The northward push of commercial cattle ranches is the most dramatic change.

Many of the tribes are no longer truly nomadic. They've settled around Government and mission centres which provide water, schools and famine relief. They don't move their herds as much as before—herds which are getting bigger because of improved veterinary medicine. Bigger herds which stay in the one place lead to disastrous overgrazing.

Much of the area simply isn't used because of insecurity—both from tribal feuding and external raiders. Under-use of these areas inevitably leads to over-use of the safe territory.

In addition, the trees—especially the acacia thorn trees—are heavily over-cut for firewood, houses and protective night enclosures for the livestock.

And finally, there is no organised livestock marketing system, which, combined with the improved veterinary care, contributes to the damaging overstocking.

UNESCO APPROACH

UNESCO's way of tackling complex many-sided problems like this one is to use the interdisciplinary approach. This involves a team of experts whose individuals concentrate on individual aspects of a problem—the biological, the ecological, the climatic, the social, the need for communication, and so on. Review and integration is constant, so that the individual streams are brought together to form a picture of the whole problem—a picture which grows in detail and completeness as each separate aspect is better understood. Tasks which can be completed

Continued on page eight

Another look at industry liaison

Jim Lumbers writes of a recent visit to Japan.

Japan's glittering success in manufacturing and, more recently, high technology industries, hardly needs stating.

The world's business management journals bulge with articles on Japanese production efficiency, labour relations, financial arrangements, quality control, and so on.

Science attaches and others in western diplomatic missions in Tokyo pay careful attention to the relationships between industry, research organizations and government.

Earlier this year, while visiting Dr Tom Grace at the Australian Scientific Liaison Office, Tokyo, I learned of one intriguing aspect of Japan's science-industry interface—the study circles or research groups (in Japanese rinko or kenkyukai). They may interest CSIRO people concerned about contact with industry in Australia.

Dr Grace arranged for me to meet some executives of Hitachi.

With net sales of approximately $10 billion and a research budget of $450 million, Hitachi is well up in the top 10 electrical manufacturers in the world. The company began in 1910, producing electric motors using domestic technology.

The three senior engineers I met explained that personal contact was central to information transfer in firms such as Hitachi. The Japanese system operates through a network of groups that form around practical or academic problems—for example stress measurement. The groups are transitory, often lasting only two or three years. One of my hosts estimated that there might be more than 50,000 of these groups.

Mr Ikeda, an engineer and one of Hitachi's 10,000 R & D staff, belonged to three groups. He explained that university professors generally operate as group co-ordinators. The group usually combines executives from several local firms plus an academic or two.

Leeches are not allowed—everybody must do their homework and contribute at group meetings or drop out. I was told that personal contact took a lot of work and, without a solid background in the scientific and technical literature, it was not much use.

Mr Kimbara, a senior engineer, pointed out that socializing was not forgotten, with convivial dinners usually following group meetings, where information was exchanged.

Two types of groups exist with different Japanese names. The first, called kenkyukai, is hard to translate and broadly means research group. These groups generally form around topics that draw in people from a variety of backgrounds. Mr Kimbara said that the term is more trendy and less stuffy than rinko, the old-fashioned alternative. This may be translated as study circle and is usually found within an organization. The group convenor takes a leading role and maybe even acts as an instructor in a study circle, whereas the impression is that a research group consists of equals exchanging ideas.

Some groups are sponsored by government or industry organizations and produce formal reports, others do not report at all, or only circulate informal accounts of their proceedings to limited contacts. In all cases, the members report back to their firms—possibly by leading an in-house study circle.

Kenkyukai are relatively spontaneous—forming and dissolving as problems change.

But maybe there are some lessons for us in kenkyukai, to see whether this system can help provide answers to the questions about our own liaison arrangements. It is no secret that personal contact is essential for information transfer, but at what level should it operate? Certainly, Australian scientists and industry groups already get together on many consultative and advisory committees, and through the valuable work of the research associations. One could question whether these contacts are sufficient, but a more important question might be whether the effort should be concentrated at a different level. How productive is it to keep trying to bring very senior (and busy) men together when the leading edge of technological change operates several levels down? Also, partly as a product of our hierarchical arrangements, much of the time it is the same group of people meeting even if the committee has a different name.

So instead of encouraging the beautiful network linking people at many levels found in Japan, we put more and more strain on a limited pool of people.

Kenkyukai allow a great deal of contact between firms. The idea of a competitive market-place sometimes makes people overlook the fact—well-known in agriculture—that a producer's most important source of information apart from suppliers may be others working in the same area.

Apply now for the Rivett Medal

Nominations and applications are invited from members of the research staff of CSIRO, aged less than 40 years on January 1, 1982, for the award of the David Rivett Medal.

The award for 1982 is to be made for outstanding research in the field of Biological Sciences carried out over the past 10 years and is based upon published work. A substantial part of the work must have been performed while the candidate was an officer of CSIRO.

Each candidate must submit to the General Secretary, CSIRO Officers Association, 4th floor, 9 Queens Road, Melbourne 3004, before February 18 1982:

- a brief curriculum vitae which includes name, date of birth, completion dates for degree(s) and the awarding institution(s); list of positions held, with dates; honours; membership of Societies and Institutes
- a statement of not more than 200 words setting out in general terms, present and past research
- a list of his or her papers which have been published in the 10 years before the award or have been accepted for publication during the year before the award
- copies of all his or her papers, assembling together those (to a total of not more than 10) which he or she considers highlight the main advances he or she has made.

A Committee appointed by the Council of the Association will select from among the candidates (and from other officers of CSIRO at its discretion), a list of not more than ten candidates for examination for the award.

The Council of the Association, with the advice of the Australian Academy of Science or of the Australian Academy of Technological Sciences, will appoint one or more examiners, one of whom will be a Fellow of these Academies. They will examine the statements and published work of the candidates on the list prepared by the Committee and will recommend to Council, if they think fit, a recipient for the award from among those candidates.

The presentation of the medal will take place on the occasion of the 1982 David Rivett Memorial Lecture.

Giving the Australian Army a hand with land use and its care

For the past few years, the CSIRO Division of Land Use Research has been working in close collaboration with the Department of Defence in studying land management problems in some of the major Army training areas such as Puckapunyal (Vic.), Shoalwater Bay (Qld) and Wide Bay (Qld).

An important consideration in both training and in land conservation is the level of trafficability or 'going' in various terrain types. At the Wide Bay Army Training Area, much of the landscape of some 200 km^2 is being subjected to increasing pressure from training manoeuvres involving tracking as well as heavy wheeled vehicles. So that the area can be used to its best advantage, studies are underway to determine firstly the extent and types of terrain involved, and secondly their response to different kinds of disturbance including traffic under differing environmental conditions.

In a recent visit to Wide Bay, as part of its ongoing assistance program, a small team of CSIRO scientists—hydrologist Dr B. G. Williams, plant ecologist Dr A.N. Gillison and Mr J. A. Robertson, experimental officer—undertook a preliminary trafficability experiment. In this they were assisted by members of the transport section in the Army reserve training unit from the Queensland Agricultural College at Lawes.

The study showed that where repeated passes were made by an unloaded 2½ ton truck in the same tracks, there was a marked difference over two different vegetation types. The vegetation is dominated by the low, large-leaved shrub *Banksia robur*. This species of plant indicates a higher soil moisture level than that in surrounding vegetation without *B. robur*, where the truck was not bogged.

This kind of study provides a valuable input in producing a management plan for training areas such as Wide Bay, as such readily recogniseable vegetation types can be usefully mapped and described to potential users.

Dr Baden Williams (lower left) of the CSIRO Division of Land Use Research, Canberra, explains some of the traffic-response characteristics of soils to members of the Q.A.C. Army training unit.

Assisting are J.A. Robertson (CSIRO) (second left) and Mr Geoff Friske, caretaker WBTA (extreme right) accompanied by 'Black Dog'.—Photo A.N. Gillison, CSIRO.

The hen with the mostest - eggs that is

CSIRO-bred hens which lay more often are now available to the Australian poultry industry.

The hens are the progeny of a new strain developed by CSIRO's Division of Animal Production and could mean up to a 10 per cent increase in commercial egg production from each hen.

The Chief of the CSIRO Division of Animal Production, Dr Trevor Scott, has announced that crossbred chickens from the new strain would be available commercially under an agreement between CSIRO and Gillespie Bros. Pty Ltd of Brisbane.

The new strain was an Australorp selection line, and the crossbred chickens would be marketed under the name SIRO-CT.

Parkes radio telescope has a role in Project Giotto

CSIRO's 64 metre radio telescope at Parkes in New South Wales, will play an important role when a spacecraft is launched to intercept Halley's Comet in 1986.

The radio telescope will have prime responsibility for receiving scientific data from the spacecraft which will fly through the head of the Comet in March 1986.

Halley's Comet appears every 76 years and consists of a mixture of ice and dust which spreads into a long tail as it approaches the Sun.

Details of CSIRO's involvement were announced by Dr Harry Edwards when he officially opened a series of open days at the CSIRO Division of Radiophysics in Sydney.

Dr Edwards is Chairman of the Federal Government Members' Committee on Industry, Business and Science. He was representing the Minister for Science and Technology, Mr David Thomson, at the ceremony.

Dr Edwards said the Division of Radiophysics was supporting the space venture, codenamed Project Giotto, which was being undertaken by the European Space Agency.

The ESA will launch a French Ariane rocket in July 1985, which will carry a spacecraft aimed to intercept Halley's Comet on March 12 or 13, 1986.

It is expected the Comet will then be closest to Earth since 1910, and the spacecraft will be programmed to collect a wide range of complex scientific data related to the composition of the Comet.

This data will be received by the Parkes radio telescope and sent using the Australian telecommunications system to a satellite tracking station for transmission to the European Space Operations Centre in Darmstadt in Western Germany.

The experiment being monitored by Parkes will last for four hours, but the total time in passing through the head is expected to be one and a half hours.

The experiment would coincide with the year 1986 in which the radio telescope marks its 25th year of operation.

CAT concern

Concern that the members of the Australian Atomic Energy Commission would receive proper induction into CSIRO after their transfer was expressed by CAT members when they met in Melbourne.

In a letter to the Secretary, Personnel, Mr Kevin Thrift, the Secretary of CAT, Dr Michael Dack, said members had expressed the hope that the transfer would take place with the staff being kept in touch with all developments, thereby minimising the type of confusion associated with the recent Highett changes.

"Because of its special interest in communication matters, CAT hopes any induction process will include sessions on how information can be obtained from other sections of CSIRO and how it is transmitted to outside users." Dr Dack added.

CSIRO, Glaxo collaborate on twinning treatment

CSIRO and Glaxo Australia Pty Ltd of Melbourne are to collaborate in developing a treatment to increase lamb production.

In small scale trials, the treatment, given as an injection, increased the lambing percentage of ewe flocks by about 20 per cent by producing more twin births.

A three year research and development contract to evaluate the treatment on a larger scale has been signed.

The treatment has been developed by CSIRO's Division of Animal Production over the past eight years in small field tests involving 6000 ewes.

However, much more research and development needs to be done before the treatment can be described as viable under commercial farming conditions—and a product will not be marketed for several years.

The research and development contract aims at larger scale testing, simplifying the treatment, obtaining better breed data, testing the compatibility of the treatment with existing flock management and obtaining product registration.

On-farm trials to pursue these objectives will begin early next year.

The treatment's active agents are immunogens prepared by combining a weak steroid androgen with a serum albumin.

Treatment with the immunogens produce a subtle alteration in the ewe's hormone balance which results in a change in ovarian function—producing twin rather than single ovulations.

Glaxo Australia Pty Ltd will spend $1 million on the collaborative contract over the next three years.

The company was selected after tenders had been called for companies to participate in the project.

CAT

A little green book on public relations has gained the attention of many CSIRO staff involved in communication.

The book, *Massaging the Message*, reports on the public relations and media campaigns for the 51st ANZAAS Congress held in Brisbane in May this year.

The authors are the Public Relations Officer for the Congress, Mrs Anna Palthe, and the Production Editor of CSIRO's Media Liaison Group in Canberra, Mr Tom Parkes.

They planned the campaign which drew on the resources of the ANZAAS Organizing Committee and those of CSIRO's Science Communication Unit.

The report, with a large number of attachments as 'samples' of the material produced, details of how the campaign was conceived and how it was implemented.

The report examines hows the Congress Media Centre worked, what it cost, what ideas proved workable and what ideas did not.

As part of the campaign, the attitudes of media representatives covering the Congress were surveyed. While most agreed the Media Centre provided an efficient and valuable service most also believed the Congress could be structured better to achieve better media coverage.

The report concludes that while the campaign and the operation of the Media Centre was a recognized success the attitude of most Congress speakers was 'to rate public relations well down their list of priorities'.

'The evidence of this was in the small number of speakers who made copies of their paper available to the Media Centre before they spoke; the comparatively small number of speakers who visited the Media Centre to field questions on their paper; and the extremely large number of speakers who gave no thought at all to providing a copy of their paper to the media, or anyone else.'

☆

Doris Leadbetter, of the Headquarters Library, has drawn to the attention of subscribers of Scanfile, the need to fill in a request and declaration form when requesting items from the service.

The form, attached to each notice in Scanfile, complies with the requirements of the Copyright Amendment Act 1980.

Scanfile covers literature on science policy, science management, administration and general science topics.

Any article abstracted is available as a photocopy, on request.

Chinese delegation at Armidale

A delegation of Chinese researchers interested in animal husbandry, recently visited CSIRO's Division of Animal Production Pastoral Research Laboratory at Armidale, N.S.W. Their main interest was the management and administration of animal husbandry, administration, improvement in livestock breeding, and grasslands development. The delegation was accompanied by Mr Lin Son, first secretary at the Embassy of the Peoples Republic of China in Australia, extreme right, and two members from the Commonwealth Department of Primary Industries. Mr Kong Fei, third from right in the front row was the leader of the delegation. Staff from the Division in the photograph are Mr John George second from right, Mr Jack Hilder, fourth from left, both liaison officers, and Dr John Wheeler, acting assistant chief of the Division of Animal Production, fourth from right.

CSIRO Bureau Director as BHP Science Prize judge

The Director of the Bureau of Scientific Services, Mr Sam Lattimore, has been undertaking a two and a half week tour of Australia, taking part in the State judging for the BHP Science Prize.

Close to 400 students have entered the competition, from all States and Territories in Australia. State judging is taking place during December, followed by national judging in January/February.

The prize will be presented at the Australian Academy of Science in Canberra on March 2, 1982.

More than half the entries received concern biological sciences. Topics include the isolation and effectiveness of penicillin, the development of fuel cells, the extraction of tars from coal, and studies of the intelligence rating of domestic fowl.

One student intends to investigate 'super clusters' in space, while another is examining the effect of household products on ants.

Probably the most ambitious synopsis received is from the student who will 'attempt to unify gravity and electromagnetic interactions by reducing charges to positive and negative curvatures in the space-time continuum'.

Mr Lattimore is representing CSIRO on the judging panels, and has visited Brisbane, Darwin, Sydney, Hobart, Melbourne and Adelaide. He returns to Canberra on December 18. His visit was sponsored by BHP Proprietary Limited to ensure judging was standardised in each State.

Conference on ocean eddies

An international workshop on the physics, chemistry and biology of ocean eddies, is to be held as part of the US/Australia and US/ New Zealand Cooperative Science Programs.

The workshop, hosted by the New Zealand Oceanographic Institute, will be held in Wellington, New Zealand from January 18-22, 1982. Approximately 40 scientists from Australia, New Zealand and the United States are involved. The Australian participants are drawn from the CSIRO Marine Laboratories, the Royal Australian Navy Research Laboratory, the Australian Institute of Marine Science and the National Museum of Victoria.

Ocean eddies are a common feature of the East Australian Current system, the Gulf Stream, the Kuroshio and other western boundary currents and are of increasing interest in fisheries biology and oceanography. They represent a mechanism for intensive energy exchange in the oceans and a site where pelagic fishes are known to aggregate.

The US group have been studying 'cold core' eddies shed by the Gulf Stream, the Australian group 'warm core' eddies shed by the East Australian Current, the New Zealand group eddies associated with seamounts. The workshop is a forum for exchange of ideas and information. Approximately 30 papers will be presented, most of which will be published in the *Australian Journal of Marine and Freshwater Research*.

Further information may be obtained from the Australian convenors Dr David Tranter and Dr Stephen Brandt of the CSIRO Marine Laboratories.

L.R.M.'s Kenyan project

From page six

within a number of months are taken care of by short-term consultancies—such as our own.

And of great importance is the aspect of local involvement. In this case, scientists and technicians from Kenya and other East African countries are engaged so that they can gain the maximum amount of training possible during the life of the project. In this way countries with problems such as Kenya's are helped by UNESCO to develop a self-reliant core of scientific and technical expertise which will be available for years to come in dealing with problems peculiar to their own country. The international training and education part of UNESCO's work is constantly stressed, and appears to work very successfully.

The CSIRO team fitted easily into this scheme of things. The logistics of gathering information and photography for such a documentary are very complicated. The IPAL project area covers 22,500 sq kms and in a ten-day period we needed to gather an extensive photographic coverage of the significant regions of the study area, make sure that we had noted all the aspects of the desertification problem and the IPAL program of work, and satisfy ourselves that we understood the social complexities. Our path was smoothed in all this by the IPAL scientists and technicians. Their enthusiasm is obvious and their team-work impressive. They are not just a group of experts doing a job—they are all committed and dedicated, closely identifying with a problem of human survival. The nomads of northern Kenya certainly have the right people in there striving for them.

New positions

From page one

animal health, particularly research involving exotic diseases of animals.

"Mr Thomson's announcement means that construction of the new laboratory will not result in a reduction of the level of present research programs," Dr Wild said.

"In fact it means a real increase in total resources available to CSIRO in this area.

"The Executive of CSIRO regards research for the agricultural and livestock industries of Australia as traditionally a most important commitment."