CoResearch

CSIRO's staff newspaper *Dec./Jan. 1982/83* **258**

Annual Report tabled:
Scientific research needs a 'special environment'

In his introduction to CSIRO's Annual Report, the Chairman, Dr J. Paul Wild, said scientific research 'must be excellent to be worthwhile and needs a very special environment'.

Dr Wild said the CSIRO looked to Parliament to 'maintain the same degree of independence and accountable freedom that we have thrived on since the days of Sir David Rivett, who passionately fought for these conditions'.

Dr Wild said that at June 1982 CSIRO had been operating for three-and-a-half years under the amended Science and Industry Research Act which followed the Independent Inquiry into the Organization chaired by Professor Arthur Birch.

'Considerable changes were prescribed by the Government', he said.

They included:

- extended and more independent advisory and planning machinery;
- a greater sense of accountability;
- increased delegation down the line; and
- a new form of Executive and management structure.

'I believe all these changes have been shown by experience to have been wisely conceived and we are grateful to those responsible', he said.

A 'special thread' ran through the Birch Inquiry report.

'That is the principle that the CSIRO Executive should be allocated annually an agreed amount of directly appropriated funds, and then be left to get on with the business of managing those funds to yield the maximum national benefits with the minimum of external interference.'

Continued on page 8

Institute fellowship for Dr Ray Jones

Dr Raymond Jones, a senior scientist with the Division of Tropical Crops and Pastures at Townsville, Queensland, is one of five new Fellows named by the Australian Institute of Agricultural Science.

Dr Jones, who is Officer-in-Charge of the Davies Laboratory at Townsville, was awarded the Fellowship for his leading role in the sub-tropical and tropical pasture research in Northern Australia, especially in his contribution to the development of principles for managing pastures and to grazing theory.

During his 22 years in Queensland, Dr Jones has been in the forefront of sub-tropical and tropical pasture development which has led to the development of highly productive, stable pasture systems.

Other Fellows named by the Institute are: Dr William T. Parsons, Member of the Vermin and Noxious Weeds Destruction Board, Melbourne; Dr Clifford D. Blake, Principal, Riverina College of Advanced Education; Dr Owen Carter, Assistant Principal, Hawkesbury Agricultural College and Mr Richard Condon, Western Lands Commissioner for the Western Division of New South Wales.

Map of Research Activities

CSIRO's Annual Report, tabled in Federal Parliament in the first week of December, features a colourful map of the Organization's research activities. Unfolded copies, suitable for display, are available from Headquarters Library, P.O. Box 225, Dickson, ACT 2602.

Oil shale research expanded

The Minister for Science and Technology, Mr David Thomson, has announced an expansion of collaborative research between the Rundle Joint Venturers and CSIRO on the Rundle oil shale deposit.

The Joint Venturers are Esso Exploration and Production Australia Inc. and Southern Pacific Petroleum NL/Central Pacific Minerals NL.

CSIRO began its studies of oil shales in Queensland and Tasmania in the mid-1970s when the possibility of their exploitation as sources of liquid fuels was raised.

'Collaboration with Esso and SPP/CPM is an important aspect of CSIRO's research program', Mr Thomson said.

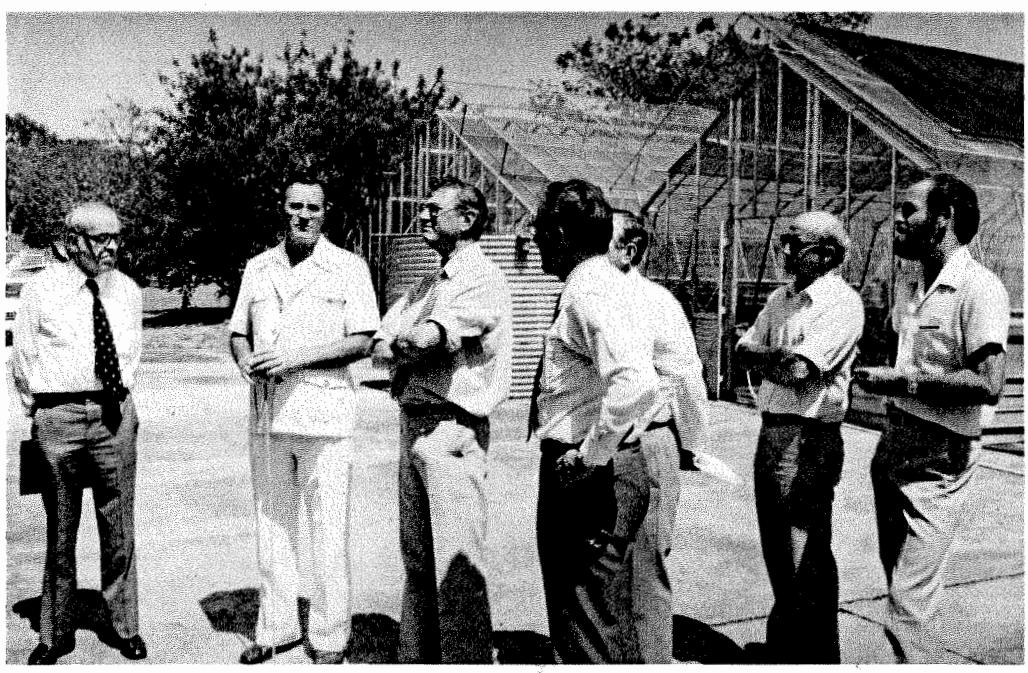
'The new projects are aimed at improving knowledge of how the Rundle shale will react during processing.

'Fundamental data such as thermal properties and chemical changes during treatment are to be measured in experiments with various shale samples.

'As part of the program, the Joint Venture is providing $360 000 which will enable the purchase of several items of equipment needed for making the detailed measurements of shale properties', he added.

The research will be carried out by the Division of Fossil Fuels and the Physical Technology Unit in Sydney, and by the Division of Mineral Chemistry in Melbourne.

Samford laboratory opened



The Chairman of CSIRO, Dr J. Paul Wild, inspects the Controlled Pollination Unit at the Samford laboratories after he officially opened the complex in November. The Unit, to be administered by the Division of Tropical Crops and Pastures, is unique in the sub-tropics and tropics. Pictured at the opening are, from left, the Director of the Institute of Biological Resources, Mr Michael Tracey, Mr Ray Strickland of the Division of Tropical Crops and Pastures, Dr Wild, the Chief of the Division of Tropical Crops and Pastures, Dr Ted Henzell, Mr Ron Williams and Dr Bryan Hacker, both from the Division. *See story page six.*

Letters to the Editor

Dear Editor,

Mr McLennan's letter to the November 1982 issue of *CoResearch* contains an inaccurate account of the CSIRO Officers Association policy on early retirement in CSIRO.

The CERR Act in the Australian Public Service and in various statutory authorities has indeed set new standards in the federal public sector, with respect to voluntary age retirement. It has however maintained and even strengthened the standard of age 65, for mandatory age retirement. Under CERR, the old Public Service Act power of management to summarily retire officers on the grounds of their age alone, from age 60-65, was removed. Under CERR, mandatory age retirement is only possible from age 65.

However CERR did introduce voluntary age retirement from age 55, where this had previously only been possible from age 60 under the old Public Service Act in the Australian Public Service. It is important that people be aware of the distinction between mandatory age retirement and voluntary age retirement.

In CSIRO we are still mirroring the old pre-CERR days in the Australian Public Service, when voluntary age retirement was only possible from age 60, and when mandatory age retirement by management was possible from age 60.

The Officers Association is now seeking the same age retirement standards for CSIRO as now operate in the Australian Public Service under the CERR Act, namely, voluntary age retirement from 55, and the strengthening of age 65 as the community standard for mandatory age retirement, by removing mandatory retirement on the grounds of age alone, from age 60.

There are many other issues which the CERR Act raises, including redeployment into and out of CSIRO, and redeployment and retirement of excess (redundant), invalid, or involuntarily inefficient officers. Extra benefits in these areas, as well as appeal tribunals, are also issues. The whole issue is complex, and has enormous ramifications for the future. Negotiations are currently going on between CSIRO and its staff associations.

In conclusion, the Officers Association is actively seeking age 55 voluntary retirement in CSIRO. We are also seeking the other provisions of the CERR Act which are beneficial for both staff and management. It is not a necessity that CSIRO go under the CERR Act to get similar provisions to CERR in CSIRO. Other large statutory authorities such as the Commonwealth Banking Corporation and the Australian Broadcasting Corporation have obtained, or are obtaining, CERR type provisions in their terms of employment, without going under the CERR Act itself.

—Jim Pletch
Research-Industrial Officer
CSIRO Officers Association
Melbourne

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Dear Editor,

A recent editorial in *New Scientist* (Vol. 96, No. 1327, p. 75) refers to a suggestion by an Italian researcher that there should be a Nobel prize for administrators of R & D.

The editorial, whilst endorsing the proposal, goes on to suggest that often administrators are promoted researchers who have done well in research but they fall flat on their faces because administration requires different skills.

This suggestion challenges the fundamental philosophy in CSIRO that good researchers go on to become better administrators and yet in these days of musings over pay freezes, the productivity of Mozart and the space available for rock-chopping, it really warrants serious examination.

The point is, can scientists who were brought up with the attitudes described by Sir Peter Medawar (and others both before and since) in his book 'Advice to a Young Scientist', 1979, p.11, '... of delighted wonderment ... that they should be paid ... for work that is so absorbing and deeply pleasurable ...' *reasonably* be expected to administer the tough new world of sponsored research with the associated demand for results (favourable, of course), quarterly reports (naturally on time) and so on, in the absence of appropriate retraining schemes?

The *New Scientist* further suggests that 'we should begin by awarding a Wooden Spoon for administration of research'. *CoResearch* would do well to take up this suggestion and start a competition for a design of this Wooden Spoon, if only to act as a diversion for those correspondents who imagine a new logo will be the panacea for CSIRO's problems.

—Michael H. Jones
Division of Mineral Chemistry
Melbourne

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Dear Editor,

As our Chairman says (*CoResearch*, November 1982), high inflation does indeed make it hard to keep track of how our salaries have moved over the years.

This is why, like Dr Wild, I decided some three years ago that expressing salaries in real terms was the only way to present a true picture of salary trends. I was then involved in preparing some widely publicized material which showed how disastrously CSIRO professional staff had fared over any chosen long period since 1964. Why does the Chairman, claiming 'we haven't done too badly', now reach such a different conclusion?

Well, it is not because we use different data. I am reasonably happy with the statistics given to the Chairman by Personnel Branch, although the 1967 base date chosen for the comparisons is not quite fair—a glance at the Chairman's graphs will show that nearly all of the real increases for professional staff occurred up to 1971 and the picture has been very dismal since then. And the logarithmic form of graphical presentation tends to obscure the detailed trends and any differences between the curves.

But these are quibbles in the face of the Chairman's interpretation of his own statistics to show that 'we haven't done too badly'. Inexplicably, he has neglected to consider average weekly earnings, the most useful yardstick for measuring the general living standard of the salary earner, which increased by 52.5% in real terms between June 1967 and September 1982. Anyone who managed less than that is doing badly, in my view, and that goes for everyone in the Chairman's Table, excepting LC2. According to my calculations, the Chairman himself has done worst of all, with an 11% increase over the past 15 years. Most classifications would need rises of the order of 25% to bring them to the national average real increase.

I have been arguing for three years that the professional staff, as well as the Executive, of CSIRO should be sharing equitably in the increased national wealth which they have helped to generate. With his unfortunate conclusion, the Chairman seems to be taking a contrary view. I hope he changes his mind.

—Tom Biegler
Division of Mineral Chemistry
Port Melbourne

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Dear Editor,

Are we really doing so well in CSIRO?

In the November issue, the Chairman cited statistics for real increases in our salaries between 1967 and 1982. These (before tax) increases ranged from 61.2% for laboratory craftsmen to a mere 14.4% for Executive Members, with most of us in the 20-30% range.

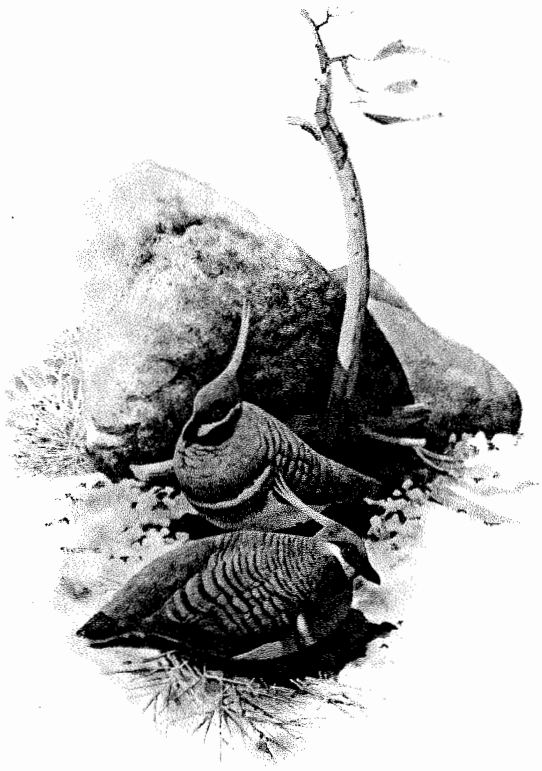
I wondered how these increases compared with national economic growth. Official statistics show that national income at current prices grew from $20.5 billion to $135 billion between 1966-67 and 1981-82. Adjusting for inflation, by the CPI index, and for population growth, the increase in national income per capita at constant prices was from $1778 to $2635, or 48%.

So most of us haven't kept up with the Jones—or the grocers, dentists, car salesmen ... Further, as PAYE taxpayers we are paying more than our share to keep the ship of state above the bottom of the harbour.

On top of the Government's forecast of 10¾% inflation in 1982-83 it now proposes to freeze our salaries for a year! Already that inflation statistic—like the Budget deficit—is looking rubbery. So our incomes skid to a halt ... while the prices we pay to the Joneses, and their incomes, bounce further ahead.

Lies, damned lies ... !

Bill Curnow
Headquarters



This year's CSIRO Christmas card, painted by CSIRO wildlife artist, Mr Frank Knight, is an illustration from the recently published book, 'Australian Pigeons and Doves' which was written by the former Chief of the Division of Wildlife Research, Dr Harry Frith.

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Dear Editor,

In dealing with salaries in the November issue, the CSIRO Chairman presented a Table and a graph and the finding that over the years 'we haven't done too badly'.

Percentage increases from 1967 to 1982 in incomes adjusted for cost of living, vary from 8 to 51 after tax increase.

I think Dr Wild should have explained why he chose to compare salaries of September 1982—presumably at the new rates—with those of 1967. Without that explanation, many of us will be encouraged to think that some special pleading is involved. The period around 1967 was one when CSIRO salaries were badly depressed in relation to those of other highly competent people in government service and in universities. That period continued until increases were gained—rather unevenly as the graph shows—during 1970 and 1971.

Another period of disadvantage for CSIRO staff is indicated in Dr Wild's graph around 1980, since when there have been gradual increases. Understandably then, the comparison of 1982 with 1967 should indicate an increase in real income.

But if we want 'to keep track of how our salaries have fared in real terms over the years', it would be better to compare current rates with those around 1971, or 1964, or 1954. To take a point from one of my books on statistics (Reichmann 1964), we should not make too much of an increase in ice-cream sales from winter to summer. We really want to know how sales compare for the same season of different years, either winter or summer.

—G. Blackburn
Division of Soils, Adelaide

Ten graduates given Postdoctoral awards

Ten young Australian graduates have been granted Postdoctoral Awards by CSIRO. The graduates, all men, and their host Divisions are:

Walker, G.R. (Manufacturing Technology). Investigations into the effects of heat treatment and surface hardening on plastic strains.

Colditz, I.G. (Animal Health). Studies on the mechanism of leucocyte traffic into mammary gland epithelia and secretions.

Elliman, R.G. (Chemical Physics). Investigate the production and tribological properties of non-equilibrium metallic alloys with the aim of fabricating wear and corrosion resistant surface coatings.

Krieg, P.A. (Molecular and Cellular Biology Unit). To determine how and where in the cell a messenger RNA precursor is processed into a mature cytoplasmic message.

Raven, R.J. (Entomology). Cladistics and biogeography of dipluroid myglomorph spiders with a taxonomic review of included genera.

Haseloff, J.P. (Plant Industry). Mechanisms of RNA transcription, by normal plant cellular enzymes of viroids and a novel class of viruses.

Simpson, R.J. (Plant Industry). Investigate whether the genetic yield potential of European ryegrass and Australian wheats might be improved by selection against certain elements of 'wastefulness' in plant respiration.

McCallum, H.I. (Fisheries Research). Investigations into the management of multispecies fisheries.

Furbank, R.I. (Plant Industry). Study the regulation of starch and sucrose synthesis in C_4 plants.

Mackay, D.A. (Entomology). Research the role of pre- and post-alighting discrimination in host selection by ovipositing butterflies.

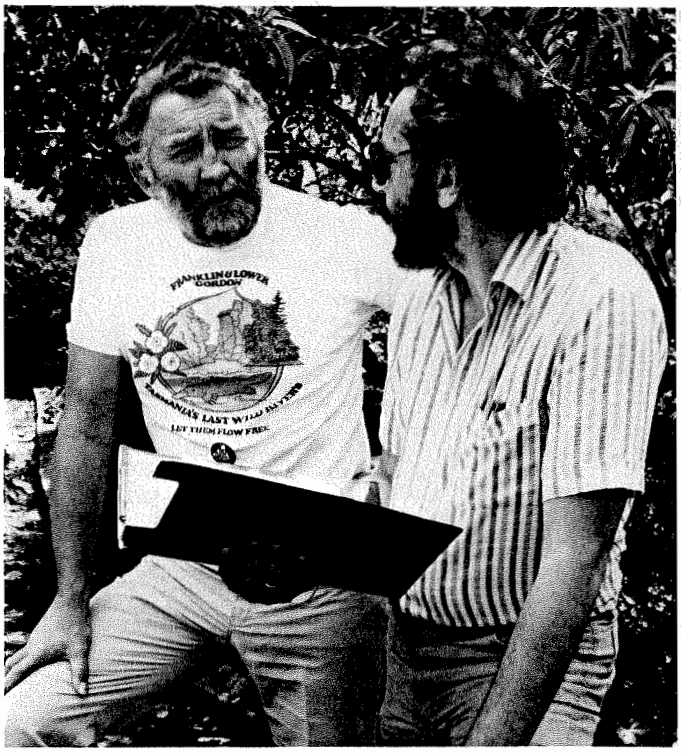
Australian Science in 'The Peoples' Daily'

An article on CSIRO entitled 'Flower of Science in Australia' was recently published in 'The Peoples Daily' in Peking.

The article gives a brief history of scientific research in Australia, and outlines areas of research covered by the Organization during its existence.

'The Australian scientists have done a lot of good deeds for the country. They are respected in the Australian society. The flower of science in Australia spreads its fragrance everywhere', the article concludes.

Botanic Man in CSIRO film



The BBC's 'Botanic Man', Professor David Bellamy (left) discusses the script with the Film and Video Centre's scriptwriter Russell Porter. Professor Bellamy was in Melbourne recently for the Tasmanian Wilderness Society, and the film crew took advantage of the visit to record his views on the buildup of atmospheric carbon dioxide. The Film and Video Centre is producing a major film on the subject, and Professor Bellamy's voluble and enthusiastic contribution guarantees it won't be dull.

From the Chairman-

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

It is quite clear from letters I have received from inside and outside CSIRO, as well as correspondence published in this journal, that the recent attempt by the Executive to demonstrate its belief for the need for wage restraint was widely misunderstood.

By its action the Executive was not attempting to do any of the following things:

- upset established relativities in the salary structure
- establish scholarships or research or industry endowments
- adjust the ratio of operating to salary funds within the Organization
- indulge in charitable activities.

On the contrary, the Executive took the action it did, by way of example, because it believed the nation is living beyond its means and that the first requirement to set its house in order is to reduce the standard of living across the board to help control inflation, increase employment and increase the viability of industry. In the event, the attempted action did not go unnoticed and may well have made a contribution towards achieving its original objective.

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Co-operation with Government, industry, the community and, above all, other research institutions, is a matter of fundamental concern to CSIRO. Quite apart from the fact that common sense dictates that we should co-operate in all ways possible, the law insists that we should. Since 1949 the Science and Industry Research Act instructs us as follows:

'The Organization shall, as far as possible, co-operate with other organizations and authorities in the co-ordination of scientific research, with a view to—

(a) the prevention of unnecessary overlapping; and

(b) the most effective use of available facilities and staffs.'

Our co-operation takes many forms. Our longest established links have been in the rural sector, notably through committees of Ministerial Councils for Agriculture, Fisheries, Forestry and so on and, much more recently, with industry itself through the National Farmers' Federation. We have similarly numerous links with the mineral and manufacturing industries.

In the last few years the Government has set up machinery to ensure co-ordination at Ministerial and working levels between the Department of National Development and Energy (DNDE) and CSIRO on both energy and water resources research. Recently we have reached agreements with the Bureau of Mineral Resources on co-ordination of minerals research and with the Bureau of Meteorology on atmospheric research. In the long run, such agreements lead to better understanding and definition of one another's roles and the Executive wholeheartedly welcomes them.

In spite of these developments of greater co-operation there are still occasions when affected staff voice concerns that we are somehow being taken over or unreasonably restrained. Much of this kind of concern goes back to the time of Rex Connor, as instanced by several motions passed at the 1981 AGM of the Officers Association expressing concern (over the Energy agreement) that 'CSIRO was once again faced with the prospect of a part of CSIRO becoming responsible to two Ministers'. In recent weeks some scientists, especially in the Division of Mineralogy, have expressed other worries over the agreement with BMR—fearing that the Bureau was going to decide what kind of research they were going to do. Of course there is a need to define the roles of different organizations working in the same general field. But I can assure the staff of CSIRO that the Executive holds sacred its responsibility to determine the research priorities and programs of the Organization and has no intention of relinquishing it.

As a post-script to this subject, I am very pleased to say that as a result of meetings between the Australian Vice-Chancellors' Committee and CSIRO our relationships with Australian universities have never been closer. We are now entering research agreements with six universities to undertake extensive co-operative research programs on a 50:50 basis. These are, of course, additional to many less formal arrangements entered into by particular Divisions and individual scientists.

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As a result of this column, I receive a steady trickle of correspondence, so that I can judge what interests people more or less. It was a surprise to me that the item that caused most response was not salaries or retirement policy or budgetary matters or even the importation of the virus of foot and mouth disease. It was, in fact, a discussion of the theorem of Pythagoras. The response was consistently positive except, alas, from one quarter. It seemed that every female member of staff with the name of Doris thought I was having a go at them, individually or collectively. In fact, I now admit, I had only one Doris in mind—and she responded in her inimitable style in the last issue. I hereby bestow upon her the Order of the Christoffel symbol, which (as Doris would know like the back of her hand) bears the classical insignia

$$\Gamma^{i}_{kl} = \frac{1}{2} g^{ij} \left(\frac{\partial g_{ik}}{\partial x^{l}} + \frac{\partial g_{il}}{\partial x^{k}} - \frac{\partial g_{kl}}{\partial x^{i}} \right)$$

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May I wish you all the season's greetings.

Paul Wild

Corrosion Medal to Dr Ed Potter

Dr Ed Potter, of the Division of Fossil Fuels, was awarded the Corrosion Medal of the Australasian Corrosion Association at the conference dinner in Hobart, last month.

Although Dr Potter has many other interests—electrostatic precipitation and the OA Presidency, to name but two—corrosion has been with him for many years (and has left hardly a trace!).

Dr Potter said 'When I came to add it up, my second day of employment was on a piece of corrosion research, and I'm still at it 42 years later!'

MAJOR CONTRIBUTION

His major contribution to this field was in the electric power industry in England. The method of corrosion mitigation that he devised for steam boilers is still successfully in use today.

On a lighter note, he has developed a corrosion 'stage show', in which he delights students—and serious scientific adults—with demonstrations of the art of corrosion. For instance, he runs a full-size wall clock on nothing else but small pieces of scrap metal moistened with seawater. And, with his 'instant' corrosion package, he can ruin a brass spring in just ten minutes.

Such corrosive magic is not only an educational experience for students and adults alike, but also serves to pinpoint Dr Potter's ability to communicate his research results in such a way as to infect others with his enthusiasm, so perhaps prompting a future generation of scientific 'artists'.

□ □

Mr Peter Murphy has been appointed to head the newly re-established Technical Information and Liaison Office in Perth, Western Australia. Mr Murphy, who holds degrees in science, economics and a Masters in Business Administration from the University of Western Australia, is well known in Western Australian industrial and commercial circles.

A telephone inquiry service will operate from the office which will exploit the latest information technology to obtain specific technical information from the CSIRO data bases and from overseas centres. His appointment forms part of the CSIRO information network which has centres in Melbourne and Sydney.

Mr Murphy's office is at 28 Kings Park Road, West Perth, telephone 32222111.

Mr Martin Combe retired from CSIRO on December 7 after almost 45 years of service. There was a farewell to Martin, his wife, son and daughter-in-law attended by more than 100 people on Thursday, December 2, 1982, at Headquarters.

Martin recalled CSIRO's early years in Melbourne when David Rivett would sometimes help Martin, in his role as a junior messenger, to carry heavy parcels. Tribute was paid to Martin for his ability, helpfulness and hard work. Best wishes were extended to Martin and his wife for a happy retirement.

□ □

John Sheedy, who has probably worked in more CSIRO units than any other officer, retired on November 30.

Fittingly known to all who came into contact with him as 'Gentleman John', he joined the Organization in July 1952 as a clerk at McMaster Laboratory, Glebe. He later worked in the RAO Canberra, HQ (when it was in Melbourne), Forest Products, RAO Sydney, Coal Research and Physics until in 1966 he was appointed relieving administrative officer attached to Headquarters. In this capacity he served from Katherine to Cronulla, Perth to Prospect and many points in-between.

After a period back at Physics, he later travelled extensively again as one of the team introducing the Knuckey registry system to divisions and units. In 1975 he returned to the RAO Sydney as Registrar and when he retired was acting as Overseas Travel Officer.

A quiet farewell was given to John by his colleagues. His retirement plans include some more travel and then the quiet life beside Sydney Harbour.

Death of Bill Bailey

It was with great sadness that colleagues of Bill Bailey in the Division of Entomology learned of his death on September 25 after a short illness.

Although Bill retired from the Division in August 1978, he maintained close contact with his friends and colleagues in CSIRO.

Bill was regarded as one of the world's foremost storage researchers during a long and distinguished career in the Division. As research leader of the Stored Grain Research Laboratory, he made many contributions to scientific methods of grain storage over the three decades of his service with CSIRO.

Since his appointment as a research officer in 1950, he surveyed the problems associated with wheat and flour storage and pursued many fruitful lines of stored product pest research.

Born in England, he receive a B.Sc (Honors) from the Imperial College of Science and Technology, University of London. In 1941, he joined the Ministry of Food as an entomologist and two years later he was placed in charge of the Inspecton Division's work in Bristol. He then joined the CSIRO and began to focus his attention on hermetic storage of grain and its effect on insect pests. Much of his research set a foundation for later studies on airtight storage and use of controlled atmospheres.

INTERNATIONAL LINKS

Many organizations drew on his expertise in the field of stored product entomology. In 1962, he visited Ceylon to advise on grain storage, pest control and bulk handling of cereals and two years later, he acted as a consultant in South Vietnam. He was then assigned to the Pest Infestation Laboratory in England where he studied the effects of physical disturbance on stored product insects. Mr Bailey represented Australia at the Codex Alimentarius Committee on Pesticide Residues at the Hague.

In 1970, following an agreement between the Australian Wheat Board and CSIRO to promote research on grain storage problems, he was appointed leader of a stored grain investigations team. The following year, he presented papers to the International Congress on the Storage of Grain and its Products in Winnipeg, Canada. With several other entomologists, he negotiated details of an exchange program under the Australian-U.S.S.R. Science Agreement and participated on the first joint Symposium on Grain Storage held in Moscow in 1978.

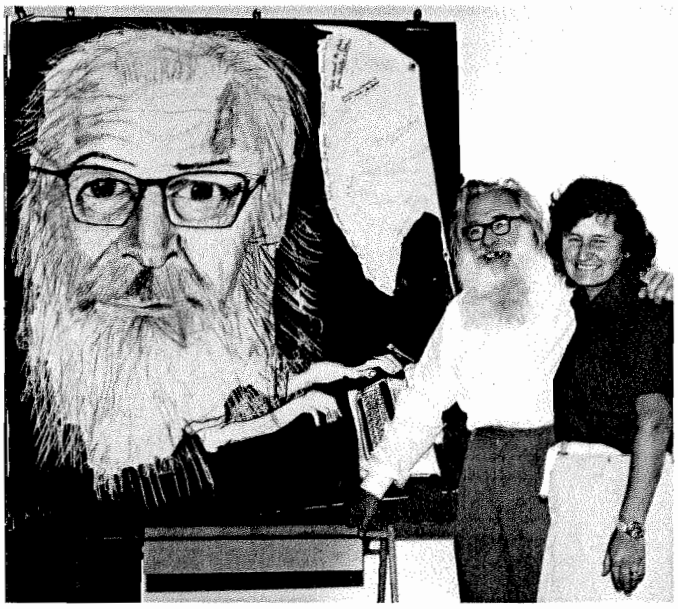
From 1974 until his retirement, he acted as a consultant to the Grains Working Group of the ASEAN Sub-committee on Food Handling. In 1973, he visited Burma on behalf of the Australian Development Assistance Bureau to advise on development of the Country's export trade in pulses. Two years later, he visited Bangladesh on a similar mission concerning storage and handling of food grains. In 1979, he again visited Burma on behalf of FAO to participate in a Prevention of Food Loss Mission.

Bill is survived by his wife Robin, son Ian, and daughter Ann.

—Bruce Champ

CSIRO's Executive goes bush

Dr Dick Braithwaite, a forest ecologist with the Division of Wildlife Research at Darwin, explains his research to the party of CSIRO Executive Members who recently toured Northern Australia. From left is the Director of the Bureau of Scientific Services, Mr Sam Lattimore, Dr Geoff Taylor of the Executive, Mr David Wright, a part-time Member of the the Executive, Dr Mike Ridpath of the Division of Wildlife Research, Darwin, the Chairman, Dr Paul Wild, Professor Pat Werner, Dr Don Weiss of the Planning and Evaluation Advisory Unit, the Executive Secretary, Mr Gratton Wilson, Mr George Dudzinski of the Division of Mathematics and Statistics Darwin laboratory and the Chief of the Division of Wildlife, Dr Charles Krebbs. The photograph was taken at Apple Tree Point in the Northern Territory.



Teddy Trickett, with Dr Kathleen Skinner, and the farewell charcoal sketch she presented him on his retirement.

Our Teddy, alias 'Einstein, the Bower Bird' Trickett, retired on November 3 from the Centre for Irrigation Research at Griffith.

In compliance with Teddy's wish, the staff contributed towards a donation for C.A.A. Additionally, a pen to keep in contact with his colleagues, a local polished 'Pet Rock' suitably inscribed, and a brass plate 'donating' his Sun Follower, known affectionately as *Eucalyptus trickitti*, were presented.

Teddy's contributions were dedicated towards precise data capture, and sooner or later most of his colleagues benefitted from his help. He had no enemies and his farewell message was 'to study the particular matter rather than the general, and for God's sake, be honest'.

In his retirement, Teddy and Theodora will adopt a nomadic life, commuting between their home near Bright, Victoria, and Griffith, avoiding extremes in temperature and continuing to be a sun follower.

—Alistair Low

Successful cyclethon

A recent cyclethon held by the ACT Division of the National Heart Foundation enabled a group of Headquarters staff to test their fitness and raise funds for heart research at the same time.

Organizer of the team effort was **John Mitchell** of the Industrial Relations and Employment Conditions group within Personnel Branch. John reports that the cyclists completed 65 circuits of Lake Ginninderra, a total of 325 kilometres, and raised a total of $528.90 for the Heart Foundation.

Other team members taking part were **Bill Dominguez, Linda Meech, Lindy Dunstone, Gil Barnes, Tim Healy**, his two sons **Ben** and **Luke** and daughter **Natasha**, **Dennis Daly**, and John's daughter **Gillian**.

An unexpected bonus was a prize of a portable barbeque given to the team as the group which contributed the most in sponsorship The barbeque was presented to the Headquarters Social Club

Dr George Bornemissza of the Division of Entomology has gone on sick leave pending retirement next year. George joined the Division in 1954 and was the initiator of what came to be known as the Dung Beetle Program In 1970 he moved to South Africa where he built up and supervised the Dung Beetle Research Unit at Pretoria until his return to Australia in 1979 Since then he has been based in Hobart His scientific contributions have been recognized by two unusual distinctions: the Encyclopedia Britannica Australia Award in 1973, and a Rolex Award for Enterprize in 1981.

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Mr Tony Woods has been appointed as Scientific Assistant to the Chief of the Division of Oceanography, **Dr Angus McEwan**. Tony has a B.Sc and an M.Sc from the University of Natal, and was formerly laboratory manager in the Physics Department at the University of Tasmania. Tony has been spending some time at Cronulla prior to moving back to Hobart when Dr McEwan relocates there early next year.

□ □

Dr Allan Clarke from the Department of Oceanography at Florida State University, Tallahassee, is visiting the Division of Oceanography in Hobart and Cronulla until August 1983. Dr Clarke is a graduate of Adelaide Univesity and while he is in Australia, will work on his theory on wind driven shelf water movements and carry out analyses of tidal currents and sea levels on the Australian shelf to research his theory on the effect of continental shelves on tides.

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Vince Taylor recently retired on grounds of ill health, after 36 years with CSIRO.

Vince joined the Organization in 1946 and for the past 11 years, has been a member of Headquarters staff of Management Services Section, working in both the accounting and contracts areas.

Mr Andrew Forbes, an experimental officer with the Division of Oceanography at Cronulla (NSW), is one of eight people taking part in a re-enactment of Captain William Bligh's remarkable sea voyage following the mutiny on the *Bounty*.

On April 28 1789, Captain Bligh and 17 others were set adrift in a 21' (16.3 m) open boat with eight pairs of oars and several sails. They sailed from near Tofoa Island in the Tongan Group to Restoration Island in Torres Strait and then on to Timor—a distance of 3700 nautical miles (6000 km), which took 41 days.

Master Mariner, Captain Ron Ware, a direct descendant of Bligh, is in charge of the re-enactment. He hopes to launch the replica of the *Bounty*'s longboat from the P & O ship *Oriana* on April 28, 1983. Captain Ware will be navigating with instruments and charts of the time—no modern navigational equipment will be used, nor will there be a support vessel. Extensive filming of the voyage will be undertaken by one of the crew, an ABC staffer, as well as from the air, for a documentary series.

Mr Forbes will also be undertaking a number of scientific observations suring the re-enactment voyage.

Tragic death at BMR in Canberra

Michael Reed died tragically on Monday, November 15, 1982.

Michael was a Technical Officer at the Baas Becking Geobiological Laboratory and had worked there since 1973. He was a most conscientious and diligent person and his contributions to the Laboratory will always be appreciated. Recognition of his excellent technical assistance is recorded in the acknowledgements of nine scientific publications from the Laboratory.

Michael was a very knowledgeable man and he enjoyed the respect and admiration of his colleagues. His presence in the Laboratory will be sadly missed.

Michael was buried at Delegate, surrounded by the hills and valleys he visited often and loved so much.

Michael is survived by his wife Raylee, and his son Ian and daughter Donna.

—Graham Skyring

Goodbye and Good Luck

The Assistant Chief at the Division of Water and Land Resources, Mr Neil Body, presents Mrs Toni Komarowski with one way of illuminating her retirement at a farewell function at the Division's Canberra headquarters. Toni joined CSIRO in 1955 as a laboratory assistant and transferred to the Division in 1957.

—Photo by Jack Cavanagh

Chinese delegation in Australia to develop remote sensing skills and techniques

The People's Republic of China is no longer the remote, unknown country behind the Great Wall, and by now many CSIRO Divisions will have been host to a party of Chinese visitors.

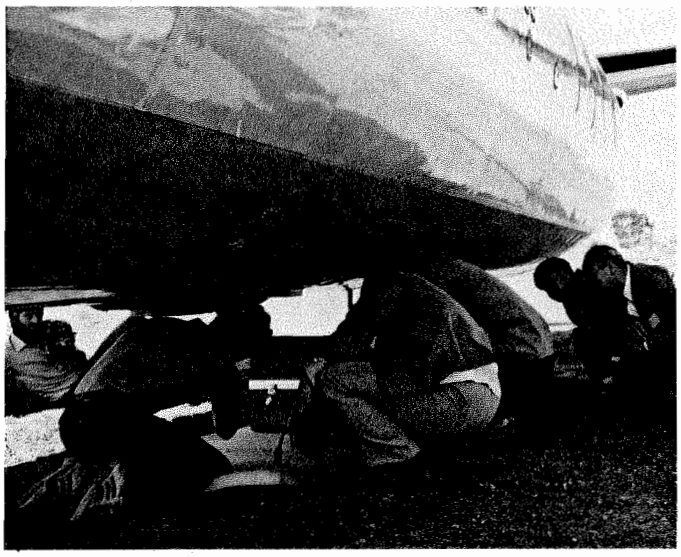
These visits are part of China's intensive scientific development since the end of the Cultural Revolution.

One field in which the Chinese are rapidly developing skills is that of remote sensing. Signals from any part of the electromagnetic spectrum are reflected from the earth's surface and detected by various instruments carried in aircraft or spacecraft. The particular wavelengths reflected, and their relative strengths, can be interpreted to reveal a great deal about the environment below the instruments.

China, like Australia, is a vast country with a large range of landscapes, poor transport in many areas, and sparsely populated regions. It can therefore also benefit greatly from remote sensing, in the mapping, monitoring and management of its resources.

A Remote Sensing Delegation from China recently visited the Divisions of Mineral Physics, Oceanography, Computing Research, and Water and Land Resources. Dotted between the 'Sirovisits' were such bodies as the Australian Landsat Station, the University of New South Wales, the New South Wales Water Resources Commission, the New South Wales, South Australian and Victorian Department of Agriculture, the Bureau of Mineral Resources, the Australian National University and the Division of National Mapping.

It all started way back, really, with an exchange agreement between the Australian Academy of Technological Sciences and the State Scientific and Technological Commission of China.



Crawling underneath Cyrano . . . Malcolm Robertson of the Division of Mineral Physics, is poised—camera in hand—for a snapshot of Mike O'Brien of the Division (left). Mike is showing Li Liu-Yu and Chu Liangai of the Chinese Remote Sensing Delegation the infra red scanner built into the bomb bay of the CSIRO Fokker Friendship, called Cyrano. Looking on with interest are Yang Ting-huai and Fu Lixun.

DELEGATION

The Academy sent a Remote Sensing Delegation, led by Dr Dick Millington, Chief of Water and Land Resources, to China in May 1982 to visit various remote sensing laboratories and to explore the possibility of future collaboration in this area. The members of the Delegation were Dr Ken McCracken, Chief of Mineral Physics, George Whitehouse of the New South Wales Water Resources Commission and Keith McCloy of the New South Wales Department of Agriculture.

One immediate outcome of this fruitful two and a half week tour was the return visit by the Chinese Remote Sensing Delegation, which was particularly interested in the various applications of remote sensing data in Australia, and wanted to discuss the possibilities of collaboration.

Two of the members of the Chinese Delegation were from the State Scientific and Technological Commission: Chen Weijiang (leader) from the National Remote Sensing Centre and Fu Lixun from the Department of Basic Research and High Technologies. The other members were Li Liu-yu from the Ministry of Forestry, Chu Liangcai from the Research Institute of Surveying and Mapping, and Yang Ting-huai from the Chinese Academy of Geological Sciences.

The interpreter, Chu Liangcai, was extremely efficient, managing to recognize this to a no doubt similar Chinese remote sensing patois, with impressive ease.

'Ozzie' remote sensing jargon and convert

However, the Division of Mineral Physics had its own on-site interpreter, Chris Yuan. Chris was an invaluable link with the Delegation, being not only a native Chinese speaker but also well versed in remote sensing, having worked for five years in the early '70s with Mike Duggin, former leader of the Division's remote sensing group. All in all, language was not a problem, and the visit to the Division of Mineral Physics proved to be a great success.

One of the highlights of the visit to Mineral Physics facilities was a crawl around Cyrano. This, in case you didn't know, is the CSIRO Fokker Friendship. What an amazing collection of instruments it contains! The visitors, however, were most enthralled by Mineral Physics scanning equipment.

Their lengthy discussion/question session was fielded ably by Mike O'Brien, a member of the Mineral Physics remote sensing team, who spends most of his time tending the scanner and flying around seeing Australia through the scanner. Here and there Chris Yuan and Ken McCracken chipped in a point or two.

SEMINAR

Chen Weijiang also gave a Seminar at Mineral Physics North Ryde Laboratory. His talk outlined China's comparatively recent start in the field of remote sensing, in the mid to late '70s. However, China has certainly taken a great leap forward since then and plans to commission its very own Landsat receiving station in 1984, in Beijing.

This raises an interesting point: This station will be classier than our current Australian counterpart and will be able to receive data from the satellite's thermatic mapper. This new instrument aboard the brand-new Landsat 4, launched in July '82, provides excellent detail that can greatly assist those interested in land and water management.

Unfortunately the Australian station, commissioned in 1980, only has the ability to digest data from the multi-spectral scanner—we need an upgrade of our equipment to keep up with the new technology now up in space.

Chen Weijiang discussed the tremendous significance of remote sensing to the further development of the Chinese national economy. He said that China was eager to collaborate with other nations in order to improve remote sensing technology in the Asian region and elsewhere.

The visit by the Chinese Remote Sensing Delegation and the initial trip to China led by Dick Millington are already two significant steps towards such a collaborative arrangement.

—Christine Astley Boden

Controlled pollination unit is opened

The introduction of improved plants from overseas was vital for Australian agriculture, the Chairman of CSIRO, Dr J. Paul Wild, said when he opened the $500 000 Controlled Pollination Unit at the CSIRO Samford Research Station, near Brisbane.

The Unit, to be run by the Division of Tropical Crops and Pastures, is unique in the subtropics and tropics.

Dr Wild said the Unit would be used to maintain and regenerate an essential national resource—the seed from these valuable introduced plants.

IMPORTANT ROLE

'The Controlled Pollination Unit is essential for maintaining the quality and quantity of this seed', he said.

'It will be used to grow cross-pollinating plants in isolation to ensure they produce pure seed uncontaminated by unwanted pollen.'

'When only small numbers of seeds of particular plants are introduced into Australia it will be used to multiply this seed for testing in the field.'

'As the quality of seed held in storage begins to decline with age, the Unit will be used to regenerate this seed by growing plants and collecting new seed for subsequent storage.'

CSIRO DESIGN

Dr Wild said the Unit, comprising two glasshouses with 36 individual rooms, had been built by the Department of Transport and Construction to a design specified by CSIRO officers.

Important design features incorporated in its construction to exclude pollen and to allow the year-round production of plants included:

- Special sealed joints to prevent any movement of pollen either into the buildings or between individual rooms.
- A filtration system for incoming air that removes any particles greater than five microns in diameter.
- A special purification plant with reverse osmosis membranes to provide water of high quality so salts do not accumulate in the pot-grown plants.
- As well, internal air is maintained at a higher pressure than external air, also helping to prevent pollen entry.

Continued on page 8

Better communication cassettes available

The Science Communication Unit has recently purchased a series of five audio-cassettes entitled 'Better Communication'.

Prepared by Hugh Mackay and Caroline Jones from the Centre for Communication Studies at Bathurst, N.S.W., these cassettes aim to improve personal relationships through better communication.

Topics covered in this series are:
The secret of successful communication, How to be a better listener, Communication is good for you, How to say what you mean, The message and the medium, Manipulation and how to resist it, Changing people's minds, How to handle conflicts, Am I getting through?, Communication with yourself.

CSIRO staff may borrow the cassettes for up to ten days by contacting Mrs Dorothy Crisp, CSIRO Science Communication Unit, P.O. Box 225, Dickson, A.C.T. 2602, Phone: (062) 48 4585.

258-1982/63

Filming science:

A powerful tool in conveying a message

Russell Porter, of CSIRO's Film and Video Centre, writes on 'The Screening of Science'.

Film,[1] more than any other means of communication, has the power to convey the way things are'.

The tools of images and sounds used in film create an illusion so effective that even the most dispassionate audience can 'suspend disbelief' and become 'really there'.

Moreover, in watching a film we can be 'really there' in ways we never can in our personal experience. Scales of space and time can be distorted to make them accessible to human scrutiny.

In a parallel sense, science is fundamentally concerned with 'the way things are', often in frames of reference not accessible to direct observation. From this point of view alone, film is clearly a very appropriate device for science communication.

But film is more than just an expansive analogue of our everyday experience. To view a program, whether projected or televised, is to have things done to our consciousness that cannot be done by any other means.

Film has been defined as the art of anticipation—an effective film holds its audience by creating the need to know 'what happens next'.

For most purposes, a film is neither designed nor available for re-scrutiny[2]—it is seen once or perhaps twice, and leaves us with a series of concepts and feelings, rather than with a series of specific bits of information.

Despite this, over the past few decades film and television have transformed the way people expect to be informed. The flickering screen has progressively usurped the printed page as the community's primary source of information and diversion. The new 'visual literacy' has created critical expectations of film, changing the criteria by which information is appraised.

Millions of people watched 'Life on Earth', most of whom would have been unmotivated to explore its subject through other means. It's irrelevant whether the 'quality' of information transferred through film is comparable with that of the written word—the two media do not (or should not) attempt to do the same thing.

DOCUMENTARY FILM

The value of the documentary films (including films about science) is their unparallelled capacity to create awareness, influence attitudes, expand knowledge and emotionally dispose an audience.

Most people who saw 'Life on Earth' will remember certain images from the series, something of its emotional impact, and perhaps its central rationale. For specific information about a stage of biological evolution (for example), the seeker of detailed knowledge will turn to the literature (perhaps even the 'book of the series'). But even the best literature cannot match the 'realness' and absorbing immediacy of film.

To make a film, then, is to do something to people—perhaps millions of people—that cannot be done in any other way. And of course it is this power that has transformed communications into a global galaxy of flickering screens.

The motives for wanting access to this powerful network range from the most banal and exploitative, to the most benign and enlightened. We would argue that the use of film for the communication of science is among the most productive uses of the medium.

SCEPTICAL ATTITUDES

Even here, though, there are sceptics: one Professor of Pathology, whose contentious work was the subject of a BBC program, complained that:

'The public has more to fear from the ability of mass communications media to distort, misrepresent and terrify, than from any of the biological experiments shown in the programme'.[3]

It is unlikely that any CSIRO film would ever deliberately set out to terrify its viewers. Distortion and misrepresentation, however, are charges that can be laid against any documentary film, simply because of the selective and interpretive functions of film makers.

In almost any film, it is the image that endures, rather than the words and other sounds. The soundtrack acts as a prompt, a device for influencing our responses to what we see on the screen. The soundtrack should complement and elucidate the image rather than compete with it.

PRECONCEIVED IDEAS

Yet scientsts (and others) often seem to expect a scientific film to be a kind of monograph with pictures, with aims, methods and results clearly enunciated, while on the screen someone in a lab coat points at graphs.

And indeed many films have been made more or less to this formula, but it is a use which undervalues the potential of the medium.

How then can films about science be used to best advantage, and for whom should they be made? In part, the second question implies the first. Scientific films have a range of possible styles and applications.

At one end of the spectrum, film can be an essential component of research itself: time lapse, high speed, micro and macro cinematrography have all been used by scientists (including many within CSIRO) to study the behaviour of phenomena beyond the range of human perception. This is a special case however.

In most cases, scientific films are used to extend awareness of scientific activity beyond the laboratory. Occasionally their audience is extremely limited, and it is a valid (if costly) use of the medium for one scientist to demonstrate his work to another, on film.

More likely, films on science will be aimed at specialized groups (such as students) or to the general public. In each case, the target audience determines the style and level of detail of the film. A film which tries to reach more than one kind of audience usually ends up reaching no-one very effectively.

There is a good case for arguing that the most effective use of the film medium is that which reaches the broadest possible audience.

One screening of a CSIRO film on the ABC's 'Weekend Magazine' reaches an estimated two million viewers, and from the response to such screenings, it's clear that a good general film can be interesting and useful to many, including the most specialized of viewers.

A specialized film, however, can reach only the specialists, and there will continue to be a need for such films. But for an organization like CSIRO to make known its existence and activities, there can be no more effective means than through a film aimed at the world at large.

GENERAL APPEAL

This, of course, begs the question as to whether the world at large needs or deserves to be so informed. In a recent article entitled 'Informing the Public: Why Bother?',[4] scientist and writer Isaac Asimov argues persuasively that public understanding and awareness of science and technology are an essential component of society.

In support of this proposition, he discusses and convincingly defends six assumptions:

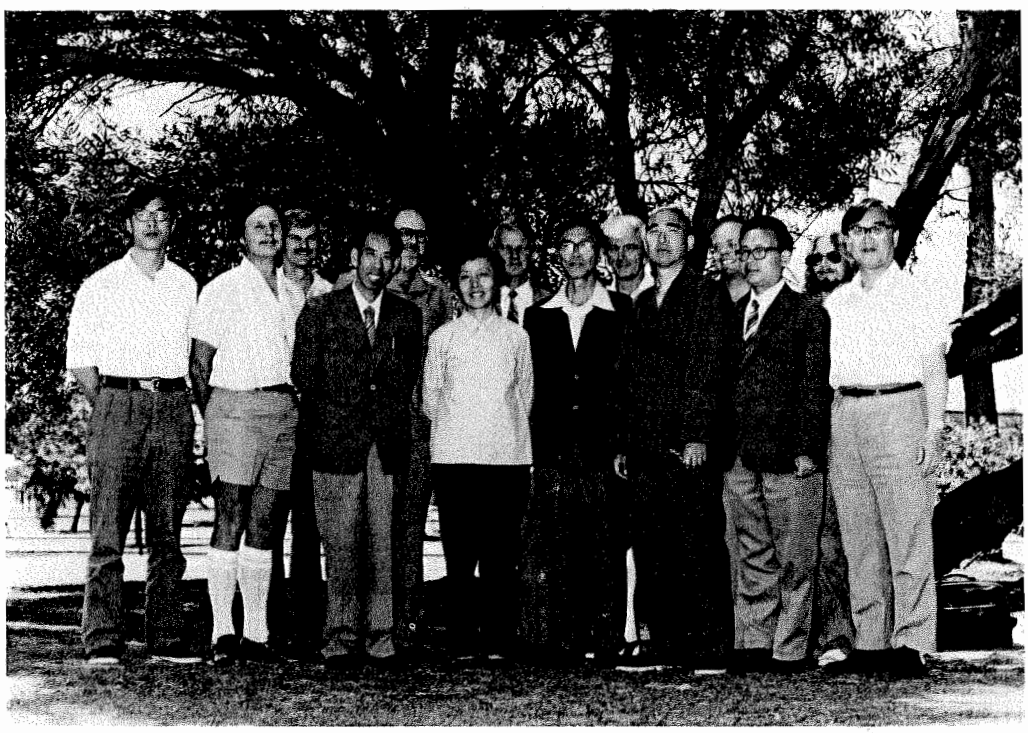
. Knowledge is simply a good thing in itself;
. People will be able to make more intelligent personal decisions if they have more knowledge of science and technology;
. The very structure of democratic society depends upon the existence of an enlightened citizenry;
. Science and scientists need the sympathy of the public;
. Science and scientists need the financial support of the public and;
. Scientists do not reproduce by binary fission.

These and related assumptions come close to providing a rationale for the activities of the Science Communication Unit. As science and technology increasingly impinge on our daily lives, the need for effective communication between 'producers' and 'consumers' will increase correspondingly.

We would argue it is a need which good film can fulfil more effectively than any other means. The video revolution will ensure an ever-increasing public demand for such films.

1 For most purposes here, 'film' is used to cover 'moving images' (plus sounds) whether created optically or electronically.
2 The imminent expansion of domestic video recorders, video libraries and information retrieval aystems will change this, and eventually will change the function of the screen image itself, extending it ever more into the domain of print. There will always be the need, however, for the 'classic' documentary.
3 From: *Reflections on Science and the Media*, June Goodfield, AAS, 1981.
4 SIPISCOPE, published by Scientists' Institute for Public Information, Vol. 10, No. 1, Jan.-Feb. 1982.

Chinese visitors at Floreat Park



A group of Chinese scientists visited the Floreat Park laboratories on November 9, to discuss trace element research in Western Australia with staff of CSIRO's Laboratory for Rural Research in Perth. In particular they were keen to discuss research on selenium, zinc, molybdenum and copper deficiencies. The visit was organized by the Australian Academy of Science and the Academia Sinica. Pictured are, (from left) Yu Shun Xiang, Dr Duncan Peter, Mr John Hill, Tan Jian An, Dr Barrie Purser, Li Jiyun, Dr Frank Hingston, Cheng Bo-Rong, Dr Jim Barrow, Guo Fang, Dr Bruce Chandler, Cheng Hong-De, Mr Paul Young and Hu Rongmei.

CAT

The CAT Column is open to all members of CSIRO who wish to comment on communication matters.

Many issues arose from the October meeting of CAT—one of which was mentioned in the last CAT column, namely a register of communication facilities available within CSIRO.

Perhaps the two most important issues were:

. the draft Communication Statement, prepared by Mr Sam Lattimore, Director of the Bureau of Scientific Services
. the organization and role of CAT.

Communication Statement. Since its inception, CAT has been hammering away, trying to get some sort of statement on communications from CSIRO's Executive. Well, at long last, several chinks have occurred and Sam Lattimore agreed to provide CAT with a draft Communication Statement. This draft was discussed at the October CAT meeting and an amended form has been circulated with the CAT minutes. This second draft is open for comments. In fact, each CAT member will be approaching the communicators in his/her Institute for their comments prior to the next CAT meeting, March 1-2, 1983. So, speak now or suffer the consequences!

Seriously, this draft Statement is a most welcome move in the direction of having the Executive state clearly their views on CSIRO's communications strategies. CAT would like to thank Sam Lattimore for his efforts.

After discussion of the draft Statement in March, it will be circulated to Chiefs and then to the Executive.

Organization and role of CAT. Due to the rotating membership of CAT, the functions and aims of CAT sometimes become obscured. With this in mind, the October meeting of CAT undertook a 'mini mini internal review' (to keep in fashion) and decided that if CAT is to remain a viable group making a worthwhile contribution to CSIRO, then members must be prepared to put in some ground work between meetings. This means that everyone connected with communications should feel part of CAT—you can only do this if you get involved. You can always contact your Institute's CAT member with news or comments on what you consider are CAT related items—do not always wait to be contacted first. Also, with the CAT membership rotating every two years, it is hoped that in time every communicator will get the opportunity to be a member of CAT.

CAT is asking for ideas on the issues it should be addressing. If you have any suggestions about the long-term plan for CAT, I would welcome your contribution.

MEDIA AWARENESS WORKSHOP FOR SCIENTISTS

The Media Awareness Workshop CAT planned for December7-8, 1982 had to be postponed due to clashes with other CSIRO activities. However—do not despair—the Workshop has only been postponed. David Zerman, Chief Co-ordinator, will try to organize another Workshop late March, 1983. The keynote speaker for the Media Awareness Workshop was to have been Nobel Laureate Sir Macfarlane Burnet—David hopes that Sir Macfarlane Burnet will be able to participate in the proposed March Workshop. More details, dates etc. will be available later.

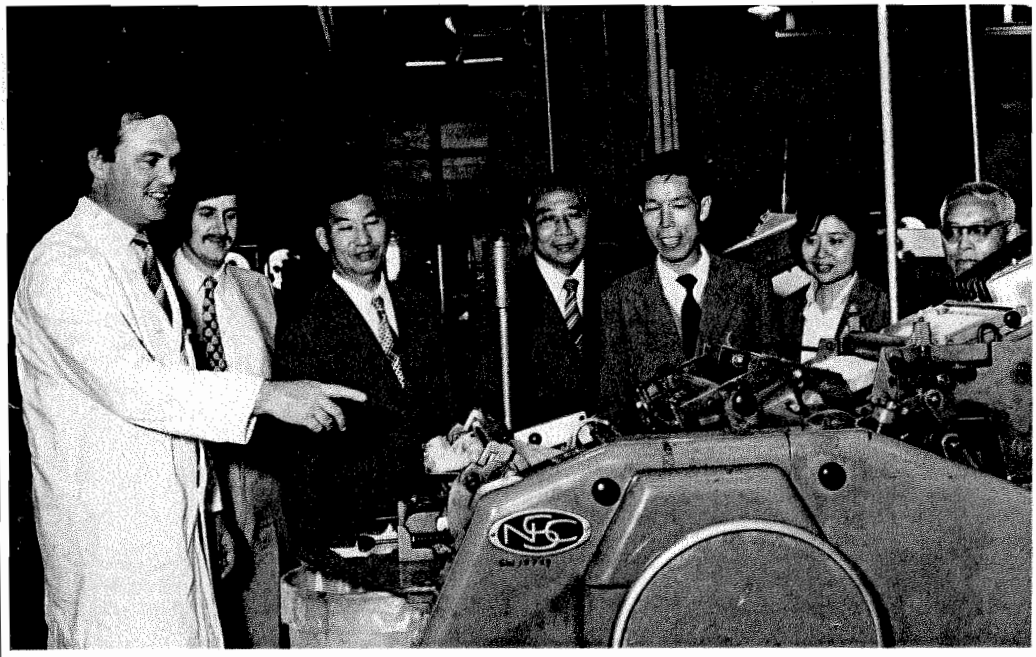
MELBOURNE REGIONAL COMMUNICATORS GROUP

The Melbourne Regional Communicators Group held a meeting at Highett in October to coincide with the CAT meeting. This gave Melbourne people a chance to meet interstate communicators.

Mr Graham Wallis, the science teacher associated with the CSIRO Science Centre at Highett, gave people attending the meeting a good insight into the Centre's function and operation: Building Research also opened the doors of its new radio/television studio and showed people around.

The next meeting of the Melbourne group will be on Tuesday, February 15, when the group will be given a tour of ANAHL at Geelong. Further details will be sent to people early 1983. If anyone from interstate will be in Melbourne around that date and would like to join the tour of ANAHL, please contact me. However, numbers will be restricted.

—Helen Dornom,
Dairy Research, Melbourne



A study group from the People's Republic of China visited the Division of Textile Industry in November for discussions and demonstrations on equipment and technology for the early-stage processing of wool and the treatment of wool-scouring effluents.

The visit was part of a tour of the woolprocessing industry in Australia organized by the Australian Wool Corporation.

Three days were spent at the Division, and the delegation was given an overview of current research, and had detailed discussions with research staff on scouring and topmaking research and recent developments in this area.

The photograph shows the Division's technical secretary, Mr Stan Boston, left, pointing out features of one of the Division's combing machines to, from left, Mr Tom Kerr, Australian Wool Corporation, Mr Jian Yongli, Vice-director and Engineer Shaanxi Wool topmaking mill and leader of the delegation, Dr Wei Juming, Associate Professor of North-West Textile Engineering Institute, Mr Jia Yar, Interpreter, Ministry of Textile Industry, ROC, Miss Bao Guoping, Engineer, Minister of Textile Industry, ROC, and Mr Ling Xi Chi, Engineer, Minister of Textile Industry, ROC.

—Photo by John Card

Controlled pollination unit is opened

From page 6

SEED RESOURCE

Dr Wild said the Division of Tropical Crops and Pastures now held 20 000 varieties of pasture grasses, legumes and crops, mostly at the Samford Station.

'This resource represents the achievements of many overseas plant collecting missions undertaken by CSIRO scientists since the second World War.

'This large collection must be maintained to ensure that new varieties can be produced as new problems arise.'

'Scientific work on this collection has already resulted in the release of more than 30 commercial varieties and I am sure this effort will be continued.'

Annual Report tabled:

From page 1

CSIRO strongly supported this concept 'subject to the need for the Government to make additional allocations for major new initiatives which it wishes to support'.

GLOBAL BUDGET

The Government had made 'considerable progress along the recommended path' by introducing a 'global' budget for CSIRO.

Dr Wild said that in spite of progress towards a global budget 'unnecessary constraints remain'.

'The application of external controls over matters like staff ceilings and overseas visits is now totally unnecessary', he said.

'I also believe that we should have greater flexibility to introduce early retirement suited to our own requirements.

'Any population of research scientists should preferably include a strong component of youth.'

He said the 'outstanding success' of CSIRO compared wih other countries' government research institutions 'stems from the wisdom of successive Commonwealth Governments in ensuring that two basic requirements were satisfied'.

These were:

. CSIRO's governing body should consist of full-time members who are scientists and part-time members who are industrialists and community representatives; and
. the Executive, today aided by an Advisory Council on which Government departments, industry and community interests are represented, should be fully responsible and accountable to Parliament.

'From this basis we co-operate widely, harmoniously and in our own right with all relevant Government departments', Dr Wild said.

CONSULTATIVE MACHINERY

'We have also established consultative machinery to ensure that we take account of Government policies and that our activities are well co-ordinated with those of other agencies.'

Other major issues dealt with in the Annual Report include research policies for biotechnology and the Australian National Animal Health Laboratory.

'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 *February 1983* **259**

$12.204m contract:

Research vessel tender is let

The construction of CSIRO's new oceanographic research vessel is expected to begin shortly at a Queensland shipyard. The vessel, as yet unnamed, is due to be delivered to the Organization in March, 1985.

A tender for the construction of the research vessel was let in December to the North Queensland Engineers and Agents (NQEA) Pty Ltd, at Cairns, for $12.204 million, including scientific equipment.

The 55-metre vessel will have a home base alongside CSIRO's Marine Science Laboratories, now being constructed at Castray Point, Hobart.

The Chief of the Division of Oceanography, Dr Angus McEwan, said the new vessel would provide CSIRO with a modern and efficient working platform for deep sea oceanographic research in climatic areas ranging from tropical to sub-temperate zones.

'There will be accommodation for 13 officers and crew and 12 scientists and support staff,' Dr McEwan added.

He said the vessel would be comprehensively equipped for physical, chemical and biological oceanography and would also have a limited capacity for geological work.

'Equipment costing more than one million dollars will include a computer for on-board computer data processing and image handling, separate processors for data management, an acoustic Doppler velocity profiler and other sonar devices, water samplers and profilers and an auto analyser for direct, on-board determination of nutrient levels,' Dr McEwan said.

'The deck will be equipped with two winches, each capable of sounding to 10 000 metres, one equipped with dual, interchangeable drums,' he added. The flush rear deck would be able to accommodate two standard container-sized portable laboratories.

The vessel would have bow and stern thrusters in addition to its variable pitch propellor and would be completely controllable on station by joystick.

It would have operations and computer rooms, a chemistry laboratory, a wet laboratory and two other general-purpose laboratories.

Dr McEwan said the new vessel would be operated by CSIRO as a national facility.

CSIRO would continue to operate another vessel for fisheries research, and several smaller vessels for regional sampling studies and more limited experiments.

New Director for Institute

A distinguished Australian physicist, Professor Neville Fletcher, has been appointed to head CSIRO's Institute of Physical Sciences.

His appointment as Director of the Institute for a five-year term was announced by the Chairman of CSIRO, Dr J. Paul Wild.

Professor Fletcher is Professor of Physics at the University of New England.

'Professor Fletcher has a very wide perception of the physical sciences,' Dr Wild said.

'His principal research interests are in solid-state physics, atmospheric physics and acoustics.'

'He has published more than 100 papers in scientific journals, a monograph, two books, and several booklets for schools.'

'He will bring to the Institute Director's role a strong background not only in research, but in management.'

Professor Fletcher graduated B.Sc from the University of Sydney in 1951. He was awarded his Ph.D. at Harvard University in 1955, and his D.Sc. at Sydney University in 1973.

He is a Fellow of the Australian Academy of Science, the Institute of Physics London, and the Australian Institute of Physics, and a Member of the Australian Acoustical Society and the Acoustical Society of America.

From 1956 to 1959 he was a Research Officer with the CSIRO Radiophysics Laboratory.

Professor Fletcher will succeed Dr John Philip as Institute Director.

The CSIRO Institute of Physical Sciences is one of five research Institutes in CSIRO, which between them encompass more than 40 research Divisions and Units.

The Institute of Physical Sciences comprises the Divisions of Applied Physics, Atmospheric Physics, Chemical Physics, Cloud Physics, Computing Research, Environmental Mechanics, Materials Science, Mathematics and Statistics, Oceanography and Radiophysics, and the Australian Numerical Meteorology Research Centre.

A new super computer is added to CSIRONET system

A Cyber 205 Series 600 Computer has been acquired for the Division of Computing Research.

The Chief of the Division, Dr Peter Claringbold described the machine as a major national resource for Australia's continued development.

'There is almost no field of human endeavour these days that is not affected in some way by computing services,' he added.

The acquisition of a supercomputer is, therefore, not so much a matter of national pride but of national necessity.

'It will enable problems to be tackled that previously have been beyond our reach,' Dr Claringbold added.

'The placement of this supercomputer at the apex of CSIRO's nation-wide CSIRONET service, will make it readily accessible nationally and even internationally.'

Dr Claringbold said a supercomputer required substantial support infrastructure.

The existing CSIRONET facility could meet all these requirements or provide them at modest cost while duplication of this infrastructure elsewhere would at least double the overall cost of providing the facility.

He said the Cyber 205 would help maintain CSIRO's position as one of the world's leading research institutions.

The Chief of the Division of Computing Research, Dr Peter Claringbold, with the Managing Director of Control Data Australia Pty Limited, Mr Chuck Copenhaver, right, at the signing of the CYBER 205 lease agreement in Melbourne.

Letters to the Editor

Dear Editor,

We are following up recent correspondence on salaries in CSIRO and in particular the altruistic but unsuccessful attempt by the Executive to readjust their own salaries, by pointing out further anomalies in CSIRO's present system of remuneration.

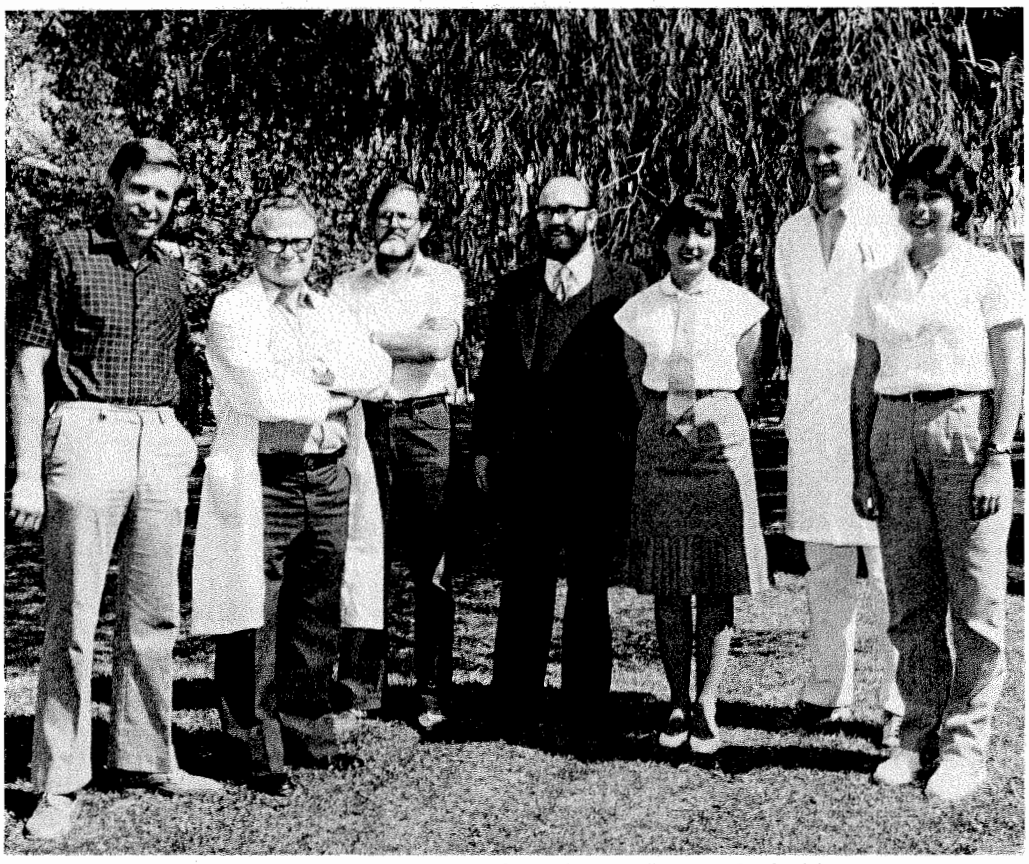
Recent advice from Headquarters has allocated additional allowances to cover the cost of entertainment to CRS and above. A rough calculation shows that this would cost the Treasury about $150 000. Another rough calculation shows that, assuming an average of $200 per CSIRO employee allocated for leave loadings, a further $1.4 million would be saved if this privilege was foregone.

We are concerned at the increasing lack of opportunity for young Australians who want to work. The saving of roughly $1.5 million that we have mentioned could employ about 70 experimental officers, 100 technical assistants full-time or about 200 technical assistants part-time. Experience with '17 weekers' suggests that there is a large pool of highly intelligent and motivated young people who would be usefully employed by the Organization. We suggest that the higher echelons of CSIRO could well withstand the sacrifice involved by allocating their entertainment allowances for this purpose and that all staff, if they have sufficient public conscience, could forego their leave loadings to make some small mark on the present social injustice.

—A.E. Martin
G.D. Bowen
Division of Soils

A.D. Rovira
A.F. Bird
Division of Horticultural Research

Visitors from around the world at Food Research



The four laboratories of the Division of Food Research (in Sydney, Brisbane, Melbourne, and Hobart) have attracted a number of scientists from overseas. The Division's Food Research Laboratory at North Ryde in Sydney is at present host to nine visitors, spending from a few months to a year in Australia.

Seven of them, from left to right, are Dr Colin Whitehead, A.R.C. Poultry Research Station, Roslyn, Scotland; Professor Asher Ludin, Dept of Food Science, Central University of Venezuela, Caracas; Dr Ehud Kopeliovitch, Faculty of Agriculture, Hebrew University of Jerusalem; Dr Tony Williams, British Food Manufacturers Industries Research Association, Leatherhead, U.K.; Miss Makarim Al-Samarrai, Iraqi Organization for Standards, Baghdad; Dr Kris Fretheim, Norwegian Food Research Institute, and Miss Lucia Guedes, Institute of Food Technology, Campinas, Brazil.

Not shown are Professor James S. Todd, Basic Sciences and Mathematics Division, Whitman College, Walla Walla, Washington, U.S.A. and Nushirwan-bin-Zainuddin of the Malaysian Agricultural Research & Development Institute.

Any ideas for the International Youth Year?

CSIRO staff are being invited to put forward ideas and suggestions for a scientific contribution to the International Youth Year (IYY) in 1985.

The United Nations General Assembly has adopted the theme of 'Participation, Development and Peace' for the Year.

IYY will aim to emphasize and encourage the participation of young people in national achievement and development. It will involve such areas as education and training, employment, health and nutrition, environment and housing, population activities, social services and information activities.

To ensure that the greatest benefit can be derived from Australia's participation in International Youth Year, the Prime Minister has asked Ministers to consider how activities within their portfolios could relate to the aims of the Year.

Accordingly, the Department of Science and Technology and CSIRO are in the early stages of looking at ways in which the scientific community could develop initiatives between now and 1985.

Further information (such as it is) can be obtained from, and suggestions sent to, Dr Michael Dack, CSIRO Science Communication Unit (PO Box 225, Dickson, ACT 2602; Tel. (062) 484586).

Resources and Responsibility theme for 1983 ANZAAS in Perth

'Resources and Responsibility' is the theme of the 1983 ANZAAS Congress to be held in Perth in May. Professor Ralph Slatyer of the Australian National University in Canberra will be President.

The Congress, organized by The Australian and New Zealand Association for the Advancement of Science, is expected to attract more than 2000 scientists from Australia, New Zealand, Asia, America and Europe. A number of CSIRO scientists will present papers during the week.

The Congress will examine the importance to the Australian economy and society of natural resources and their proper management. It will also consider technological, social and cultural resources. More than 50 eminent scientists from overseas have accepted invitations to speak. The media office will again be administered by CSIRO's Media Liaison Group in Canberra.

The Chairman of the Congress Organizing Committee, Mr Denis Cullity, CMG, believes the theme is a particularly appropriate one for 1983.

'Australia is acknowledged as one of the great resource basins of the world, with an economy which has, in the past, been dependent upon the export of the products of its agricultural and mining industries,' Mr Cullity said.

'Because of this dependence, the country's national wellbeing is very much influenced by the state of the world economy.'

'In the present difficult economic circumstances, it is therefore of considerable significance that the 53rd ANZAAS Congress should address itself specifically to questions of the responsible management of resources, not only material resources but also our ultimate resource and indeed our ultimate responsibility—people,' Mr Cullity added.

Apply for a study award

Applications are now being received for the 1983 CSIRO Study Awards which provide opportunities for staff to gain training and experience related to their professions.

Study awards are open to all staff other than those classified as research staff who show promise of future achievements and those whose achievements are already substantial.

The value of each applicant's work in CSIRO and the extent to which it will be enhanced by overseas study and experience is an important consideration in the selection.

Four awards are made available each year in broad categories of clerical/administrative, professional staff, technical staff and trades staff.

CSIRO Study Awards are normally tenable in any suitable overseas country for periods of between three and six months. In exceptional cases, the duration of the Award may be extended beyond six months and up to 12 months.

As a general rule, awards are not made for the purpose of pursuing overseas courses of study or training which offer a special advantage over those available in Australia.

Since the awards were established in 1977, more than 20 staff have benefitted from the opportunity for overseas study.

Further information regarding the awards and their conditions is available from Ross Thomas, telephone (062) 48 4223.

From the Chairman-

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

Since I last put pen to paper on behalf of this column the New Year has been rung in; so, albeit belatedly, may I wish you all a happy and rewarding 1983.

A lot happens in one year in an organization as big as ours and I thought it would be interesting to do a quick review of just a few of the significant events of the year that has passed. Some of these will be recalled with pleasure and some with sadness—they are a mixture. So here goes 1982:—

A highlight of the year was the approval by the Government in August to construct the Australia Telescope—a wonderful and enlightened act at a time of economic gloom. Another was evidence of our Marine Laboratories taking shape: the first pile being driven at Hobart and a tender for the research vessel being accepted. CSIRONET is to have a new 'super computer', the Cyber 205. New laboratories of the Division of Manufacturing Technology were opened in Melbourne; the D.F. Waterhouse Laboratory of Insect Taxonomy in Canberra; the Controlled Pollination Unit in Brisbane; and the Science Education Centre at Highett (Melbourne).

The first steps to form a technology transfer company, SIROTECH, were taken and our State Committees were increased by one with the formation of the Northern Territory Committee. New Divisions and research centres were formed or reorganized: the Division of Groundwater Research and the Laboratory for Rural Research in Perth; the Divisions of Atmospheric Research and of Chemical and Wood Technology in Melbourne; and the Divisions of Water and Land Resources and Wildlife and Rangelands Research in Canberra.

This year has had its share of senior appointments. On the Executive we welcomed Bails Myer, Geoff Taylor and Graham Spurling; and as Institute Directors, Bill Whitton (Industrial Technology) and Neville Fletcher (Physical Sciences). New Chiefs of Divisions appointed were Dave Mahoney (Tropical Animal Science), Charles Krebs (Wildlife and Rangelands Research), Don Gibson (Energy Technology), Terry Speed (Mathematics and Statistics), David Smiles (Soils), Barry Brady (Applied Geomechanics), Alan Reid (Mineral Engineering) and Warren Hewertson (Chemical and Wood Technology). New officers-in-charge were David Mitchell (Irrigation Research) and Colin Wrigley (Wheat Research).

We mourned the deaths of many, including four former Chiefs: 'Kelly' Kelsall (aged 64), Harry Frith (61), Walter Boas (78) and Bertie Dickson (96).

The year has seen some tricky problems for our staff to grapple with: issues like Paterson's Curse and live FMD virus have wasted much time and continue to linger. The year has also seen the implementation of the Freedom of Information legislature.

The Executive as a body has got around a fair bit: outside Canberra to Queensland, N.S.W., Victoria and the Northern Territory; we shall be on the move again next week— to W.A.

● ●

During January, when Canberra is as slack as Paris is in August, many of us take our holidays: time to relax, swim, read and even watch television. The current season of television seems to have been dominated by the one-day cricket matches between Australia, England and New Zealand. As an old cricket buff, who learned to love the game aided by the poetry and gentle humour of Neville Cardus and John Arlott, I watch this new phenomenon ('pyjama game') with puzzled feelings. On the one hand I ask 'what have they done to this idyllic game?'; on the other, surely any game that draws crowds of 50 000 and more is better than one (as in Shield cricket) that is ignored by the populace. So can one learn to co-exist with the televised pyjama game? I am experimenting.

Two crude devices are: 1) to turn the colour control fully anti-clockwise—this produces a black-and-white picture like we used to see, and causes the players and umpires to wear whites; 2) to turn the sound off—this enables one to watch the game without having to listen to that inane and humourless commentary which adds nothing to the information provided by the truly skilful photography. But neither device is perfect: the first still leaves the cricket ball white and the sight-screens black—and red leather cricket balls and white sight-screens are as much part of summer as the smell of new mown grass; and the second eliminates not only the unwanted commentators, but also the wanted noises of the game that you would hear if you were watching the game at the ground.

I feel there is a need for some new technology (a black box?) to make the desired transformations. Information technology is emerging as a new area of high priority for CSIRO—so, who knows what we might come up with?

● ●

Because of an event that happened on January 23, 1983, I cannot resist repeating here a true story that some of you, especially at Vimiera Road, have already heard before—and I ask the forebearance of those who have. It happened in 1947 during my first year in the Organization. At the Division of Radiophysics a decision to hold a Christmas concert by the staff was greeted with enormous enthusiasm, and *so* many would-be performers came forward that a series of auditions had to be held to thin the ranks. Among those auditioned was one young lady who worked in the Chief's office and who claimed she could sing a bit. After the audition she was gently and kindly told that she had a nice voice, but it was not quite up to the standard required for a Radiophysics Christmas concert. That young lady was Joan Sutherland herself.

The auditioner, while never quite living it down, survived only because of his keen sense of humour—and far from burying the story, he continued to dine out on it. But eventually he was banished to Tokyo to assume the role of Counsellor (Scientific).

In 1978 I recalled this story while introducing the Prime Minister who was about to open the Rangelands Research Laboratory at Alice Springs. I cited it as an example of the very high standards set by CSIRO. The P.M. was reported to have (good-humouredly) grunted 'Huh! Not a matter of high standards; it's just that they can't recognize talent!'

All this was brought to mind because on January 23 last many of us were privileged to see on television a performance at the Sydney Opera House featuring Joan Sutherland and Luciano Pavarotti. How delightful!

Paul Wild

Textile Industry's research on display

Many aspects of Australian wool textile research will be on public display at the CSIRO Division of Textile Industry, Geelong, next month.

The Division is opening its laboratories and mill for a series of open days. Each day is planned to cater for specific groups as follows:

- **Wednesday, 16 March** (9.00am–5.00pm) will feature a conference and displays for companies from the wool textile industry.
- **Thursday, 18 March** (10.00am–4.00pm) will comprise guided tours and displays for organized groups of woolgrowers and local secondary students.
- **Friday 18 March** (2.00pm–9.00pm) guided tours and displays for the general public.

RESEARCH PROGRAMS

Research at the Division aims to increase the demand for Australian wool on the world market, by improving the packaging, processing and performance of wool and wool textiles.

Visitors to the Division's mill during the Open Days will be able to see the application of CSIRO science to all aspects of wool textile processing including scouring, carding, spinning, dyeing, and finishing treatments for shrink-resistance and moth-proofing.

The Division's Laboratories will also be open to visitors, and will feature comprehensive displays of textile testing equipment, computers and sophisticated analytical instruments. All of these displays will be set up with the general public in mind, but with specific segments prepared for senior science students and those interested in the performance of fabrics.

NEW WOOL PACKS

As well as gaining an insight into wool processing, woolgrowers will have the opportunity to view the new CSIRO paper/nylon wool packs which overcome textile contamination caused by conventional plastic bales. The Australian Wool Corporation has recently let a contract for the commercial production of 100 000 of these packs.

Visitors to the Division will also be able to view CSIRO films, or purchase from a comprehensive display of CSIRO publications.

Further details about organized tours, the textile conference and the displays are available from the CSIRO Division of Textile Industry, PO Box 21, Belmont, Vic., 3216.

Wildlife gains rangelands unit

CSIRO's Rangelands Research Unit will merge with the Division of Wildlife Research to form a new Division of Wildlife and Rangelands Research.

The merger will create a research group within the Division uniquely qualified to study the plants and animals of semi-arid and arid rangeland ecosystems, which are extensively used for sheep and cattle production.

The new Division will be headed by the present Chief of the Division of Wildlife Research, Dr Charles Krebs. The present officer in charge of the Rangelands Research Unit at Deniliquin, Dr Allan Wilson, will be Assistant Chief.

The Chairman, Dr Paul Wild, said five laboratories were involved in the amalgamation:

- The headquarters of the former Division of Wildlife Research at Canberra, and the Division's two other laboratories at Darwin and Helena Valley, near Perth.
- The two laboratories of the Rangelands Research Unit at Deniliquin, and at Alice Springs.

The programs of the former Division of Wildlife Research on Wildlife ecology and

Continued on page seven

New boost for collaborative research plans

Collaborative research between CSIRO and Australian universities has been given a boost with the announcement of six new CSIRO/University Collaborative Research Project Funds.

Worth more than $500 000 each year, the Funds aim to strengthen the national research effort by encouraging greater interaction between relevant research groups in CSIRO and universities.

The universities involved are Melbourne, Sydney, Monash, Macquarie, Wollongong and Queensland.

It is hoped to establish collaborative funding arrangements between CSIRO and other universities in the future.

The announcement of the establishment of the Funds was made in a joint statement by Dr Keith Boardman, Executive Member of CSIRO and Professor Ray Martin, Vice-Chancellor of Monash University, in their capacities as Chairman and Deputy Chairman of the Joint CSIRO/Australian Vice Chancellors Committee (AVCC) Committee.

STIMULATE DEVELOPMENT

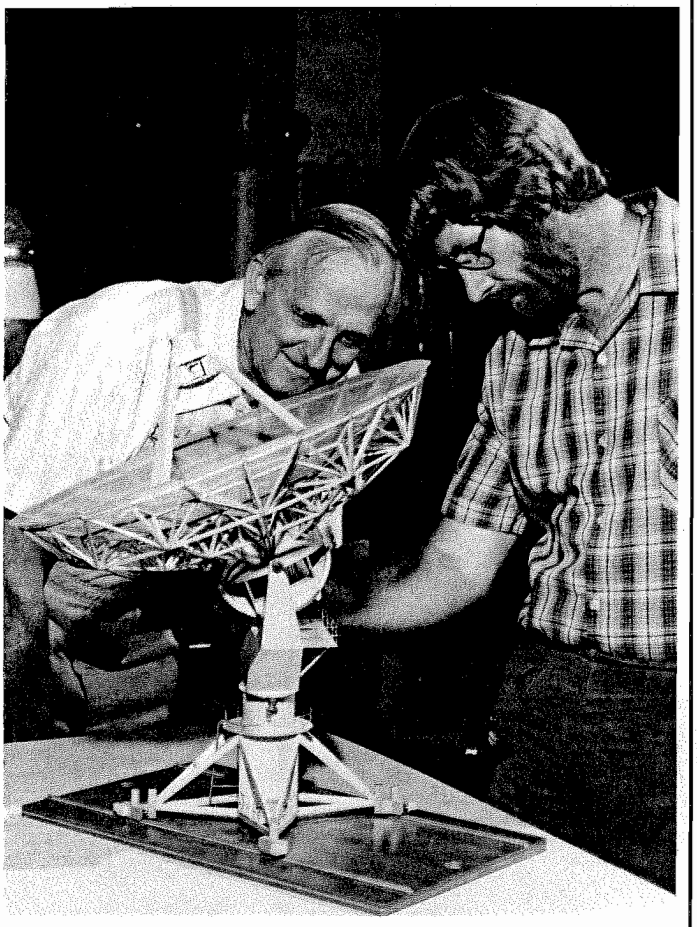
Their statement said the Funds were intended to stimulate the development of new links between groups which had not previously collaborated, as well as to strengthen existing links.

Research groups in all sections of CSIRO and the universities would be eligible to participate.

Creation of the funds follows the successful introduction of a CSIRO/Australian National University Fund in 1982 supporting collaborative research projects between the two organizations. Each organization contributed $50 000 and nine grants, from a total of 52 applications, were awarded.

Dr Boardman and Professor Martin said there had been widespread interest in the establishment of the funds.

Telescope model maker



Mr John Uden, right, a senior laboratory craftsman in the Division of Radiophysics in Sydney, with a model of one of the antennas of the proposed Australia Telescope which he constructed in the Division's workshops. Sugar pine was used to make the timber parts of the model and the dish was made from frosted celluloid. John was an experienced patternmaker and modelmaker when he joined CSIRO, and used engineers' drawings and sketch plans to design and construct the telescope model which is currently being used by the Division to show visitors how the new telescope will look when construction is completed during the Bicentenary year in 1988. Admiring John's handwork is Mr Ross Fuller, foreman of the Division's workshops. —Photo by John Marsterson

Mr Ray McInnes, a senior technical officer in the Division of Entomology in Canberra, was awarded the British Empire Medal for public service in the New Year Honours list. Ray, who has worked for CSIRO for 35 years, celebrated his honour with colleagues at a happy hour.

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Also the recipient of an award was **Mr Alban Frederick Gurnett-Smith**, better known to his many friends in CSIRO as Smithy, who was given a Member of the Order of Australia for public service. Smithy recently retired after 36 years, most recently as Officer-in-Charge of the Centre for International Research Cooperation in Canberra.

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Dr Tony Howells, a senior lecturer in the Department of Biochemistry at the Australian National University, has been appointed a visiting research fellow in the Division of Entomology. For a number of years, Dr Howells has been studying the biochemistry and genetics of eye pigment genes in sheep blowfly, and has developed strong links with the Division. Although Tony will not be moving from the Department, his appointment will enable the Division to take advantage of his expertise in the development of its molecular biology program.

Bill McKenzie, of the Division of Building Research in Melbourne recently lost his wallet while visiting the Flinders Medical Centre in Adelaide. Hospital and police were unable to come up with the missing wallet, and he returned to Melbourne without it, to be greeted by a telegram from **Peter Baghurst** of the Division of Human Nutrition who had also been visiting the maternity section, saw the wallet and picked it up.

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A life of service to the scouting movement, and to CSIRO, was recognized in the New Year Honours, when **Peter Hume** was awarded the British Empire Medal for community service. Peter is an apprentice co-ordinator and workshop supervisor at the Division of Building Research at Highett.

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Dr Larry Beach has taken up a two-year research appointment in the biochemistry section of the Division of Plant Industry where he will work with the team of researchers who are examining transcription in nuclei isolated from developing pea seeds and determining the stability of the new RNA species.

Graham Wallis, who has spent two years establishing the CSIRO Science Education Centre at Highett, Vic., has returned to full-time teaching. His replacement as education officer is Don Hyatt, a chemistry teacher.

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Dr David Mahoney of the Long Pocket Laboratories was awarded the degree of Doctor of Veterinary Science by the University of Queensland on 20 December. The title of his thesis was 'Studies on Diseases of Cattle and Horses in northern Australia'.

Dr Mahoney was appointed Chief of the Division of Tropical Animal Science in March last year. In recent years, his research has been concerned mainly with tick-borne diseases of cattle—a field in which he is recognized as a world authority.

Dr Mahoney's earlier studies on two other major diseases of cattle, bovine contagious pleuropneumonia (BCPP) and bovine tuberculosis, established important principles for the control of these diseases in extensively managed cattle herds.

These studies contributed to the eradication of BCPP from Australia and assisted in the planning of the current campaign for the eradication of bovine tuberculosis.

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Readers may recall an article in *Coresearch* No 248 on **Rex Thompson** of the Division of Manufacturing Technology in Adelaide, whose hobby is building violins. Rex was unable to attend the third international triennial competition for bowed stringed instruments in Cremona, Italy, last year, but instead entered two instruments, a violin and a viola. Rex's instruments were among a total of 510 submitted by 300 professional violin makers from 24 countries, and his instruments were among the 196 chosen for exhibition. Photographs of both appeared in a catalogue of the exhibited instruments published for the competition.

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Neil Foster of the Division of Fossil Fuels in Sydney, was recently awarded the Baragwanath Award at the seventh Australian Workshop on Coal Hydrogenation, held at Macquarie University. The award commemorates the pioneering work of George Baragwanath, who studied the hydrogenation of Australian coals at the British Fuel Research Station in the late 1930s and early 1940s. Each year the award goes to a scientist under 35 whose research, and the presentation of her or his results at the Workshop, is an outstanding contribution to the study of coal liquefaction.

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John Birch, of the Division of Applied Physics, recently left Australia to undertake a 10-week study of the relationship between Government and non-Government aid programs. John, who is National Chairman of Community Aid Abroad in Australia, is undertaking the tour as a recipient of a Churchill Fellowship. John will be attending the Oxfam Conference in Mexico and the Council Meeting of the International Council of Voluntary Agencies in Geneva. He also expects to visit non-Government organizations in North America, Western Europe and South East Asia to document and analyse their experiences as recipients of Government aid.

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Dr Alex Lascelles, Chief of the Division of Animal Health, has relinquished his position and has returned to full-time research within the Division's McMaster laboratory.

Dr Alan Donald is at present acting as Chief.

Dr Arnold Martin stepped down as Chief of the Division of Soils on December 31, and has been succeeded by **Dr David Smiles**, who was previously Chief of the Division of Environmental Mechanics. Dr Smiles plans to administer the Division from the Canberra laboratory of the Division. Dr Martin is continuing to work within the Adelaide laboratory.

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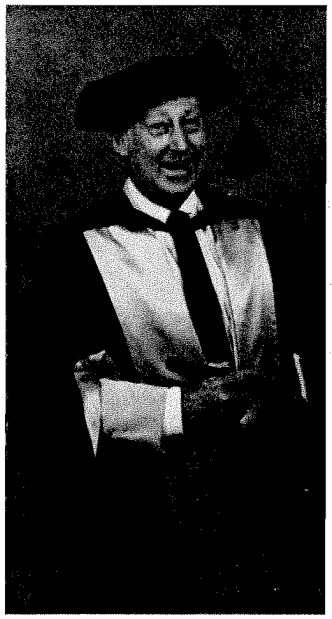
The Editor of *CoResearch* is accustomed to receiving some rather strangely addressed mail, but wonders if a recent letter from the Australian Academy of Science to 'The Editor, CSIRO Corps Search' was really meant for the dead letter office.

Honorary degree for Keith Northcote



An honorary degree in Agricultural Science has been conferred on Keith Northcote of the Division of Soils, by the University of Melbourne.

Dr Northcote completed his B.Agr.Sc. at the University of Melbourne in 1941 and has spent his professional life as a research scientist with CSIRO.

His work has taken him to all States of Australia and his research has been published in 48 scientific papers, books, booklets and maps.

Of particular note is Keith's publication 'A Factual Key for the Recognition of Australian Soils' which he published in 1960, after studying 500 soils profiles across Australia.

In making the award, the Chancellor, Professor Ray Wright said that Dr Northcote would be remembered by generations of Australians in the fields of agriculture, forestry, environmental science, geography, agriculture and civil engineering because of his work with soil classification and identification.

'I believe Dr Northcote is one of the few scientists who has seen the wide acceptance and use of his ideas during his working career,' Professor Wright said.

Staff and former employees of the Division of Applied Physics were saddened by the death just before Christmas of **Norman Esserman** who was formerly Chief of the Division of Metrology. Norm, who was 86, graduated in physics from the University of Sydney in 1916, and had been associated with CSIRO since 1939, until his retirement in 1961.

□ □

Three members of the Division of Applied Physics have retired recently. **David Brown**, who had been responsible for the high-voltage calibration work, **Roy Talmey**, who had been working as a signwriter, and **Penny Riley**, who had for eight years edited the Division's newsletter. The new editor of the newsletter is **Susan Huddleston**.

□ □

Clyde Garrow at CILES is rarely surprised when it comes to strange requests. But he is still trying to discover what made the Board and Timber Products Limited in Zimbabwe enquire about the Scrimber process from CSIRO's Creche Association in Canberra.

□ □

A new face at the Division of Tropical Crops and Pastures is **Dr Gabriele Rusitzka** from Berlin, Germany, who is working on post doctoral studies at the Cunningham Laboratory. Gabriele is working with **Myles Fisher** on the effects of salinity on legumes.

□ □

Dr Garth Murphy has retired from the Division of Fisheries Research, after eight and a half years on the staff at Cronulla, most of it as the head of the fish biology group. Garth will continue to be associated with the Division of Fisheries Research because he has been awarded a post-retirement research fellowship with the Division for two years to enable him to continue advising the Acting Chief, **Dr Shirley Jeffrey**, on fisheries research matters. He will also oversee the production of the 'Guide to Trawl Fishes'.

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The Chief of the Division of Oceanography, **Dr Angus McEwan**, has officially moved the headquarters of his Division to Hobart during the Christmas break. The Division is now operating from offices in the Reserve Bank building in Hobart. Dr McEwan plans to spend two days each fortnight in Cronulla for meetings of the Marine Laboratories Management Committee.

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Ted Radoslovich, a senior scientist at the Division of Soils in Adelaide, has been balloted to be number one on the ticket for the South Australian Democrats in the Senate team at the next Federal election.

Ted has been active in local politics in South Australia for some time and has been involved in the CSIRO Officers' Association for many years.

Ted has a B.A. in politics as well as a Doctorate in physics. If South Australians vote Ted in, he will be one of the few physicists ever to enter the Senate. Ted is already active in local government politics, as an Alderman of the City of Mitcham in South Australia. If successful, Ted would take up his position on July 1, 1984.

□ □

Dr Richard Tweedie, formerly with the Division of Mathematics and Statistics in Melbourne, has resigned from CSIRO to become General Manager of SIROMATH Pty Ltd, in Sydney. Richard had been occupying the position for the past year while on leave without pay.

Death of Geoff Hill

The death occurred recently of Dr Geoff Hill, a senior scientist in the Division of Mineral Chemistry at Port Melbourne. Geoff suffered a fatal heart attack travelling home.

He joined the Division of Radiophysics in 1949 as a part-time technical assistant, graduating from the University of Sydney the following year as a B.Sc., and as an M.Sc. in 1955. In 1961, he was awarded a Ph.D. from the University of Melbourne for his thesis on 'Advanced Programming of Digital Computers'.

Geoff was intimately involved in the development of CSIRO's first computer, CSIRAC which was, at that time, the fourth computer in the world.

He applied his professional skills to a wide range of problems; wheat yields, rainfall, library systems, accounting systems, soils and geomechanics to mention but a few to illustrate his diversity of interests.

In the early 1970s, his attention moved towards the then-emerging field of geostatistics, and, backing his own judgement, he determined to make this area his future career. In 1975, with the assistance of a French Government Fellowship, he studied at the Centre de Morphologié Mathematique, Fontainebleau.

On returning to Australia he transferred to the Division of Mineral Chemistry and pursued his professional work with great vigour, returning to Fontainebleau for a further study period in 1980. During this last phase of his career he made significant contributions to both particular Australian mining companies and the field of geostatistics, in developing methods of assessing the characteristics and magnitude of Australia's mineral resources. He was well versed in geology and mineralogy as well as mathematics.

During his career, Geoff was a visiting scientist and professor to organizations and universities in the U.S.A., Canada and South Africa. He contributed to the organization of, and presented papers at many international conferences and published over forty papers in the scientific literature. He was a member of the Editorial Board of the American Journal of Mathematical and Management Sciences. His professional opinion was regularly sought, both nationally and internationally.

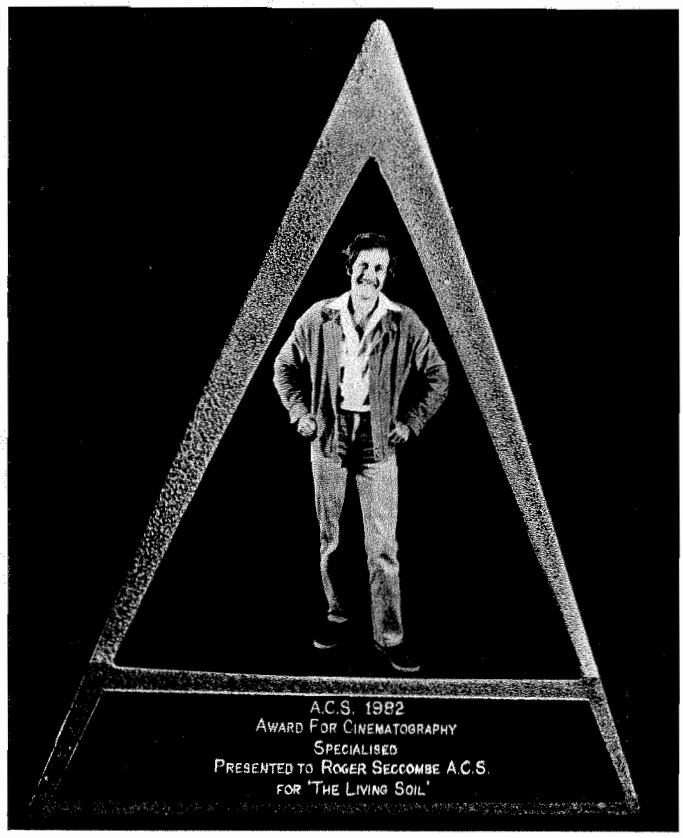
Colleagues remember his deep and real concern for people, their needs and their development, his total commitment to his profession which was tempered by a sparkling sense of humour, skills in legerdemain, and supported by a determination to seek the truth in all things.

He is survived by his wife Eileen, daughter Elizabeth, and sons Peter and Michael.

Professor Hans Lindner, an internationally recognized biologist at the Weizmann Institute in Israel, died recently. Earlier in his career, Professor Lindner worked as a principal research scientist at the Division of Animal Physiology in Sydney. Professor Lindner, who was 60, was particularly well-known for his work on the biology of reproduction. Among the honours bestowed on him during his lifetime, Professor Lindner received the Israel Prize, the Rothschild Prize, the Alex Menthe Prize, the Dondek Prize and an honorary doctorate from the University of Goteberg.

At the time of his death, Professor Lindner was Dean of the Weizmann Institute's Faculty of Biology and Head of its Department of Hormone Research.

Roger's golden tripod



Roger Seccombe of the Film and Video Centre with his award for the CSIRO film 'The Living Soil' which was presented to him by the Australian Cinematographers Society.

Roger Seccombe, of CSIRO's Film and Video Centre, has been awarded a Golden Tripod, the equivalent of the American Oscar, for his cinematography in the film, 'The Living Soil'.

The award was made by the Milli Awards, which are organized by the Australian Cinematographers' Society. The awards are made by the society's members and Roger is the first Victorian cinematographer to have received a Golden Tripod in the 14-year history of the Milli Awards. Unfortunately, Roger was unable to accept the award in person at the presentation ceremony in Sydney during December.

Hoyts Theatres are distributing 'The Living Soil', and 16 mm film prints and U-matic video cassette copies are available on loan from the Film and Video Centre's library in Melbourne.

Two researchers in the Division of Tropical Crops and Pastures in Brisbane, **Mac Rees** and **Myles Fisher**, have been awarded their Ph.Ds by the Chancellor of the University of Queensland, **Sir Walter Campbell**.

Mac's thesis was 'The Effects of the Major Fertilizer Component of Superphosphate' and Myles Fisher's was 'Responses of Siratro to H_2O stress. For Myles, the presentation was a family affair as his daughter Jane was awarded a Bachelor of Agricultural Science.

□ □

Bob McCown, of the Division of Tropical Crops and Pastures, has recently been appointed to the Program Committees for the Board of Trustees, of the International Livestock Centre for Africa. Bob recently attended a program committee meeting in Ethiopia.

Retirement for Dick Blackburn

One of the longest-serving members of the Division of Soils, **Dick Blackburn**, pictured above, has retired. His working life has been devoted to unravelling the mysteries of landscapes and the natural forces that have shaped them.

Among other research, he showed how the south-east of South Australia and nearby regions of Victoria had been formed on stranded coastal beach ridges. This research has implications for current salinity problems in the Murray Basin of south-east Australia. Dick has mapped the movement of airborne salts across the continent, delved into the origins of gilgai and red rain, and in 1956, surveyed the soils of Brunei. Dick, and his extensive knowledge of natural history, will be missed.

From the Advisory Council

This is the first column from CSIRO's Advisory Council. The column will be published quarterly, and will be contributed by members of the Advisory Council and State Committees.

The first colum has been written by the Council's Chairman, Sir Peter Derham.

In his news release accompanying the tabling of the CSIRO 1981-82 Annual Report, Dr Wild was kind enough to attribute some of CSIRO's success to the assistance of 'an Advisory Council on which Government Departments, industry and community interests are represented'. The functions of the Council, and the work it has done, are adequately covered in CSIRO Annual Reports and I do not propose to go into further detail here, except to highlight the Standing Committee structure which has proved very effective. (See adjacent article.)

UNNECESSARY CONSTRAINTS

In the same news release, however, Dr Wild referred to the unnecessary constraints and external controls imposed on CSIRO. It is this issue which I would like to take up.

Whilst the Council's primary functions are to provide advice about research objectives and priorities, it is impossible for members of Council to ignore management issues which impinge on the Organization's ability to conduct its research effectively, and I am greatly concerned about the restrictions placed on the management authority of the Chairman and the Executive of CSIRO.

In particular, writing from past experience as the Managing Director of a large, technically-oriented company, I find it incredible that overseas visits by CSIRO staff are subject to the approval of an external body undoubtedly less knowledgeable than the CSIRO Executive. I fully appreciate the political sensitivity associated with overseas visits, and continue to be an unrepentant critic of 'junkets' by politicians and public servants. Nevertheless, it seems a nonsense to me that the Government can entrust the expenditure of $325m plus to the Chairman and the Executive for salaries, local travel, equipment etc., but not the $1m which represents the costs of overseas visits.

QUARTERLY REPORTS

I believe that as Chief Executive, Dr Wild should have complete authority on overseas visits, and only report his actions quarterly to the Minister. This would be a private enterprise method and allow him some authority. Unfortunately, today, he has the responsibility without having the authority.

Surely, in the unlikely event that CSIRO decided to throw its whole budget out of balance by authorizing a disproportionate sum for overseas visits, the surveillance of the Minister, the Department of Finance, the Auditor-General and Parliamentary Committees would be sufficient to protect the public interest.

I have made my views known to our Minister and to other Ministers, and will continue to do so, so long as this ridiculous situation continues.

—Peter Derham
Chairman

The role of the Standing Committees

CSIRO's Advisory Council has five standing committees which meet regularly to discuss issues and prepare advice for Council's consideration.

These committees and their terms of reference are:

Rural Industries
Chairman: Mr J.H.S. Heussler
Terms of Reference:
In relation to rural industries, to advise Council on:
(1) the needs of industries to which CSIRO research and development might make a contribution;
(2) the general level of research effort required;
(3) the relationships between CSIRO, other research institutions, extension organizations and funding bodies;
(4) CSIRO's research objectives and priorities.

Manufacturing Industries
Chairman: Mr J.E. Kolm
Terms of Reference:
In relation to manufacturing industries, to advise Council on:
(1) the needs of industries to which CSIRO research and development might make a contribution;
(2) the means by which cooperation between relevant industries and CSIRO may be established or strengthened;
(3) CSIRO's research objectives and priorities.

Mineral, Energy and Water Resources
Chairman: Professor M.J. Birt
Terms of Reference:
In relation to mineral, energy and water resources to advise Council on:
(1) the needs of industries or Government authorities to which CSIRO research and development might make a contribution;
(2) the means by which cooperation between relevant industries, Government authorities and CSIRO might be established or strengthened;
(3) CSIRO's research objectives and priorities.

Natural Environment and Renewable Natural Resources
Chairman: Professor P. Scott
Terms of Reference:
In relation to the natural environment and renewable natural resources to advise Council on:
(1) needs in these areas to which CSIRO research and development might make a contribution;
(2) CSIRO's research objectives and priorities.

Information and Social Impact
Chairman: Dr B.W. Scott
Terms of Reference:
(1) To advise Council on matters of national interest which are relevant to
  (i) CSIRO's statutory functions set out in Sections 9(b) to (j) of the Science and Industry Research Act 1949
  (ii) public health
  (iii) related functions which might, in the national interest, be performed by CSIRO
(2) To cooperate with other Standing Committees by providing an 'Information and Social Impact' input to their deliberations.

Project Aquarius: Important fire experiments begin in Western Australia

CSIRO and Western Australian Forests Department researchers have been combining with several other organizations to carry out important fire experiments in Western Australia during the summer.

About 20 high intensity fires were lit in forest near Busselton, WA, to gather information on fire behaviour for two complementary projects—Project Aquarius (CSIRO Division of Forest Research) and Project Narrik (Western Australia Forests Department).

Project Aquarius is a federally-funded research project which aims to assess the cost effectiveness of large air tankers for bushfire control in Australia.

Project Narrik aims to expand knowledge of fire behaviour under summer conditions, which will benefit wildfire control and the use of fire as a management tool under a wider range of conditions.

AIRCRAFT USED

A key tool in the experiments has been CSIRO's F27 aircraft, equipped with infra-red fire-mapping equipment. The aircraft flew over the fires as the equipment measured their rate of spread.

Equipment in the aircraft had been calibrated in the last twelve months during flights over experimental fires in the ACT and the Blue Mountains, and over wildfires in Victoria.

Fifteen CSIRO researchers and support staff, based in Busselton, have been involved in the Western Australian experiment, together with 19 research and support staff from the Western Australian Forests Department.

CSIRO researchers will study the behaviour of the experimental fires, particularly the frequency and distribution of spotfires ahead of the main fire.

Knowledge of the spotfires' behaviour will help establish the point of development beyond which attack by air tankers is likely to fail.

The Western Australian experiments will provide information essential to planning the next stage of Project Aquarius when air tankers are actually tested over experimental fires planned for Victoria in the summer of 1983/84.

FIELD LABORATORY

CSIRO constructed a special field laboratory for the Western Australian project using an insulated shipping container. The laboratory contains equipment used to monitor temperature and wind velocity at points set up within the fires.

The Western Australia Forests Department coordinated all fire control.

Two air tanker specialists from the US Forest Service spent one month in Australia to participate in the experiment and help plan next year's trials.

A team of specialists from the Chisholm Institute of Technology (Melbourne) conducted tests on the performance of fire retardants to provide data for a mathematical model to cover air tanker operations in Australia.

A scientific team from the Commonwealth Institute of Health carried out studies of factors affecting performance of fire fighters, particularly physiological stress and the effects of safety clothing on heat dissipation.

Open days at Parkes telescope

CSIRO's 64-m radio telescope at Parkes will be opened to the public as part of CSIRO's contribution to the city of Parkes centenary celebrations on Saturday and Sunday, March 5 and 6.

The Division of Radiophysics and the Science Communication Unit's Visitors' Centre are mounting an impressive display of information about the telescope, its operations and the astronomers who use it.

Films will be screened at regular intervals in the Visitors' Centre. Parties of 10 to 15 people will be taken through the telescope to see the massive bearings on the azimuth track, the control desk from which the telescope is 'driven', the observer's station and receiver racks where the signals received by the telescope are recorded and the computer room where the signals are processed.

Tours of the telescope commence at 9.30 a.m. and finish at 3.30 p.m.

For further information contact Dr Alan Wright at the telescope on (068) 633131 or Dr Andrew Pik at the Division's Epping Laboratories on (02) 8680222.

Chem. Technology restructured and expanded

CSIRO's Division of Chemical Technology in Melbourne has been restructured and expanded to form a new Division of Chemical and Wood Technology.

The Chairman of CSIRO, Dr J. Paul Wild, said an important new research activity for the Division of Chemical and Wood Technology would be to scale up processes arising from CSIRO's research in biotechnology, including genetic engineering. The new Division would also provide a focus for wood and forests products research.

It had also been decided to continue CSIRO's research in agricultural engineering. The former Agricultural Engineering Group of the disbanded Division of Mechanical Engineering would now become a section of the new Division.

MAJOR RESEARCH

Research at the new Division, which is a member of CSIRO's Institute of Industrial Technology, would be structured into six major areas:

- Wood and lignocellulose research, which would develop the Organization's work in wood, wood pulping and the economic use of forest wastes
- Biotechnology, including fermentation processes and genetic manipulation of microorganisms used in the production of chemicals and fuels in laboratory scale experiments
- Industrial microbiology, including the engineering design and scaling-up of systems for fermentation processes, and processes or products derived from advances in genetic engineering,
- Water and wastewater purification, an area in which the Division of Chemical Technology had made several important advances in the past two decades, including Sirotherm, a system for de-salting brackish water, and Sirofloc, a system for clarifying turbid water
- Agro-industrial systems, involving integration of agriculture with industrial processing to produce fuels, food, animal feeds and fibres from agricultural products
- Agricultural engineering, where the Division would collaborate with other groups in related research fields. Existing projects on grain storage and forest harvesting would be continued, and one important new area of research would be the development of soil manipulative systems suited to Australian conditions.

Wildlife gains rangelands unit

from page three

management will be continued, and will in turn benefit from availability of skills in the management of land and plant communities.

Dr Wild said scientists from both laboratories of the former Rangelands Research Unit would continue to work on projects concerned with rangelands management, but new emphasis would be placed on developing co-operative projects with wildlife scientists.

DENILIQUIN GROUP

Dr Wild said that although details of research programs still had to be decided, it was expected that the Deniliquin group would continue to specialize in the ecological management of the pastoral lands of southern and eastern Australia, for long-term productivity, with emphasis on monitoring land condition, managing soil resources, studying the dynamics of plant and animal populations, and the effect of socio-economic factors on land management.

The Alice Springs group would conduct research into the management of arid lands in central, northern and western Australia, with emphasis on the conservation and management of soils and vegetation. Studies of the animal populations of pastoral and non-pastoral lands would be an important element in the group's work.

In some cases, the development of research projects would involve a movement of staff between different laboratories.

Successful Melbourne golfers

The Division of Protein Chemistry held its annual golf day in Melbourne during December, with more than 70 golfers taking part, representing teams from Divisions, the Regional Administration Office and trade houses. The trophy for the best team was won by the Division, while the trophy for the best 18 was won by Peter Waters. Pictured with the team trophy is, from left, Peter Silk, Peter Waters and Neil Evans. The presentation of the trophies was followed by a dinner at which most of the golfers were present.

SIRET: A lunch club for retirees

Dr Gerald Trikk writes on a new club which has been formed in Canberra for retired CSIRO staff.

Whenever a group of retired CSIRO employees gather, the conversation invariably turns to loss of contact with each other and with what is happening in their former workshops, laboratories and offices.

Almost as invariably, expressions suggesting 'the casting aside of old shoes' and 'thrown to the scrap heap' crop up. To remedy this situation, a group of retirees in Canberra has taken the initiative and formed a luncheon club which will meet regularly to maintain the contacts and to provide entertainment and enlightenment for the members.

The SIRET Club had its Inaugural Meeting-cum-Christmas Party at the Ainslie Football Club in Canberra on November 23. Of the 180 contacted, 135 were present, many with spouses, and indicated they wished to join the Club. The launching was attended by the Chairman, Dr Paul Wild. Appropriately, he chose as his theme 'Communications', likening the group and its proposed activities to a communications network. He supported his comments by pointing out that communication was the backbone of CSIRO, be it in the Organization's internal or external relations. He told the group he believed that the importance of former employees retaining their sense of belonging to, and their interest in each other, their working colleagues, and CSIRO activities could not be overstressed.

The Club is the brainchild of Ron Rochford (ex-Plant Industry) and Kent Keith (ex-Wildlife). Once suggested, they were inundated with offers of support and assistance, and an Interim Committee was established. This comprised a cross-section of former employees including Margaret Mills (Land Use Research), Max Day (Forest Research), Jack Hallam (Headquarters), Albert Wetherly (Entomology) and John Agnew (Plant Industry). With help from Paul Brown (The Divisional Secretary of P.I.), and Martin Smith and David Goodchild (Benevolent Fund, A.C.T.), an extensive list of retirees was compiled and invitations to join the Club despatched. Although many now live away from Canberra, they requested corresponding membership, and hopefully will attend meetings whenever they are back in Canberra.

Luncheon meetings will be held every two months, with guest speakers dealing with such hobby (?) topics as finances, gardening, tourism and the theatre, interspersed with speakers discussing work currently in progress in CSIRO. Members have indicated their various interests (over 50 listed) and activity groups to meet before each luncheon are being formed. These include gardening, historical research, cooking, gemology, sports, music, etc. It is anticipated that these groups will organize excursions, tours, evenings at the theatre or cinema, and other functions that will be open for participation by all club members and their friends.

Another important feature of the Club will be the bi-monthly newsletter. In addition to keeping members informed of current events, the newsletter will serve as a forum for the expression of ideas, passing on details of CSIRO activities, and providing a communications base for corresponding members.

The first 'business' meeting, at which the rules of operation (Constitution sounded too stuffy for the informal nature of the club) were decided and the Committee of Management elected, was held on Thursday, February 3. The guest speaker was Mr John de Plater, the Canberra Manager of Price Waterhouse, and he spoke on 'The Management of Financial Resources for Retirees'.

The response to the Club has surprised all those involved, the most common comment being 'Why wasn't it established before?'

Death of a senior Melbourne scientist

The death occurred on January 14 of Mr Peter Taylor, a senior scientist in the Division of Energy Technology in Melbourne.

Peter, a first class honours graduate of the University of Birmingham, joined the CSIRO Engineering Section at Highett (later the Division of Mechanical Engineering) from the National Institute of Agricultural Engineering, England, in 1958 as a senior research officer.

Leading a small group researching kinematics of disc ploughs, he soon became known throughout the Australian agricultural machinery industry. The group expanded to develop a broadcast cotton harvester and other machines and devices for the application of agricultural chemicals both from aircraft (of particular interest to a former RAFVR flight lieutenant) and ground machines.

During this period Peter, with Bob Birtwhistle of the Division of Mathematics received the 'Engineering Applied to Agriculture Award' (1967) from the Institution of Mechanical Engineers, U.K., based on research into forces generated by towed wheels. He also played a major role in the formation of the Agricultural Engineering Society, Australia, becoming the first Federal President in 1970.

In 1975 he was invited to take over the administration of the Stored Products Engineering Group of the Division and thus establish a broad base for CSIRO's agricultural engineering research activity. He became involved in economic evaluation of physical methods of insect control in silos, and in the implementation of large scale field trials of silo refrigeration and continuous high temperature disinfestation of grain. In addition, the combined Group commenced work in forest harvesting, as well as contiuing research in tillage and harvesting machinery and investigations into crops for fuel.

With the closure of the Division of Mechanical Engineering in 1981, the Group, highly regarded by industry,

Mr Peter Taylor

became independent until early this year when the Executive, approved its incorporation into the new Division of Chemical and Wood Technology as the Agricultural Engineering Section located at Highett. Research priorities for the Section lie in woil/plant/water relationships, a very familiar field to Peter.

—W.B. Elder

Alpine flora in paperback

The paperback version of *Kosciusko Alpine Flora* is now in the bookshops at $19.95.

Members of the staff of CSIRO can obtain copies for $13.50 post free from the Editorial & Publications Service, P.O. Box 89, East Melbourne, Vic. 3002.

The casebound version is still available and makes a very acceptable gift for bushwalkers at $17.50 from the same source.

CAT

The CAT Column is open to all members of CSIRO who wish to comment on communication matters.

The following article was written by Mr Fred Darby, one of the original members of CAT, as a background document for discussion on the role of CAT. Fred is currently on secondment from the Division of Energy Technology to the Victorian Solar Energy Council.

Success or failure for CAT? When a CAT member is asked to write about this subject it is difficult not to have a vested interest in arriving at a conclusion. Trying to be as objective as possible, we will look at the CAT objectives, then at some of its achievements. It may then be possible to decide if it has all been worthwhile.

But first, let us look at some background to the three years of CAT's existence. As everyone knows, these have not been the easiest years within CSIRO, or outside CSIRO for that matter. Restrictive staff ceilings are continually putting strains on research programs. Divisional reviews, the one new growth industry, have attempted to change the direction of some CSIRO research and have commented on communication activities. We have also seen some aspects of communication take a lower priority—certain Divisions will not now speak to the public and even our Central Information Service will only do this for half a day. The results of Divisional reviews have not always been communicated in the most appropriate manner.

CAT was not asked for advice on this matter—a failure, perhaps? However, partly due to CAT taking up this issue, the Executive has now appointed a working party to look at Organizational changes and CAT will provide an input to this group.

SCARCE RESOURCES

With resources scarce throughout the Organization, it is understandable that communication activities should suffer some cuts. However, we should ensure this change in quantity does not alter the quality. Some people believe communication should take more than its fair share of cuts but if this were done the Organization would become more introverted and possibly more susceptible to further cuts.

In times of attack it is essential to maintain the quality of our research and to increase our efforts to make the research more meaningful to the industry, public and politicians. We have a product which we must sell, we cannot afford to wait for someone to come and buy it. This does not mean we need more specialist communicators but we must use those we have more effectively. Also the scientific staff, our most numerous communicators, must be encouraged to be more outward looking.

With this brief background, let us look more closely at the animal called CAT.

CAT has a broad, three-fold function:

. to encourage collaboration between central and regional communicators and to foster a sense of professionalism among CSIRO communicators
. to disseminate information on communication processes and techniques
. to be available, through the Director of the Bureau of Scientific Services, as a source of advice to the Executive and to Institute Directors on communication strategies.

CAT has discussed and taken action on a number of issues, including

. a Communication Statement
. establishing regional communication meetings
. training for CSIRO staff in communication techniques
. format and material for *CoResearch*
. a working party on CSIRO involvement with museum and science centres
. a review of CSIRO's telephone answering systems for the public
. the use of plain English in circulars
. circulation of communication material within CSIRO
. annual reports

As important as these points are, there have been other less obvious benefits coming from CAT. One of the main problems facing Divisional communication-type people is the lack of peers in the Division with whom they can discuss their work.

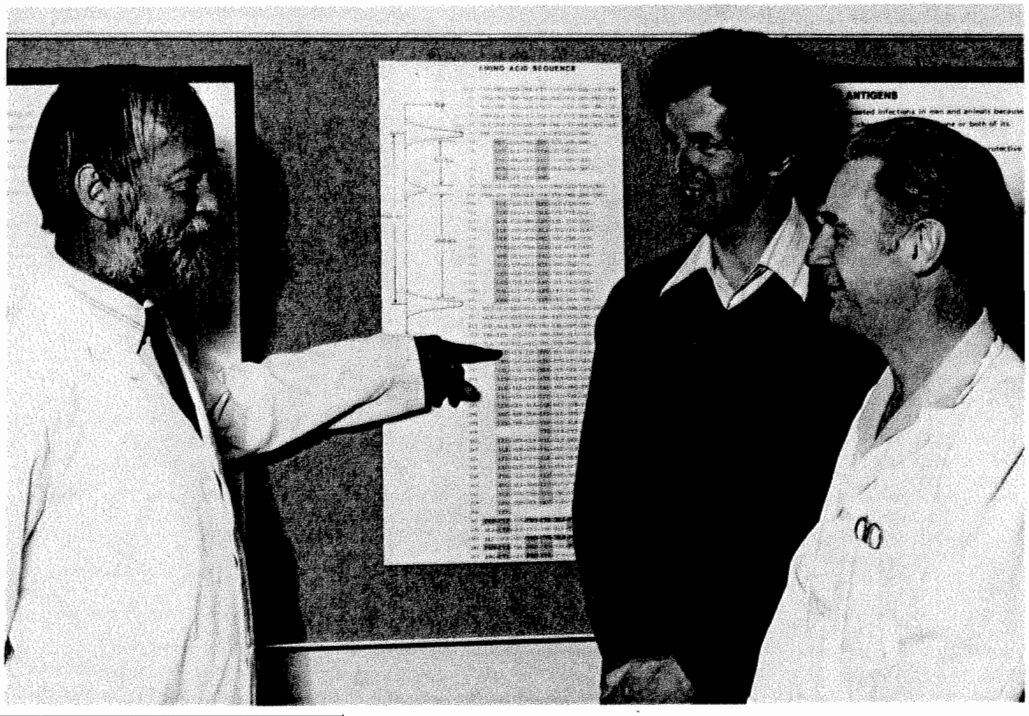
The setting up of the regional groups is a positive step to minimize this problem. Members of the team themselves derive great personal benefit and CAT has certainly assisted in developing understanding between Divisional and central communicators. The 'them and us' syndrome is not so prominent as before CAT was established. The Minutes of the CAT meetings are widely distributed and allow the whole Organization to be aware of communication activities.

The list of achievements may not seem great, but they are positive. They could be even greater—CAT has not been asked for advice on any communication matter; CAT deserves another life to assist the Organization obtain the communication it deserves.

Contributions on the long-term aims of CAT are actively sought, as well as constructive criticisms.

—Helen Dornom
Chairman, CAT

New Zealand visitor at Protein Chemistry



Dr David Parry of Massey University, New Zealand recently visited the Division of Protein Chemistry for two weeks to collaborate with CSIRO scientists in the detailed interpretation of the amino-acid sequence of a protein from wool.

David Parry has made a special study of the way in which amino-acid sequence determines the structure and properties of proteins and is seen here, centre, discussing details of the newly sequenced protein with Lindsay Dowling, left, and Adam Inglis, right, who have both played large parts in the Division's effort to determine this particular sequence.

The visit was supported by a special grant from the Australian Wool Corporation.

CSIRO marine sponsorship for a fur seal

The Marine Laboratories Social Club is now the proud co-sponsor of an Australian fur seal at Sydney's Taronga Zoo.

The Zoo runs a sponsorship program which enables individuals, groups and companies to fully sponsor or co-sponsor a wide range of animals at either Taronga or Western Plains Zoo.

Funds for the sponsorship came from a number of activities run during the year.

And while on the subject of animals, staff at the Labs have been responsible for rescuing a number of injured sea-dwellers from Cronulla's beaches. In the past few months a seagull, sandpiper, seasnakes and a fairy penguin have been handed to staff by local lifesavers patrolling the beaches. Most have been taken to Taronga Zoo for a period of rest and recuperation.

SCOUTS CSIRO

When 15 500 scouts jamboreed at Brisbane for ten days, an impressive number of them descended upon the CSIRO exhibit.

CSIRO was invited to set up a display of environment-related research to complement the bush trails and activities in one of the Jamboree's major centres, which attracted so many of the participants.

The boys were all eagerly seeking the coveted Jamboree's award; to gain points towards this each had to answer questions about the trails and the displays—never have so many dilligently searched display boards for the answers to what CSIRO does! There should now be several thousand young men aware that CSIRO carries out research into cattle breeding, weed control, pasture improvement, radio astronomy, paralysis tick control and soil studies. Those who were especially keen received this sticker which had been produced for the occasion.

The CSIRO exhibit was put together by the Regional Office with help from Brisbane Information Officers Group (BIOTIC) and a number of Divisional staff. This display and activities came under the control of the Queensland Branch Scouting Commissioner for Environmental Conservation Studies, Dr Bernard Stone of the Long Pocket Laboratories.

'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.

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CoResearch

CSIRO's staff newspaper *March 1983* **260**

CSIRO gets a new Minister in Labor Govt.

The new Minister for Science and Technology in the Labor Government, Mr Barry Jones, said he was looking forward to working with CSIRO.

Mr Jones, the Labor Member for Lalor in Victoria, succeeded the former Minister for Science and Technology, Mr David Thomson, who was not returned in the recent election.

Mr Jones was for almost two years, a member of CSIRO's Advisory Council and was on the Council's Standing Committee on Information and Social Contact.

'I am looking forward very much to meeting with CSIRO researchers and I plan to visit as many of the laboratories as I can in the next few months', Mr Jones said.

Formerly a public servant, high school teacher, university lecturer and lawyer, Mr Jones was formerly a Member of the Victorian Parliament for five years from 1972. At that time he was Shadow Minister for Social Welfare, Aboriginal Affairs, Transport and the Arts.

Mr Jones was Deputy Chairman of the Australian Council for the Arts between 1969 and 1973, and took a leading role in reviving the Australian film industry.

He has been active in penal reform and as a successful campaigner against the death penalty. Other interests include films, music, travel, collecting autographed documents, antique terracottas and paintings and reading.

His best-seller, 'Sleepers, Wake!: Technology and the Future of Work', was published by Oxford University Press in 1982; a Japanese edition will appear in 1983. Mr Jones has also written five other books.

Key to toxicity

Breakthrough in Leucaena research

CSIRO scientists in Townsville have found the key to solving the toxicity problem with the tropical forage legume, leucaena.

It has been found that a microbial culture obtained from the stomachs of Hawaiian goats can be transferred to Australian livestock to break down the toxic compound present in leucaena.

The development is of major importance to the grazing industry in northern Australia, because leucaena is a rich source of protein for grazing animals and grows in a wide range of soils in the north, including heavy clays.

The problem with leucaena has been that it contains mimosine, an amino acid which is broken down in the digestive systems of grazing animals to form a toxic compound called DHP.

DHP affects the thyroid glands of animals and can cause some hair loss, and a lower rate of weight gain.

CSIRO scientists noted that in countries such as Indonesia and Hawaii, the leucaena toxicity problem was non-existent.

Studies had shown that animals in these countries excreted very small amounts of DHP in their urine after grazing leucaena, whereas Australian animals excreted large amounts. This suggested the overseas animals had microbes in their stomachs which could break down DHP to make it harmless.

Scientists from the Division of Tropical Crops and Pastures had then begun a series of experiments to see if this ability could be transferred to Australian animals. For convenience and their smaller food requirement, goats had been used instead of cattle.

To avoid the possibility that the feeds or the animals overseas differed from those locally, four Australian goats together with locally-grown leucaena were taken to the Research Institute for Animal Production at Bogor, in Indonesia. The Australian Meat Research Committee provided some support for this study.

Before shipment, the goats were eating an exclusive diet of leucaena, and were excreting large amounts of DHP.

Continued on page four

Young Brisbane schoolgirl wins BHP Science Prize

A study of the effectiveness of household disinfectants has won a 15-year-old Brisbane schoolgirl Australia's most prestigious award for school science students.

Lorraine Dommett, a secondary student at Clayfield College, was awarded the BHP Science Prize at a ceremony at the Australian Academy of Science in Canberra. She has won a gold medal, $5000 and a trip to the United States to attend the 34th International Science and Engineering Fair in May.

She will be accompanied by Steven Delean, a South Australian high school student who was runner-up, and a Member of the Australian Science Teachers' Association.

PRESENTATION CEREMONY

Lorraine was presented with the Award by the Director of the Walter and Eliza Hall Institute of Medical Research, Sir Gustav Nossal, who was guest of honour at the presentation ceremony.

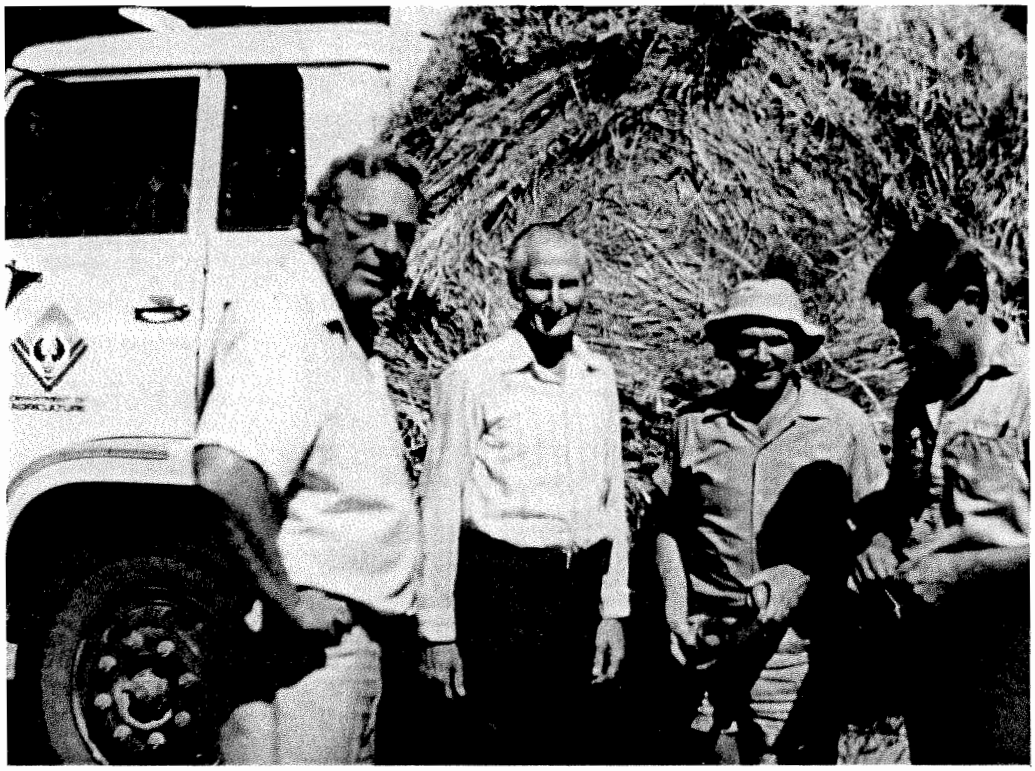
Lorraine's winning entry was a study of the effect of three common micro-organisms on five household disinfectants. Her experiments showed that all disinfectants were effective if the manufacturers' recommendations were followed, but their effectiveness varied as they were diluted.

The Chairman of the judging panel, Mr Sam Lattimore of CSIRO, described Lorraine's entry as an imaginative piece of research.

Continued on page four

The winner of the 1982 BHP Science Prize, Lorraine Dommett, with the second and third placegetters and members of the official party, pictured after the presentation ceremony at the Australian Academy of Science in Canberra. From left is Mr Bruce Guy, Managing Director, Westinghouse Electric, Steven Delean, the runner up, Sir James McNeill, Chairman, BHP Limited, Lorraine, Russell Gruen, the third placegetter, Dr Paul Wild, Chairman, CSIRO, and Sir Gustav Nossal, Director, Walter and Eliza Hall Institute of Medical Research, who addressed the students.

Letters to the Editor



The Division of Human Nutrition in Adelaide has donated 122 round bales of hay (60 tonne) to aid in relief operations for grazing animals affected by the recent bushfires. The South Australian Department of Agriculture collected the hay from the Division's Glenthorne farm at O'Halloran Hill. Mr Bob Illman, the farm overseer, donated his time during the weekend following the fires to assist in loading the hay. The hay was reaped from the farm and stockpiled over a number of years to reduce the possible effect a severe drought could have on Glenthorne. The Division is fortunate that this farm is in a position where it nearly always receives sufficient rainfall to produce feed to support its sheep and it was felt that the needs of others far outweighed the medium term needs of the Division.

Pictured in front of a loaded truck are, from left: Dr John Charnock, Assistant Chief, Murray Taylor, Bob Illman and Stephen Jenkins, Department of Agriculture.

Dear Editor,

Since ever I left my father's house, long decades ago, I have caught or bought, each passing day, my own lunch (and dinner; breakfast soon proved too difficult and unrewarding and hence it was abandoned). Indeed, I have frequently managed to provide a little over and above for those around the board who arrived a trifle short.

One outcome of this quaint custom is that the citizens of this town regard me as being beyond venality. Accordingly, when probity is important, some seek my advice or help.

Take this week, for instance. During Monday's lunch a Captain of Commerce from Collins Street became convinced that only an increment in knowledge could ameliorate his costs. After more talk, he accepted that he should pay. I have put him in touch with the appropriate authority in CSIRO and I understand arrangements are now being made for him to finance a Research Scientist to study the problem during years to come.

Next day I lunched with some chaps from China seeking on-going access to the Australian scientific literature. Plans have been laid which will almost certainly lead to expanded sales and circulation of technical books, journals, etc. in China. The Chinese Book Importing Corporation has a budget of some $55 million this year with bigger budgets promised as more Chinese learn English. This lunch cost my pocket some $15 more than usual.

On Wednesday, lunch was with several retired colleagues. One, realizing that CSIRO has imposed far too much work on me, has taken over a certain small job to relieve the pressure. No doubt I shall stand him a drink when he returns the finished work which he can still do better, anyway.

Lunches on Thursday and Friday were, I consider, even more productive as they widened my professional associations and knowledge. And I still haven't mentioned any of the five dinners where, naturally, bigger fish were fried.

Clearly, entertainment allowances wreak havoc on the benefit/cost ratio to the Organization and so I am very pleased to read the proposal by Martin *et al.* (*Co-Research* No. 259). I trust every CRS will support it fully and that there will be no need to remind them of their oath to 'bear true allegiance...' which their lesser colleagues keep ever before their minds, faithfully turning whatever opportunities arise to advancement of the cause.

Allocation of leave loading to other purposes is probably hedged about with legalities. On this matter I can only say that my personal cost of living declines during holidays as I have more time to catch and prepare meals.

—J.J. Lenaghan
SSOF, CILES,
East Melbourne

Dear Editor,

I am an Experimental Officer (Geologist) employed by the CSIRO Division of Fossil Fuels as a term appointee on a three-year project funded by the National Energy Research Development and Demonstration Council (NERDDC).

The purpose of this letter is to bring to your attention the inequitable situation in which term appointees in CSIRO are placed and the implications for research in Australia of a policy of increasing use of term appointees.

In the past, term appointees were a small proportion of staff, and a term appointment served as a step on the way to a subsequent permanent appointment in CSIRO, industry or university. Today term appointments are used primarily to achieve flexibility in responding to changing research priorities.

In 1981, in excess of 30 per cent of professional staff involved in energy research at North Ryde were term appointees mainly supported by NERDDC funds.

The immediate consequence of CSIRO's lack of success in attracting non-Treasury funds to the Institute of Energy and Earth Resources for the 1983-84 period, is that about 12 professional and support staff including myself, will be 'terminated' with notice ranging from four weeks to seven months unless other contributory funds are forthcoming. On the matter of notice, I understand that decisions regarding the allocation of NERDDC funds are made in mid-year. Why cannot some indication be given to unsuccessful applicants at that time?

The three-year project on which I am employed was originally planned as enough work for a Research Scientist, Experimental Officer and Technical Officer. The Research Scientist and Technical Officer left the project after two years, the former for employment with a more attractive salary and tenure. I have persevered in spite of uncertain manpower and financial resources due to internal administrative blunders, and personal and financial costs to myself, to bring the project to a successful completion.

The above examples serve to illustrate several matters in which term appointees are disadvantaged. In summary the more obvious ones are:

(i) establishing research credentials within the framework of a short-term project;
(ii) achieving continuity of employment;
(iii) maintaining long-term financial or personal commitments; and
(iv) accrual of long service leave and superannuation.

The most obvious risk to CSIRO is damage to its reputation because of incomplete or poorly completed projects due to premature staff resignations, and/or badly designed or supervised projects.

However, probably a more serious problem is the alienation of a significant proportion of Australia's younger researchers for whom the privilege of a 50 or 60 hour week (referred to in the September edition of *CoResearch*) may be mandatory if they are to take advantage of the limited opportunities offered to them, and who must also bear considerable associated financial and personal risks.

It is arguable whether the use of term appointees to achieve flexibility is economically justifiable given the costs of educating researcher's (minimum 16 years education), who must be periodically underemployed or unemployed in line with the 'law' of supply and demand. If the practice is to continue however, it is both unjust and in the long term damaging to Australia's best interest that term appointees subsidize the cost of research programs by bearing the costs of the associated risks previously outlined. The situation is even more paradoxical given the 'user pays philosophy' espoused by Australian industry and the previous government, who are the ultimate employers and beneficiaries of the research.

I bring these matters to your attention in my own interest, and in the interest of CSIRO as Australia's foremost research institution.

I would be interested to solicit the view of CSIRO Executive on the several issues I have raised in this letter.

John Hunt
Experimental Officer
Division of Fossil Fuels
Sydney

N.B. Fortunately I can put off completing the house I am building until I find further employment in Australia, and I almost own the caravan in which my wife and I and two children live. Other term appointees with substantial mortgages may not be so lucky.

The Secretary (Personnel), Mr K.J. Thrift, has provided the following comments on Mr Hunt's letter.

A number of issues relating to term appointments have been raised by the Officers Association (OA) in discussion with the Executive following the completion by the PA of a report based on a national survey it conducted.

Term appointments are an important part of the Organization's personnel policies and their continued use is a requirement of the Government following its consideration of the Independent Inquiry Report. Nevertheless the Executive is conscious that there are some difficulties associated with carrying out this policy and accordingly the Chairman has agreed that a joint working party examine the matters raised by the OA with a view to reporting to the Executive. Any changes to the current arrangements will follow the Executive's consideration of that report.

Executive Member's appointment

A Member of the Executive, Dr **Keith Boardman**, has been appointed to the Board of Trustees of the Water Foundation of Australia. The Foundation supports and promotes research into water quality and environmental factors related to the demand, collection, storage, supply, treatment, control, reuse and disposal of water.

James Lumbers of CSIRO's Science Communication Unit in Canberra, has won the Sir George Murray Medal from the Australian Institute of Public Administration. James also won a $300 prize for winning the Institute's national essay competition with his entry titled 'Reinterpreting the debate on autonomy in public service science.'

From the Chairman-

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

Over the last year, CSIRO has been responding to a request by the Government to study the effectiveness of the technique of controlling bushfires by aerial bombardment with water and chemical retardants.

The Government provided us with additional resources to undertake the study which is being co-ordinated by the Division of Forest Research. Part of this study was undertaken in co-operation with the Victorian Government which was using an RAAF *Hercules* aircraft operating on naturally occurring bushfires; and part was our own investigation, Project Aquarius. The present stage of this program involves studying the characteristics of intense bushfires and is being carried out in W.A. in co-operation with the W.A. Forests Department. High intensity fires are being ignited near Busselton, W.A., and the parameters of the fire are being studied by ground-based and airborne instruments.

The CSIRO Fokker F27, originally acquired by the Division of Cloud Physics, has been specially equipped for this project. A key instrument is an infra-red scanner, operating in the 8-14 m wavelength band which maps fire fronts; this was constructed in the Division of Mineral Physics and I am told it operates at a higher angular resolution than has ever before been used for bushfire studies elsewhere in the world.

By the beginning of this year, the complex burning operation which involves large teams of people—akin to a military operation—was ready to be mounted and the natural conditions permitted the first fires to be ignited in February. These studies are necessary to enable prediction of fire behaviour and so permit an assessment of the consequences of aerial bombardment.

An unexpected bonus has been the realization of the great value of the scanning technique to contribute to the whole business of controlling fires, minimizing damage and, above all, saving life. The interest and excitement created by the results were clear to the Executive when they were addressed by the W.A. Forests Department during our recent visit to Perth.

As fate would have it, this was the moment (February 16th) when disaster struck Victoria and South Australia with some of the worst bushfires in the Nation's history and tragic loss of life. We received an S.O.S. from General Latchford, Director-General of the Natural Disasters Organization, for use of our F27 facility to map bushfire fronts in the Upper Yarra district. What happened then is best told by a letter sent by General Latchford on 22nd February. He said:

'As the CSIRO Friendship returns to its task in Western Australia, I would like to express my sincere appreciation to you and to all concerned for the rapid deployment of the aircraft to Victoria last Friday. I know from experience the tremendous amount of work that is required to successfully accomplish such a swift reaction to an unexpected request received at 5 o'clock in the morning. It is to the credit of the whole CSIRO team, including the air and ground crews, the research and administrative staff, that the aircraft was on the ground at Essendon that evening ready to fly on its first infra-red photography task that night.

In conversations with the Forestry Commission of Victoria, staff at the National Emergency Operations Centre have been told a number of times of the value of the photographs brought back by your aircraft. There is no doubt in my mind that without the assistance of the infra-red equipment in the Friendship, a number of the fires would still be burning out of control. The large fire in the Warburton area which caused so many problems is the prime example of the value of the team's efforts.

May I ask you to pass on to all concerned in the operation, my grateful thanks for their enthusiastic and skilful response and my best wishes for the success of the project in Western Australia'.

May I add my personal congratulations to all those involved: To Joe Landsberg, Chief of Forest Research; to Phil Cheney and his colleagues undertaking the CSIRO experiments and operations; to Andy Green and his colleagues who developed the infra-red scanner; and to David Llewellyn of the CSIRO Research Aircraft Facility Group and to the air crew themselves. The letter quoted above was addressed to David Llewellyn.

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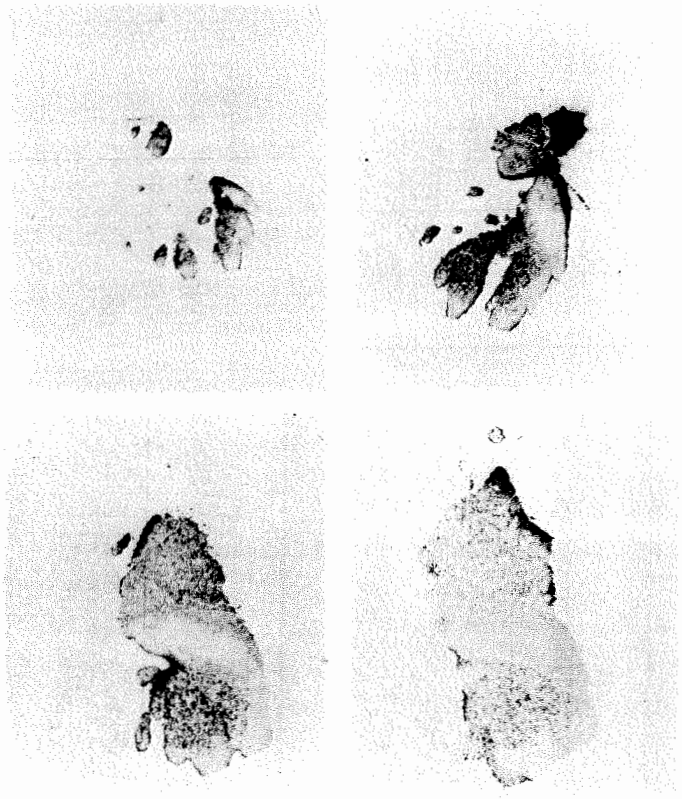

Infra-red pictures showing the evolution of an experimental fire near Busselton, W.A., as part of the CSIRO project 'Aquarius'. The fire was ignited on 28th January 1983 at 12 noon. The four pictures were taken at 12.34, 12.54, 13.37 and 15.09 p.m. Height 600 m Field of view 1 km x 1 km.

Our visit to W.A. on February 13th-18th was memorable for the wide section of the community with whom we interacted and for the warm-heartedness of the reception we received. We were given excellent presentations by the CSIRO staff and also by the State Committee, and people from Government, Industry and Academia. It was good to be able to respond by announcing plans to enhance our presence and effort in the West. On the last evening we hosted a dinner which was very well attended. Our guests included no less than nine parliamentarians, including three Ministers (one of them Federal)—and *that* only six hours before the State election. In introducing the guest of honour I concluded with these words:

'A special word of welcome is due on this occasion to our parliamentary colleagues who, like knights of old, have taken time off from fighting one another to come tonight to be with us and to be with one another in an evening of friendship and goodwill. Especially do I welcome the Minister for Primary Industry/ Leader of the National Country Party, Mr Dick Old, representing the Premier, who is our guest of honour tonight.

I cannot tell what is going on in the inner minds of our parliamentary guests tonight. But I wonder how well Brutus expressed their thoughts on the eve of the battle of Philippi:-

'O! that a man might know
The end of this day's business, ere it come'
But it sufficeth that the day will end,
And the end is known.

I quote Brutus without wishing upon any of our guests the fate that was shortly to befall this honourable man.'

Not only did the W.A. Government change on February 19th, but so too did the Federal Government on March 5th. I am sure you will wish to join me in giving our thanks and good wishes to our past Minister, Mr David Thomson and welcoming our new Minister, Mr Barry Jones.

Paul Wild

Siromines launched: new assistance for the Australian mining industry

SIROMINES, a geostatistical consulting company to assist the Australian mining industry, has been launched in Sydney,

The company is a joint venture between SIROMATH Pty Ltd, a consultancy established by CSIRO two years ago, and ARMINES, the business arm of the French School of Mines in Paris.

The company's establishment means that for the first time, Australia will have a facility capable of tackling the high-level geostatistical problems of the Australian mining industry.

SIROMINES will concentrate on resources estimation, mainly of ore reserves, and mine planning for resources companies in Australia.

Australia stands to benefit from SIROMINES on two counts: It will no longer have to use overseas expertise to solve geostatistical problems, and at the same time will be able to offer advice to countries in the Pacific and South East Asia.

RESOURCES STUDY

CSIRO's Divison of Mathematics and Statistics has established a basic research program to study problems in the resources areas which may ultimately complement the shorter-term, problem-solving role of SIROMINES.

Collaboration between the two groups will bring Australia to the forefront in the science of geostatistics.

The joint venture will be staffed initially by one senior geostatistician from France and a SIROMATH statistician and will ultimately provide a group of experts who will be able to train resource company staff in geostatistics and mine planning.

Four shillings for a shark

Two Tasmanian schoolboys, fishing on the beach at Tam O'Shanter Bay, pulled in a two-metre shark tagged with a CSIRO disc offering a four shilling reward for its return to the Division of Fisheries Research in Cronulla. The shark must have been at least 17 years old since it was tagged before decimal currency was introduced in 1966, making it older than both the boys, Steven Bishop, 15, and Scott Sheriff, 16.

CSIRO scientist receives Medal

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Mr George Holan, a Chief Research Scientist in the Division of Applied Organic Chemistry in Melbourne, has been awarded the 1982 Royal Australian Chemical Institute's Applied Research Medal.

This will be known as the R.A. Dewar Medal.

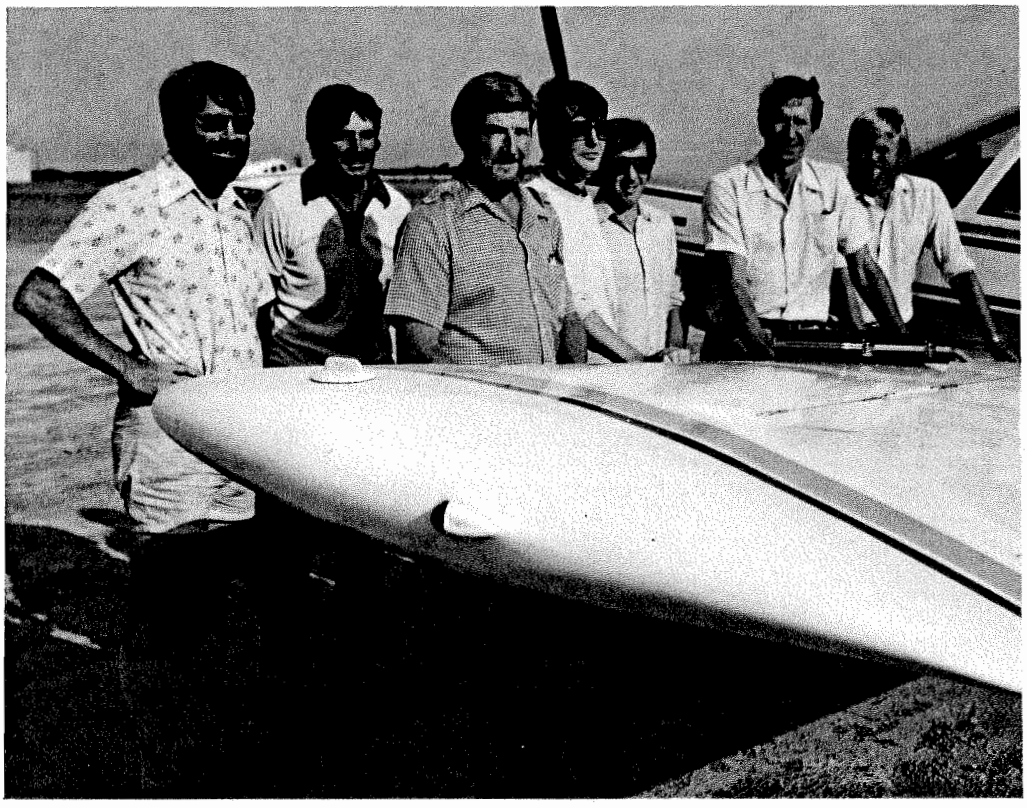
Mr Holan was awarded the medal in recognition of his distinguished contribution to pesticide research.

The Applied Research Medal was first awarded in 1980 and the two previous recipients were Dr David Solomon, Chief of the Division of Applied Organic Chemistry, and Dr Don Weiss, Director of the CSIRO's Planning, Evaluation and Advisory Unit.

CAT

The CAT Column is open to all members of CSIRO who wish to comment on communication matters.

Scientists get together at Merbein



The Forest Research contingent after arrival at Mildura Airport. From left to right, Brian Myers, pilot, Wilf Crane, John Possingham, Chief of Horticultural Research, Sune Linder, Rod Griffin, Joe Landsberg, Chief of Forest Research, and Vic Hartney.

Merbein in north-western Victoria was recently the venue for a one-day meeting of research scientists from the far flung Divisions of Forest Research and Horticultural Research.

Six scientists from Forest Research in Canberra flew to Merbein in a light aircraft piloted by Brian Myers of that Division. Nine of Horticultural Research's senior staff chartered an aircraft from Adelaide for the day and the combined groups met at Horticultural Research's Merbein Laboratory with research staff from that lab for a joint seminar on research topics of mutual interest.

Forest Research and Horticultural Research are the only Divisions within CSIRO that are investigating the growth and development of woody perennial species, plants with quite unique characteristics and problems for the research scientist. The seminar, the idea of the two Chiefs, was an exercise in intra-Institute collaboration and enabled discussion of results and proposed research by each group in areas related to photosynthesis and plant water relations, tree breeding, reproductive physiology, *in vitro* research and propagation, nutrition and salinity. New techniques, the adaptation of equipment and areas of possible future collaboration were of special interest.

A BBQ lunch provided by the staff at Merbein and the opportunity to examine the 1983 vintage of grapes added to the enjoyment of the day which, despite the adverse effects of the weather on flight schedules, was considered a success by both parties.

David Zerman writes of the recent media awareness workshop he organized in Melbourne.

Moses, the 10 Commandments and an error of geography were the main reason 30 CSIRO scientists and information officers met at the Division of Building Research for two days this month—an error of geography, because Moses had just arrived in Melbourne instead of Mt Sinai with the 10 Commandments.

When he arrived he called a media conference to tell the local media about the two tablets he carried.

- 'The Melbourne Sun' did a large colour photographic coverage of the story.
- 'The Age' got their insight team to investigate the authenticity of the 10 Commandments.
- 'The Financial Review' did an economic analysis of the 10 Commandments.
- 'The Herald' had a small story with a large photograph of Moses explaining the 10 Commandments to a model in a bikini.
- 3EA and Channel 0/28 broadcast the media conference live in three languages and used subtitles in another four languages.
- Most commercial radio stations started their noon news services with 'Moses returned to earth today in Melbourne with the 10 Commandments. These are the two main ones....'

That is why the 'pilot' CAT media awareness workshop was held: to find out who does what in the media, why they do it a particular way and how they do it.

I have heard a number of unfavourable comments about CAT. Some with justification, others without. But I believe one way CAT can do something useful is to break down the mystique of 'The Media' and that was my purpose in organizing the workshop—to inform scientists at the bench, information officers and others who might have some contact with the media how to use the different media markets.

Lecturer and media commentator, Trevor Barr explained 'What the media does—and why'. And then the discussion started. Media bias. Inaccurate headings on stories. Limitations on what staff can say publicly. Complaints. Peer pressure. These and other topics were raised continuously over the next two days as other speakers gave their views on a variety of topics.

Different perspectives on 'What is news to me' were given by Richard Eckersley, former 'Sydney Morning Herald' science reporter and the recently appointed CSIRO Senior Media Liaison Officer; Nancy Patton, Manager, Information and Marketing with the Victorian Ministrry for Economic Development; Eric Hunter, Director of Public Relations with the Department of Science and Technology; Bev Knowles, Public Relations Officer at the Queen Victoria Medical Centre; and Mike Rosel of the Australian Information Service.

Having considered the views from those speakers and completed their 'homework', the following morning was spent in front of the television cameras at the DBR studio. The general consensus was that TV appearances are a lot harder in reality than they looked as presented.

The next session hear talks on 'How a newsmaker sees the media' by Bob Ansett, Managing Director of Budget Rent-a-Car; Sir MacFarlane Burnet, Nobel Laureate; and David Packham, Bushfire Researcher.

Looking further afield, a talk 'Opportunities for Australian news overseas' was given by Judith Henke of Radio Australia.

As well, the participants were told of the future direction and activities of the Organization's Science Communication Unit by Brian Woodruff.

As time and resources permit, I hope to have the talks transcribed and published in a booklet form and distrbuted widely throughout the Organization. Until then, I, and other journalists in the Organization are more than happy to help our fellow employees put the message across. A phone call or a letter will result in an immediate response to your request for help.

BHP Science Prize winners

From page one

Steven Delean, a senior student at Arbury Park Outdoor School at Bridgewater, near Adelaide, received a silver medal and $1000 as runner-up, with an entry which involved the study of gecko lizards in South Australia.

Russell Gruen, of Trinity Grammar School, Melbourne, won a bronze medal, and $500 for his study on the effects of soft drinks on teeth and tooth enamel.

MERIT AWARDS

Merit prizes were awarded to three students under 15 who were judged to have submitted the best entries in their age group. They were Annemarie Sparrow of Perth, Jane Campbell of Brisbane, and Andrew McDowell of Adelaide.

The BHP Science Prize is jointly organized by Broken Hill Proprietary Company Limited, CSIRO, and the Australian Science Teachers' Association. Travel for the two winners to the United States was sponsored by Westinghouse Electric Australia.

Entries from all over Australia for the 1982 prize were judged by a national judging panel late last year, and 21 State finalists were selected to come to Canberra for the presentation ceremony.

Leucaena breakthrough

From page one

At Bogor, two of the goats received stomach fluid from resistant local goats, while the other two goats remained untreated as a control.

The results were dramatic. Within a week, the resistant goats had improved their performance and were excreting low amounts of the toxic compound. Before the infusion they had been lethargic, and took nearly 24 hours to eat their daily ration. After infusion, they became alert and ate the same ration in less than five hours. The change appeared to be permanent.

Microbes cultured from the stomach fluid of goats from Hawaii had been brought to Australia and kept under quarantine at the Queensland Department of Primary Industries veterinary laboratory at Oonoonba, Townsville.

This time, the transfer process was carried out in a steer as well as a goat and was again successful. After disease checks were made on the slaughtered animals, the process was repeated at CSIRO's Lansdown Research Station.

A steer that had been fed totally on a diet of pure fresh leucaena for one week to produce toxicity symptoms was dosed with the beneficial fluid.

The toxicity symptoms had rapidly disappeared, indicating that the microbes can be introduced to Australian herds to overcome the toxicity problems that had inhibited the widespread use of leucaena in improved pastures.

'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.

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CoResearch

CSIRO's staff newspaper *April/May 1983* 261

Govt. Committee:
Safety enquiry at Fisherman's Bend lab

The Federal Government has appointed a Committee of Enquiry into safety standards at CSIRO's Division of Applied Organic Chemistry and the Advanced Materials Laboratories at Fishermen's Bend in Melbourne.

Three Melbourne academics will carry out the enquiry which was ordered by the Minister for Science and Technology, Mr Barry Jones. The enquiry follows public controversy about safety standards in the laboratories following the death of Dr Ron Bergamasco in December.

The Committee of Enquiry comprises Professor R. Andrew, Director of Medical Education at St Francis Xavier Cabrini Hospital in Melbourne, Professor Lou Opit, of the Department of Social and Preventive Medicine at Monash University and Professor W. Jackson of the Chemistry Department at Monash University.

The Committee's terms of reference are:

- the safety of the working environment in the laboratories
- the identification of factors which could put workers at risk
- steps which might be taken to remedy any such deficiencies
- factors, if any, which link the death of Dr Bergamasco with his working environment in the laboratories.

Mr Barry Jones

Mr Jones said he expected the Committee would complete its work in time for a report to be presented to Parliament in May.

Soviet Academy honours Dr Douglas Waterhouse

The former Chief of the Division of Entomology, Dr Douglas Waterhouse, who is now an honorary fellow in the Division, has joined a small group of Western scientists who are Fellows of the USSR Academy of Sciences.

Dr Waterhouse was presented with his diploma of membership by the Soviet Ambassador, Dr Nikolai Soudarikov in a ceremony at the Ambassador's Canberra residence.

Dr Waterhouse is one of 109 foreign scientists to have been elected a Fellow of the Academy, and joins the President of the Australian Academy of Science, Professor Arthur Birch, as the two Australian Fellows.

The Soviet Academy was established 270 years ago, and comprises 500 members. The last award made to a Soviet citizen was in 1982.

The Chairman of CSIRO, Dr J. Paul Wild was among a number of senior scientific colleagues who attended the ceremony.

In his presentation address, Dr Soudarikov referred to Dr Waterhouse's outstanding contributions to the development of science, covering 43 years.

The Ambassador referred to recent statements by Australian leaders which indicated that exchanges and cooperation between the Soviet Union and Australia would be revived soon after stagnating for a number of years. In reply, Dr Waterhouse said he was delighted by the announcement made by the Prime Minister, Mr Hawke, that exchanges in science and education would soon be resumed, and added 'I hope the emphasis is on very soon.'

'My scientific colleagues are very anxious to take up their interaction with Soviet scientists in such fields as grain storage and biological controls', Dr Waterhouse said.

Dr Waterhouse has made three trips to the Soviet Union, and during the 1970s, had worked on the Australian-Soviet Scientific Agreement. He has also led a group of Australian Academy of Science entomologists to Russia, and had been appointed a Member of the All Union Entomological Society of the USSR.

Dr Waterhouse and his wife were also presented with a lacquered cigarette box, and a bouquet of flowers.

Biologist to head CSIRO Institute

A distinguished Australian biologist, Professor Michael Pitman, OBE, FAA, has been appointed to head CSIRO's Institute of Biological Resources.

Professor Pitman is Professor of Biology (Plant Physiology) at the University of Sydney.

His appointment was announced today by the Chairman of CSIRO, Dr J. Paul Wild. He will take up the position in September this year.

'Professor Pitman will bring to the Institute Director's role, a strong background in research and administration and a broad interest in biology', Dr Wild said.

DISTINGUISHED RESEARCH

Professor Pitman is distinguished for his research on ion transport in plants, particularly for relating the activities of the root to mechanisms at the cellular and membrane level.

'His work in this area has led to explanations of discrimination between sodium and potassium by plants; to models for ion transport through the root to the top of the plant; and to a greater understanding of the effects of salinity on plants', Dr Wild said.

Professor Pitman, 50, is a graduate of the University of Cambridge where he also

Continued on page two

Dr Doug Waterhouse, left, is presented with his diploma of honorary membership of the USSR Academy of Sciences by the Soviet Ambassador, Dr Nikolai Soudarikov. Dr Waterhouse retired in 1981 as Chief of the Division of Entomology and is now an honorary research fellow at the Division.

Letters to the Editor

Dear Editor,

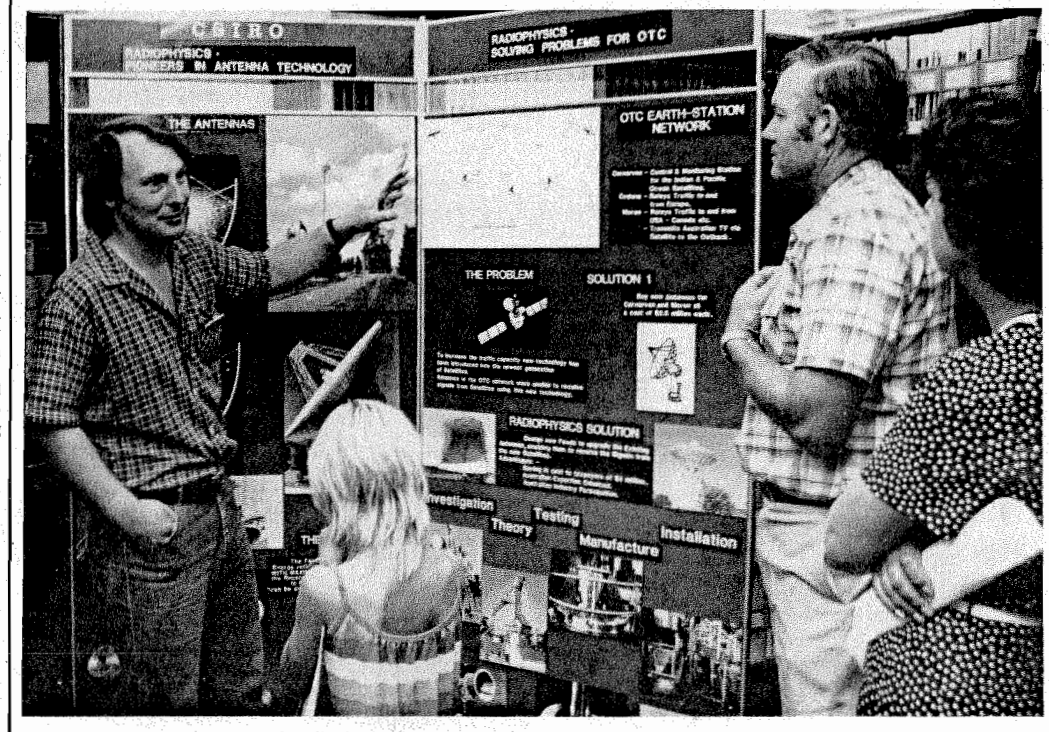
There will be wide sympathy in the Organization for the proposal put forward by Drs A.E. Martin, G.D. Bowen, A.D. Rovira and A.F. Bird in *CoResearch*, February 1983.

The plight of young people and particularly those with a scientific bent, in the current severe economic recession is a matter for great concern, not only for those personally affected but also from the national viewpoint.

Perhaps a Research Scholarship Fund might be established by CSIRO staff to provide short-term scholarships for young people. Contributions to the Fund should qualify as deductions for income tax under Section 78 of the Income Tax Assessment Act. Similar administrative procedures to those used by the CSIRO Benevolent Fund could be considered. A Scholarship Fund could be set up quite quickly and this route may be preferable as it would avoid the administrative difficulties and delays which inevitably result when modifications to arbitration awards are attempted. It is perhaps interesting to note that the staff of Swinburne Institute of Technology have created a Student Aid Fund which apparently operates under Section 78 of the Income Tax Act (Swinburne Newsletter No. 4, 17 March 1983).

Clyde Garrow
CILES, Melbourne

Open days at the radio telescope



Keiran Greene, of the Division of Radiophysics at Epping, explains the upgrading of the OTC antennas at Moree and Carnarvon to a group of visitors at the open days held at the Parkes Radio Telescope. Keiran was one of a number of Sydney staff who spent the weekend at Parkes to assist at the open days which were held in conjunction with the centenary of Parkes weekend.

—Photograph by Henry Armstrong

CSIRO's Radio telescope at Parkes was thrown open to the public on March 5 and 6, as one of the official functions in conjunction with the Parkes Centenary Celebrations.

More than 1000 visitors first called at the Visitors' Centre where they received some background information and a map of the site. They next visited the 'People's Telescope' set up outside the Visitors' Centre where they could make their own radio observations of objects including the sun, the radio telescope, the trees around the site and so on.

From there they began a guided tour of the telescope itself, stopping at various 'stations' along the way. First, they received an overview of what a radio telescope is and what it does. They then climbed up to the azimuth track where they could see the mechanics involved in moving the 1000 tonne structure with great precision.

From there the visitors went by a roundabout route to the control desk where a 'driver' was on duty to explain the controls to them. Then it was on to the astronomers' work station, where an astronomer explained radio astronomy to them and actually made an observation while they watched.

Then it was on to the computers where active demonstrations took place. There was an 'ask an astronomer' lounge where people could ask questions related to their inspection tour.

The tour then included the workshop/office building where displays on principles of astronomy, receivers and cryogenics, the Australia Telscope, propagation and use of radio waves and feeds had been set up, each of these manned by an expert in the field. The formal tour ended there and visitors then returned to the Visitors' Centre for a program of films and mini talks which were planned for the open days.

The event was beyond the manpower available on site in Parkes and a number of staff from the Division's headquarters at Epping went up for the weekend to assist at 'stations' on the tour, to act as guides and so on. By way of light relief, on Saturday night there was a barbecue for all those involved in the hectic days activities.

Guide to research activities available

A comprehensive guide to CSIRO's research activities throughout Australia is now available.

The guide contains descriptions of all CSIRO's more than 700 current research programs and sub-programs, and will be a valuable source of information for industry, government and research and educational institutions.

In clear, non-technical language, it outlines research programs being tackled by CSIRO and the implications of research findings. The latest edition of the research guide contains programs arranged under subject matter headings within four main sections covering rural industries, mineral, energy and water resources, manufacturing industries and community interests.

The names, addresses and telephone numbers of the people to contact about any research topic are also included, along with the name of collaborating institutions.

Three index listings are included: one which lists programs and sub-programs, one listing personal names and one listing subjects.

The publication updates last year's edition which was widely sold, the majority to industry, with copies also going to public libraries, college and university libraries and the Academy of Science.

Copies of the publication, titled Directory of CSIRO Research Programs, are available for $20, postage included, from the CSIRO Editorial and Publications Service, P.O. Box 89, East Melbourne, Victoria, 3002. Cheques accompanying orders should be made out to 'Collector of Moneys, CSIRO'.

ANAHL security assessment group meets at Geelong

The group which will examine the microbiological security of the $145 million Australian National Animal Health Laboratory (ANAHL) in Geelong met during March for the first time.

Members of the Group are: the Assistant Director-General (Animal Quarantine), Commonwealth Department of Health, Mr K.A. Doyle; Assistant Director, National Biological Standards Laboratory, Dr D. Howes; Chief of Veterinary Laboratory Services, Department of Agriculture, Victoria, Dr W.E. White; Australian Veterinary Association, Dr A.K. Sutherland; President, Victorian Farmers and Graziers' Association (representing the National Farmers' Federation), Mr D. Crowe; Microbiological Security Officer, ANAHL, Dr C.G. Ludford; and Chief of the Safety Operations Section, National Institutes of Health, U.S.A., Mr M. Barbeito.

Mr Barbeito could not be present for the first meeting, but will attend the second meeting which is scheduled for this month.

ANAHL is being built by the Department of Transport and Construction and will be run by CSIRO when construction is completed later this year.

SPECIAL FACILITIES

ANAHL will provide the relevant Commonwealth and State Departments with the special laboratory facilities and skills needed should there be an outbreak of one of the exotic (foreign) diseases of livestock in Australia.

Because this involves work with the highly infectious organisms which cause these diseases, it is essential that the Laboratory is secure against any escape of these organisms into the environment.

The ANAHL Security Assessment Group (ASAG) was established by the Commonwealth Department of Health, which is Australia's quarantine authority. ASAG's job is to oversee the security testing of the building and its operating systems and to ensure that the necessary high standards are met. No decision can be made to bring exotic disease agents into ANAHL until the Group is satisfied that the Laboratory is secure.

After ANAHL has become operational, the Group will be responsible for continuing surveillance of its security to ensure that this remains at the required level.

The Group spent three days in meetings held at the Geelong Regional Commission and in making a comprehensive inspection of the Laboratory.

Institute Director

From page one

studied for a PhD. In 1979 he was awarded a Sc.D from the University of Cambridge.

He is a Fellow of the Australian Academy of Science, a Member of the Australian Science and Technology Council and a Member of Council of the Australian Institute of Marine Science.

ACADEMY INVOLVEMENT

Professor Pitman has been involved in the development of each edition of the Academy of Science's 'Web of Life' biology course since its initiation in 1964. With Dr W.J. Peacock, Chief of the Division of Plant Industry, he is currently Scientific Editor for 'Biology in Action' a newspaper produced by the Academy of Science for senior school students.

Professor Pitman has maintained an active interest in the Australian Museum in Sydney and in the Royal Botanic Gardens and Domain, Sydney, and is currently Chairman of the Trust which administers the Gardens and the Domain.

Professor Pitman will succeed Mr Michael Tracey, AO, who will retire as Director of the Institute of Biological Resources.

From the Chairman–

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

The views and constant message of our new Minister, Mr Barry Jones, are well known–and well documented, in his book 'Sleepers Wake!'.

They reflect his enlightened vision of the way in which industry is changing with the emphasis moving in the direction: matter ⟶ mind. We have recently had the pleasure of three long sessions with him discussing problems of the future. I refer especially to one of these sessions when we talked about the way in which we should become involved with joint venture and collaborative projects with industry. We focussed on two particular examples both of which show promise of a great future: the C4 herbicides being researched at Plant Industry and Applied Organic Chemistry; and Partially Stabilized Zirconia developed by Materials Science. The Minister has long been interested in both and they were used in the A.L.P. Election Policy as examples of 'sunrise' industries.

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About once every five to seven years, each Division of the Organization undergoes a review–very often associated with the retiremenet or completion of a term of the Chief. Different people react to these reviews in different ways. In many cases there is much evidence of anxiety and obvious apprehension at what the future of the Division will be. I would like to say a few things about these reviews with a very definite objective in mind–to diminish these negative feelings of apprehension and preferably change them into positive attitudes of enthusiasm and anticipation for the years that lie ahead.

Change in the Organization is inevitable and desirable–orderly, considered change, not arbitrary or hasty. Change occurs continuously in each Division at the hands of the Chief, but reviews provide the Director, acting on behalf of the Executive, with a means of a deeper look and the possibility, if desirable, of charting an altered course–often a slight change of course, sometimes a more radical one. Everyone in the Division has a chance to make an input into a review either by writing or by interview or both. I encourage people to come forward and use this opportunity to make a positive contribution: it is *your* Division and *your* future. And let it also be remembered that whatever the outcome of the review, the interests of every individual person will be looked after.

Criticism is sometimes levelled at the composition of the review committee. In fact we purposely do not appoint committees which are *entirely* composed of experts in the special fields of work currently being researched because if we were to, we would find ourselves with a *status-quo* lobby group. What we are looking for is a broad view with a touch of lateral thinking. The Executive receives many inputs, not confined to the review committee. It encourages constructive criticism–it abhors a useless whitewash exercise–so please don't over-react to criticism, which is probably controversial anyway! At the last Executive Committee meeting, the decision was taken that in future all Divisional Review reports would be circulated to all staff in the interested Divisions, as well as staff associations, before being considered by the Executive. This will give staff a second opportunity to put their views.

Concerning reviews, I believe the Executive is open to criticism on two counts. Firstly, the apparently excessive time sometimes taken to complete a review; this is aggravated by the rather elaborate consultation process we need to go through, but I think we can and will improve. Secondly, in spite of extensive consultation, we have not always done the best job in communicating the results of Executive decisions following a review and explaining them to the Division. We must also do this better in the future.

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One of CSIRO's most important tasks is to establish and maintain close ties with its customers in industry to ensure that the research we do is directed towards questions to which industry needs answers (as well as, sometimes, questions we think industry ought to be asking!). This means that outside our in-house Divisional structure there exists a nebulous shell of external institutes and associations with which we have intimate dealings. During the last week or so I have had the pleasure of officially opening the annual conferences of two such organizations in far flung places–one in Mount Gambier, the other in Mackay.

At Mount Gambier it was the occasion of the thirty-seventh Annual General Conference of APPITA, which nowadays means the Australian and New Zealand Pulp and Paper Industries Association. It was an imposing gathering with some 400 participants. I found it a remarkable organization and a most effective interface between the industry and research. No less than six presidents, including the present one, Mr Frank Phillips, have been CSIRO people. One of them, Dr Huntly Higgins (formerly Chief of the Division of Chemical Technology) described the membership of the Association in his 1968 Presidential Address as 'chemists, physicists, biologists, mechanical, civil, electrical engineers, paper-makers–scientific and artistic, suppliers of chemicals, felts, wires, digesters, paper machines and other essential products, accountants, managers, foremen, skilled artisans, converters of our products, printers, professionals and research workers; special mention must be made of the foresters, because they alone of all these categories were addressed specifically in Magna Carta ....'

At Mackay it was the Annual Conference for the fifty-fourth year of the Australian Society of Sugar Cane Technologists, also with over 400 participants and a similar diversity of people as for APPITA, but directed towards a different industry–one dear to the Queensland heart. CSIRO's principal involvement with the sugar industry is with the Sugar Research Institute on whose board sit two CSIRO people. The special job of these people is to learn the problems faced by the industry and direct them to the right part of the vast range of inter-disciplinary skills which the Organization possesses. From all accounts it works uncommonly well in the sugar area.

At both these conferences a shadow was cast by the economic downturn and the drought; at both one could discern an appeal to new technologies to come to the rescue.

Paul Wild

Snake bite kit comes in handy for Bob

Bob Croll, who retired two years ago from CSIRO, believes he recently saved a life using information supplied from the Commonwealth Serum Laboratories via Grahame Jackson at CILES, Melbourne.

Bob and his wife Grietje have spent some months travelling in the outback since retirement, and during a stay in northern Australia, wrote asking for details on treatment for snake bite. Now he can report that the method really does work!

Bob recalled the situation in a letter to Grahame:

'Grietje and I called at a station homestead 55 km north of Meekatharra at about 1530 hrs–hot afternoon—because they had a sign on the road advertising oranges and cabbages. The owner's wife led the way to the cabbage patch through knee-high weeds. She was barelegged and about two paces in front of us when she sprang aside–a snake (we now know it to have been a brown) had bitten her twice on the leg in a flash.

'With our recently acquired knowledge and a sheet, we went to town. The bandage didn't look elegant but it sure was tight, as instructed. Then into the van, prostrate, went the victim and having warned the Meekatharra Hospital of the situation (this Royal Flying Doctor Service two-way radio we carry is magnificent), we drove the 55 km to Meekatharra in some haste.

'We checked the next day at the hospital and they said the victim would be all right when she recovered from the anti-venene and that we had saved her life–a feather in the Commonwealth Serum Laboratories' cap! Salut and thanks Grahame.'

Women's survey report soon

A final report on a survey which examined the attitudes of women employed by CSIRO, will be tabled at the October meeting of the Organization's Consultative Council.

The Chairman of the Council's subcommittee on the employment of women, Dr Judith Koch, said she expected the results of the survey to be made available to all staff after the Council meeting.

Almost 3000 men and women completed questionnaires on the role of women in the Organization during June and July 1981, and an analysis of responses has been undertaken by Dr Cecily Neil, a researcher in the Division of Building Research in Melbourne.

To establish a point of reference for its investigations and to complement information gained from the survey analysis, the sub-committee has prepared a statistical report on the recruitment, deployment and promotion of women in CSIRO between 1976 and 1982.

'A number of changes are evident from these statistics and significance of these changes is being examined', Dr Koch said.

DBR carries out a survey of buildings in Victorian fires

The Division of Building Research is carrying out a survey of the performance of buildings in the 'Ash Wednesday' fires in Victoria.

Although inspections have been made in cooperation with the Country Fire Authority of Victoria, DBR scientists' main effort has been put into a detailed survey of the buildings in the Ottway Ranges area.

This detailed survey has been made possible by the support of the Geelong Regional Commission. Dr Caird Ramsay and Mr Vince Dowling of the Division, in consultation with Mr Ross McBride of the State Emergency Service, devised a survey form and directed teams of surveyors to gather data by field inspection. The surveyors were volunteers from RMIT, Deakin University, and local residents with expertise in building. In a two-week period, information on some 200 destroyed and some 1200 surviving buildings was collected.

The information collected covered aspects such as the materials of construction, the design, the siting and the surrounding foliage. Follow-up is in progress to obtain information on aspects such as the presence of fire brigade or other personnel during the fire and to obtain eye-witness accounts of the behaviour of specific buildings.

The data will provide a statistical base on which to assess previous advice on materials and design for buildings in bushfire areas, and to uncover new information.

Collection and analysis of the data will take some months. In the meantime a brief summary of the scientists' assessment of the information available and the immediate findings of our survey will be prepared for publication. This will be an aid to those rebuilding as well as those upgrading their present buildings.

Keeping science in the family

The photograph of the winners of the BHP Science Prize, published on the front page of the last issue of *CoResearch*, pleased one CSIRO researcher more than usual.

The third prizewinner in the competition, Russell Gruen of Melbourne, is the son of Dr Clem Gruen of the Division of Protein Chemistry. Russell's project, entitled 'Soft drink versus teeth' revealed the effects on tooth enamel of various well known brands of drink. Russell's prize was a bronze medal and a cheque for $500.

... People... People... People...People... People ...People ... People... Peo

Mr George Lorenz, a senior scientist in the Division of Manufacturing Technology, has been elected President of the International Institution for Production Engineering Research. The body is a prestigious organization with a total membership of 150 members from 28 countries. The position of President rotates annually and this is only the second time in its 30-year history that an Australian has been President.

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Members of the Division of Tropical Crops and Pastures have farewelled their liaison officer, **Dr Bill Silvey**, who has joined a natural therapy clinic in Brisbane. Bill had worked with the Division since 1971, and has been succeeded by **Alan Eyles** as section leader with **Geoff Adams** assisting.

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Two scientists who have been working overseas have been appointed as senior researchers in the Division of Fisheries Research. **Dr Ron Thresher** who has been working in the Division of Biological Sciences at Cornell University will work on tropical fish biology, while **Dr Stephen Blaber** who is currently senior lecturer in zoology at the University of Natal, will work on temperate fish resources.

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The acting Officer-in-Charge at the Division of Fisheries Research Marmion laboratory in Western Australia, **Dr C. Crossland**, is spending the next 26 months in Saudi Arabia, working as a marine environmental consultant in an Australian delegation advising the Saudi Arabian Government. **Dr Bruce Phillips**, who recently returned from a year in San Diego working on rock lobsters will take over as acting Officer-in-Charge.

Two researchers from the Division of Applied Physics are at present overseas. **Dr Laurie Besley** is attending the Cryogenic Fundamentals Conference in Crawcow and Wroclaw, Poland, to deliver an invited talk on cryogenic resistance thermometry. **Dr David Eagles** is spending six months at the Max-Planck Institute in Germany working with **Professor Fuld**.

Later in the year, he plans to visit laboratories in the United Kingdom and the United States before returning home.

Dr Beasley plans to visit laboratories and industrial facilities in Scandanavia, Europe and the United Kingdom, looking at the possibilities of research in the field of high gradient magnetic separation techniques.

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Ron Banyard, of the Division of Applied Physics, retired recently after 27 years working in the field of precision electrical measurements and calibrations. Ron first joined CSIRO in 1955, and worked for the Organization until his retirement apart from a short break in private enterprise.

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Dr Merv Hegarty, of the Division of Tropical Crops and Pastures, has returned to the Brisbane headquarters after a period overseas, part of which was spent working at the Jodrell laboratory in Kew Gardens, in the United Kingdom. Merv also participated in several plant biochemistry symposia, and before returning home, spent some time working in the Food Chemistry Institute of the Technical University at Munich.

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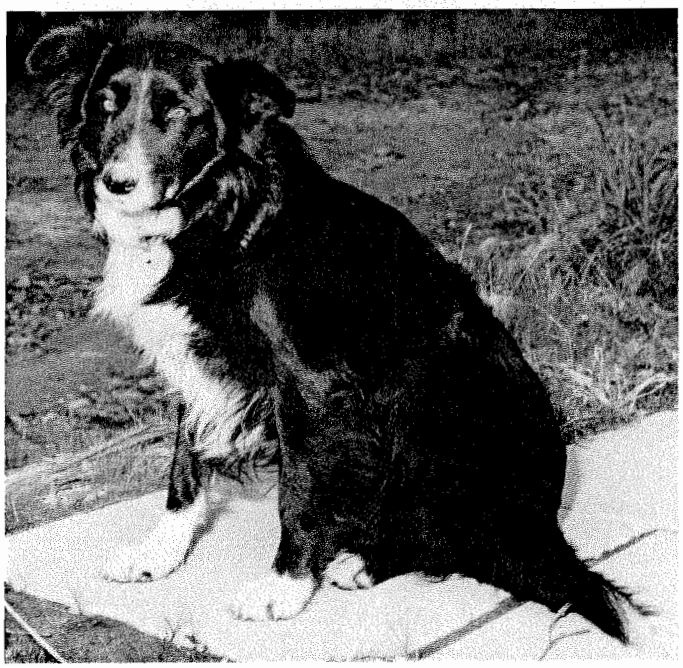
Bogor, Indonesia, will be the new home of **Doug Little**, of the Division of Tropical Crops and Pastures. Doug has joined BPT Ciawi, a joint CSIRO and Indonesian Government project to improve animal husbandry. Doug will lead the ruminant nutrition program.



T.A. McDog, for 12 years an 'honorary technical officer' at the Division of Entomology, recently died. Mac, a sheep dog, joined the Division as a pup, and spent most of his time at the sheep blowfly research laboratory at Murrumbateman near Yass. Mac is being mourned by his former colleagues in the sheep blowfly group.

The Chief of the Division of Computing Research, **Dr Peter Claringbold**, has been elected a Governor of the International Council for Computer Communication for a six-year term.

The appointment was in recognition of the work of the Division of Computing Research in the development of the CSIRONET packet switched network, and more recently, its work in the local area networking at the central site.

Dr Ron Sharpe of the Division of Building Research, is at present on a five-month study tour in the United States and Canada. While in Washington, Ron will spend a period as a researcher and lecturer at Virginia Polytechnic Institute and State University, College of Architecture and Urban Studies on an exchange basis with **Professor John Dickey**.

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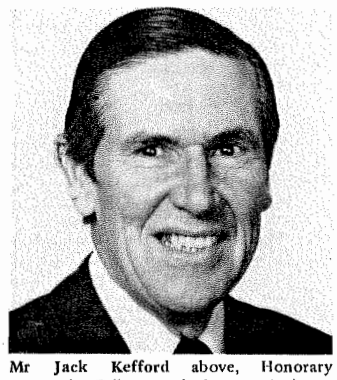
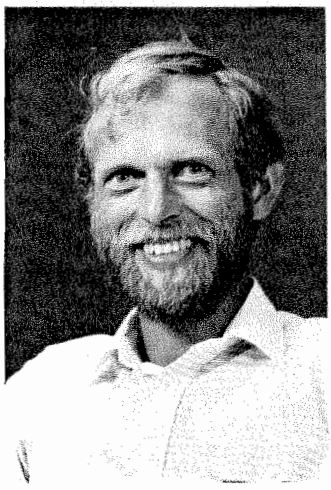
Colleagues in the Division of Entomology are welcoming back **Dr Tony Wapshere** who has returned to Black Mountain after spending the past few years at the biological control unit in Montpellier. At the same time, a farewell was held for **Dr Barry Filshie** who has been appointed Officer-in-Charge of the Centre for International Research Cooperation, Barry was a member of staff in the electron microscopy unit and section head, support research. **Dr Barry Moore** of the insect behaviour, biochemistry and ecology group will be taking over as section head.

Dr T.J. Higgins, left, from the Division of Plant Industry in Canberra, is presented with the David Rivett medal at a ceremony in Canberra last month. Presenting the medal is the President of the Officers' Association, Dr Edmund Potter. –Photo by Colin Totterdell



Mr Jack Kefford above, Honorary Research Fellow and former Assistant Chief (External Relations) of the Division of Food Research, Sydney, has been re-elected Secretary-General of the International Union of Food Science and Technology for a second four-year term.

IUFoST is a voluntary non-profit making association of national organizations, one from each country, each one representative of food scientists and technologists in that country.



Dr Stig Steenstrup, pictured above, has joined the Division of Chemical Physics as a guest scientist. Dr Steenstrup is from the Ørsted Institute at the University of Copenhagen, and will be with the Division until the end of the year. He has studied in France and Denmark, and his research interests include the theory of the stopping of charged particles by matter and the scattering of X-rays and neutrons by crystals undergoing a phase change.

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After 16 years as Manager of the Australian National Insect Collection at Black Mountain, **Murray Upton** has transferred to a new administrative role in charge of the Division of Entomology's engineering services and buildings.

□ □

Bill de la Mare, an experimental officer with the Division of Energy Technology at Highett, received an accolade recently from an International Whaling Commission meeting held in England earlier this year.

Bill assisted the President of the World Wildlife Fund, Sir Peter Scott, at a media conference where questions of a difficult technical nature were referred by Sir Peter to Bill for clarification.

Bill was in England as Victorian President of Project Jonah, and an informal report on the IWC meeting says that his considerable efforts were not only scientific.

'At one point in the meeting, an amendment was suggested regarding sperm whale quotas that the Commission was obviously about to pass.

Although there were many lawyers in the room on various delegations, it was Bill who spotted the technical flaw that could have destroyed last year's efforts to preserve sperm whales, and it was some time before he could find a lawyer to understand the problem', the report said.

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Ian Dunn, of the Division of Building Research in Melbourne, came first and ran the fastest time in the third annual 80-km course from Cradle Mountain to Lake St Clair in Tasmania. Six runners started the course, and of the five who finished, the second person came in one and a half hours after Ian.

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Dr Angelo Delsante, also from DBR, is presently in Japan, presenting a paper on the computer simulation of heat flow into the ground at the fourth International Symposium on the use of computers for environmental engineering related to buildings being held in Tokyo.

Paul Philp of the Division of Fossil Fuels in Sydney, was the only Australian representative at a recent workshop organized by the United States Geological Survey on a collaborative study of oils and source rocks from the North Slope of Alaska. A total of 30 laboratories were represented.

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Chris Johanson, formerly of the Cunningham Laboratory of the Division of Tropical Crops and Pastures, is presently in south-west China, working as a nutritionist in a pasture/animal production project sponsored by ADAB. **John Russell** and **Dick Date** of the same Division are consultants to the project.

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Dr Michael Gore, of Canberra's Questacon Science Centre, was named Canberran of the Year at the Canberra Week celebrations in March, as a recognition of his efforts to establish the centre. A number of exhibits at the Questacon have been provided by CSIRO Divisions.

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Alan Eyles, divisional secretary at the Division of Tropical Crops and Pastures in Brisbane, thinks he may have come across a collector's item in relation to the use of the English language in a recent letter from an Indian scientist who wrote:

'Dear Sir, I feel pleasure in forwarding herewith my biodata for your kind consideration to offer a job suitable to my qualification and experience in your esteemed establishment.

I am sure I will be able to prove my worth, when given a chance to show my capabilities to your entire satisfaction.

Hope to get an early favourable response from your good-end. Yours, etc.'

This is a recent snapshot of the entire workshop staff employed at the Radiophysics Solar Observatory, Culgoora, near Narrabri.

They are responsible for the full maintenance of the site. Among their duties is installation and maintenance work, some design and fabrication work and cover the areas of 150 aerials, 12 motor vehicles, 1 tractor, 3 trailers and a host of minor petrol-driven implements such as chain saws, mowers, fire-fighting equipment as well as nearly 150 km of transmission lines with hundreds of poles. The team also assists with roadworks, petrol and oil supplies and provides support for the observatory staff. Slashing areas around the aerials, mowing lawns, watering and gardening are all included in this work.

They carry out electrical, mechanical, welding and sheet metal work, carpentry work and also look after air conditioning, plumbing and draining and are involved in some of the preliminary work for the Australia Telescope.

The staff are from left Fred Peno, Harry Roberts, John Allison and Max Ryan.

Vessel contract signed

Pictured signing the contract for CSIRO's new research vessel, are, from left, back row, the Director of the Institute of Physical Sciences, Dr Nevil Fletcher, the Institute's retiring Director, Dr John Philip, and the Operations Manager of the Marine Laboratories, Mr K. McAdam. In front are Mr Roger Nairn and Mr Howard Crozier of Headquarters, and the Chief of the Division of Oceanography, Dr Angus McEwan.

Photographer's view:

Joining the South-west blockade

I love to go a-trespassing and lurk among the trees,
Secrete myself in wilderness and loiter as I please.
Blockade Song, Tasmania, 1983.

Colin Totterdell, a photographer at the Division of Plant Industry in Canberra, was among the hundreds of people from all over Australia who were arrested during the protests against the damming of the Franklin and Gordon Rivers in South West Tasmania. *Co-research* invited him to recollect his experiences.

Colin, his wife Val, teenage daughter Barbara and five-year-old son, Stephen, spent two months touring Tasmania, and he writes here of his experiences when the family decided that they could put off no longer, the nagging compulsion they felt about going to Strahan to make a contribution to the Tasmanian Wilderness Society's blockade on the Gordon River.

After six weeks in Tasmania enjoying, sans obligation, such marvellous places as Cradle Mountain, Ben Lomond, the Freycinet and Tasman Peninsulas and Mt. Field National Park, we piled once again into our old EH station wagon loaded with tents, rucksacks and our canoe on the roof, collected by coincidence Val's school-teaching colleagues Meg and Martina, who had been walking near Lake St. Clair, and who were also on their way to join the blockade and set a course for Strahan on the west coast. It was cold and raining.

APPREHENSIVE FEELINGS

As we neared Queenstown, our feelings of apprehension grew. We noticed an increasing number of aggressive car stickers announcing, 'Dam the Franklin', 'Fertilize the South West: Doze in a Greenie' displayed by pro-dammers. Our fears were heightened dramatically when a truck travelling up the steep, starkly barren hills near Queenstown veered towards us, its occupants roaring 'Go home! Go home!'.

It was still raining when, having stocked up with provisions at Queenstown, we arrived at 'Greenie Acres', where a dazzling variety of tents marked the base camp for the Society's members and supporters at Strahan.

The camp was remarkable in many ways. The general atmosphere of single-minded dedication was strong, everyone enthusiastically cooperating. I believe much of the media coverage was quite misleading about the blockade and the camps associated with it. It seemed to me that there was undue emphasis evident in much of the reporting on alternative lifestyle factors, but a lack of real appreciation of the people and their convictions, and a failure to present the very positive aspects of the blockade community. As for 'dole bludgers' and 'unemployed, lice-infested dropouts'—I saw mainly groups which were committed to consensus and non-violence; the difficulties inherent in the close proximity of 200 people were overcome largely by these means. Everybody wanted to help. By unanimous decision, illegal drugs and alcohol were excluded and a noise curfew was imposed after 10.30 p.m.

ACTION TRAINING

We spent three days being trained in non-violent action (NVA) techniques which included practice in consensus decision-making, peacekeeping, discussion and role-playing on ways to frustrate the building of the dam and in strengthening of ties between members of our group which we called 'Rh (Robin's hoods) positive.' The group comprised, among others, a secondary maths teacher from Adelaide, a post graduate physics student from Scotland, a social worker from Adelaide, a young Sydney artist, a botany student from Sydney University, me, a CSIRO photographer, Val and her friends, all primary school teachers from Canberra, a Victorian TAFE college lecturer, a business administration student and a musician from Hobart. So much for the unemployed.... During the training, it became clearer to each person which course of action each individual would follow, and I decided, as did most of our group, to go 'up river' and accept the possibility of arrest and bail. Others opted for local action and support at Strahan.

The further we travelled up the Gordon on the blockade launch, 'J. Lee M.', the more aware I became of the riverside vegetation communities. Eucalypts and button grass became scarcer and soon we were looking at unbroken galleries of temperate rainforest along steep banks. The Leatherwood was in flower and, all along the river's edge, the other trees of the forest formed a rich canopy mosiac.

BASE CAMP

A large yellow triangle with No Dams on it and a rakish banner proclaiming, 'Think Globally, Act Locally', signalled the Society's base camp. We disembarked to face a new experience. Once inside it, I was struck by the authenticity of this rainforest. I have been in North Queensland forests, the Border Ranges and the monsoon forests of Kakadu National Park, each with its own character dependent on species and topography. The temperate rainforest of South West Tasmania conforms to the classical rainforest characteristics while certainly having a style of its own. The closed canopy rainforest was here composed mainly of Myrtle (*Nothofagus cunninghamii*), Blackwood (*Acacia melanoxylon*), Sassafras (*Atherosperma moschatum*), Leatherwood (*Eucryphia lucida*), Huon Pine (*Lagarostrobos franklinii*), Celery-top Pine (*Phyllocladus asplenifolius*), Native Laurel (*Anopterus glandulosus*) and Dogwood (*Pomaderris apetala*). Tree ferns (*Dicksonia antarctica*), Christmas Bush (*Prostanthera lasianthos*), *Gahnia* and *Richea* grew in the understory, and a profusion of ferns, mosses, lichens and fungi covered the tangle of rotting branches on the ground. Trunks and buttresses were often glowing green with epiphytic growth. This was particularly striking on the ancient Myrtles, their multiple trunks rising from enormous lignotubers.

FOREST TRANQUILLITY

The whole scene was one of mystical tranquillity, invested with an eerie half-light and a super-saturated dampness—it had been raining for almost a fortnight. No wonder we felt strange at first. It was impossible to see in a direct line for more than 50 metres at the most, and very soon, people and objects became indiscernible in the profusion of shapes, shades and mottlings of the forest's fabric. Thrushes, tame and trusting, hopped around among the small tents and the people.

We spent two days on the river, commuting by canoe from base camp to Warners Landing, about two kilometres upstream. During these days I became more familiar with my surroundings and with the basic inter-relationship of river and forest. They seemed almost to be one creature, each enriching the other with its character, blending into a single integration, as the branches stretched across and into the water, epitomized by the Huon pine, with its old and gnarled boughs sometimes submerged and its delicately symmetrical foliage poised and dipping gracefully into the water. Rarely is the bank completely visible; forest and sky are mirrored in the dark, clear waters of the deep and noble stream. Exploring this interface at close range is a marvellous experience. As the canoe glides in under the overhanging branches, one is conscious of a sense of privilege and gratitude for being able to experience such wonder so intimately.

Colin Totterdell takes a catnap after his arrest during a protest demonstration at the Franklin River area in Tasmania. Colin and his two companions were being transported down the river on the Fisheries launch 'Freycinet' which was used by police to take arrested demonstrators back to Queenstown where they were charged.
—Photo by Meg McFarlane

The very thought of a bulldozer in this place is like a nightmare and the reality beggars description. The impact of man's destructive technology on the ancient and virtually undisturbed temperate rainforest of the Gordon River is profoundly saddening and infuriating. I have seen people weeping at Warners Landing as those great behemoths, piloted by equally insensitive humans, triumphantly attacked and destroyed this age-old forest. These demonstrators, young and old, kept vigil in rain and cold at Warners Landing in their 'rubber duckies', refusing to reconcile this gross devastation with their convictions that humanity can be and has been inspired by rivers and forests, by the nobility and grandeur of nature, which can be experienced only to the full in wilderness. Here, this ancient forest, where humanity can experience wonder and magnanimity, and adapt perhaps Coleridge's Kubla Khan;

'For we on honeydew hath fed
And drunk the milk of Paradise',

is being laid waste. Their sense of reverence for life in all its intricate interrelationships as it has developed over thousands of years is outraged by the aggression of their fellow man, blindly and wantonly destroying the forest and its tranquillity. That there is something fundamentally wrong in what is happening here is testified by the persistence and strength of the protest being made by these angry but peaceful people.

EVENTUAL ARREST

On the day I was arrested, I went overland with my camera to Warners Landing, having climbed a steep slope through the forest to a high ridge overlooking the river, past a lake to the scene of action. I had been photographing the actual destruction for some time when I emerged into a clearing and was seen and arrested by one of the policemen I had seen the day before. We called him 'cowboy' because at that time he was wearing a most unlikely black sombrero with a feathered bandana and a torn green checked shirt—his 'greenie' disguise. This day he was dressed in the regulation blue overalls. He asked me, firmly but politely, to go down to the river bank and even allowed me to take more photographs on the way. Back at the river, with more arrested protesters, I was greeted with cheers and singing of 'For they are jolly good fellows'. Most rewarding! I had been in the bush for five hours, eluding detection. Mixed feelings of sadness, achievement, failure, and relief beset the group as we were loaded onto the launch 'Freycinet' for the long trip down the river to Strahan. We were all suddenly very tired, but returned the cheers and songs of the water people holding vigil at the landing.

BACK TO QUEENSTOWN

The powerful boat gathered speed and settled down midstream. It was a shining afternoon after some weeks of rain and unsettled weather. The police did not trouble us and allowed us the aft section of the launch. I half-dozed and tried to relax, but soon found myself mesmerized by the view of the forest on both sides, from the highest ridges down to where our wake was causing the Huon pine and other foliage along the river to undulate as we passed. Gradually I became aware of another sort of movement as I gazed at the banks. My previous impressions of a living ecosystem incorporating forest and river were still very strong in my mind and as I looked, it seemed suddenly that the whole forest on each side of the river was in motion, in an integrated movement made up of thousands of individual trees weaving and nodding in a silent salute. Never, I thought, has there been such a guard of honour. I was proud of what I had done that day, and of my companions who from all walks of life, and parts of Australia, including Tasmania, had come to be counted as friends of the Franklin.

We duly appeared at Queenstown Court and were charged with our 'offences'. We were offered apples, sandwiches and coffee by the police (but paid for by the Wilderness Society). I accepted bail conditions and was reunited with my family. Young Stephen was somewhat relieved that Dad was not going to prison after all.

Nossal warns:
Science is a powerful currency

As reported in the March issue of *CoResearch*, the speaker at the presentation of the BHP Science Prize in Canberra last month was Sir Gustav Nossal, Director of the Walter and Eliza Hall Institute of Medical Research in Melbourne. Sir Gustav talked to the students about how society's view of science had changed during his lifetime.

An edited version of his speech is published below:

It is a great honour to be associated with this innovative program designed to sponsor the future of scientific life in Australia. Might I begin by saying that I wish sincerely to commend the efforts of BHP in getting the Prize off the ground, and of their associates in the venture, without whom it would not have been possible: CSIRO, the Australian Science Teachers' Association and this year for the first time, Westinghouse who have been so generous in making it possible for the first two prize winners to fly to the United States to enlarge their experience.

How can I echo or mirror your own fascination for science? It occurred to me that it might be quite interesting to take the period of my life, my life span, and talk to you about the changes that have taken place in the way that mankind has looked at science over that period.

I was born in 1931, and of course that was in the depths of the depression. At that time there is no doubt that people saw science as the saviour, science and technology as the way the world would work its way out of the depths. I can remember as a very small boy devouring Hans Dominik's book, *Atomic Weight 500*, which was an imaginative leap into some kind of fairly obscure nuclear physics. The idea was that you would bore a hole deep enough into the earth, so that when it got down there the weight of whatever was on top would compress matter, uranium or whatever, to create the substance of atomic weight 500 which would have the most fantastic properties and would of course make the inventors very rich indeed! And I could go on to say that we regarded Jules Verne and H.G. Wells as saviours, promulgating the wonders of science.

SCIENTIFIC HORRORS

Then of course came World War II and in the most peculiar of ways that vision of science was translated into a cruel or brutal reality—inasmuch as science very rapidly became the new power currency, the chief determiner of winning or losing of the war. This was the era when radar was invented; where the incredible improvement in aircraft design played an enormous role. This was the era of rocket bombing and, above all, of the Manhattan project.

The bombs at Hiroshima and Nagasaki did have a tremendous effect on people in terms of showing them the horrors that could flow from science and technology. It was further, the cold war era of the early 1950s that brought to very wide public perception a real doubt about where science was taking mankind. This was the era of Edward Teller, the H-Bomb, the cold war, later the Cuban missile crisis.

BIOLOGY DECADE

People ceased being convinced that science was the saviour. There was burgeoning, simultaneously, a counter-balancing view. It came from biologists. Because the 1950s was really the decade of the biological sciences, just like the 30s was the decade of nuclear physics. Admittedly penicillin had come before this, but the full flowering of the antibiotics with the control of all the bacterial infections including tuberculosis was the fruit of the fifties, and the fifties also brought the poliomyelitis vaccine and a whole heap of other drugs, treatments, and effective interventions in health. So, through the discipline of biology, science did masquerade as a sort of a saviour, and I think biology carried that view of science forward.

DEEP MISGIVINGS

But then came the 60s, particularly the late 1960s; the anti-science bandwagon began moving in a new and interesting direction. This was the era of children born in affluence, no longer in any way subject to influence by the depression: born into the incredible affluence which science and technology had brought to mankind, they became the flower children, the children of the Berkeley riots.

This was an era of really deep misgivings, not just about science and technology, but about the whole direction that civilization was taking, about the materialism, about the power of the multinational corporations, about the threats to human survival and so forth. This period had a dramatic effect on school and university attitudes towards science, and on the number of young people who took up science for study. People went to the social sciences and the humanities, feeling in a peculiar way that science had let mankind down, because after all science was failing to fashion a better world.

ENERGY CRISIS

That view held sway for about a decade, but then we came into the 70s, perhaps early to mid-70s; the oil shock came, and a dawning realization that limits to growth will not really work. The key to economic growth increasingly was tied up with the effect of science and technology. And so towards the middle and end of the 70s we were back almost to where we started, but somewhat chastened and somewhat disheartened, back to the position that only more science and technology will get us through. The tough economic times had once again made young people buckle down. But there was one difference between the late 70s and the 1930s, and that is that now where the perception of science as an extremely powerful force in international power was universal, was so widely recognized, it was realized that science was too important to be left to the scientists alone. I do not think we would relive again the possibility where Oppenheimer and Lawrence could get together and say "Do you think we ought to get together and build a bomb?" We are now in an era where society demands, and scientists are realizing, that a dialogue is immensely important. The dialogue between the creators of the new knowledge and the society (an increasingly scientifically literate society) that is going to be the users of the fruits of that science and technology.

BIOTECHNOLOGY

I want to give you one concrete example of that from my own field of biotechnology, and in particular of recombinant DNA technology and genetic engineering. I do not think we can repeat often enough what the history of the debate on genetic engineering really was all about. It was not about a society cross-questioning and interrogating the scientists and saying, "Where are you mad scientists taking us?" Not in the first instance, at least, till the debate got out of control and went to cloud nine for a brief period.

Biochemists themselves, having invented the fundamental method of genetic engineering, realized that altogether new forces were at work, as important in the realm of biology as the splitting of the atom was in the field of physics. As a result, the scientists themselves said, "Wait, let's get together, let's not push forward full-speed until we have a critical group come together (as it did in 1974-75) with journalists, with industrialists, with policy-makers and decision-makers of all sorts, and let's call a moratorium on these matters until we can sit down and devise some safeguards".

In the event, the hazards that Paul Berg and the other biochemists had foreseen proved to be largely illusory, and the thought of a dreadful accident happening in a genetic engineering laboratory is now remote. Of course, this does not address the question of whether someone at some time might *intentionally* wish to use genetic research for evil purposes, such as biological warfare. That is another question, but the safeguards are in place for this work to be entirely for the benefit of mankind in a large number of laboratories. As a result we have a surge of remarkable knowledge in biology. We have the production of precious human proteins at low cost on a large scale by bacterial organisms. From my point of view I just simply want to mention to you two quite remarkable recent developments that may not have yet reached the school rooms.

CANCER RESEARCH

The first is the so-called oncogene story: the fact that we are, for the first time, getting a true, deep, totally unparalleled knowledge of the nature of the cancer process as essentially being due to particular normal genes being ferried to the wrong place in he cell, either by viruses or genetic accidents. This is giving us a whole new window to look at the cancer problem. That certainly is the most important thing that has happened in cancer research in 50 years, purely and simply the result of genetic engineering.

The second example I want to give you is the work we are doing aimed at the production of a malaria vaccine through genetic engineering. Just six weeks' ago we had a very major breakthrough where it became possible actually to switch on the genes for malarial proteins in harmless bacteria producing very large amounts of literally dozens of proteins from malaria, one or more of which will be the vaccine substances. We now have a couple of years of very, very hard work ahead of us to determine, out of the multitude, which proteins we want to seek out, as vaccine molecules to prevent malaria.

Ladies and gentlemen, and particularly students, I do not profess that science has all the answers, but I think we must strive for a scientifically literate Australia in order to build for the future. We must have this discourse between the people knowledgeable in science and the people charged with guiding our destinies at the industrial or educational level, in politics and in all other aspects of our national life.

YOUNG LEADERS

It is very important for you young leaders who have demarcated yourselves by becoming finalists in this great Prize to realize that our achievements in Australia are great, our achievements in many of the sciences are out of all context to size of the population, and I could guide you to a rich literature in the history of science which proves that, in a statistical manner.

Our achievements are great, but I am absolutely certain that our potential is even greater, and of course that potential depends on you.

In saluting you, the finalists of this BHP National Science Prize, I want to leave you the thought that you must never doubt your ability to excel, because it is that ability to excel that will build our nation and a better future for us all.

Survey planned:
Scampi found on N.W. Shelf

CSIRO's Fisheries Research Vessel 'Seola' has found quantities of a lobster-like crustacean called 'scampi' along with new prawn types, while conducting experimental trawls beyond the continental shelf about 150 km north-west of Port Hedland.

The Chairman, Dr Paul Wild, stressed that the CSIRO find cannot be regarded as a proving of the fishery—it has involved no more than a dozen trawls using either large-mesh fish nets or modified prawn nets.

A more systematic survey, planned for early next year, is expected to provide more reliable information about the distribution and abundance of the new crustacean species.

Dr Wild said the scampi had been found at depths between 300 and 500 m, well beyond the reach of conventional prawn trawling equipment. New lines and more powerful winches would be required, as well as specialized nets.

'If the results of the systematic survey are encouraging, studies into the ecology and reproductive biology of the species involved would have to be undertaken, to provide a basis for any future management', he said.

SMALL LOBSTER

Dr Wild said scampi (family Nephropidae), resemble a small, slender lobster, with the claws typical of true lobsters. They are considerably larger than a banana prawn.

'Scampi are regarded as a delicacy overseas, so the Australian discovery could offer prospects of an export market if further studies show commercial quantities are available', Dr Wild said.

'The "Soela" found several different scampi species. Similar species are already fished commercially off the coast of southern Africa, and the Australian species appear to be closely related.

'Along with them, the "Soela" found promising quantities of carid shrimps, which are generally smaller than the penaeid prawns that form the basis of the Australian prawn fishery.

'The scampi were caught at an average rate of more than 10 kilograms per hour, and the shrimp at more than 25 kg/hr which would suggest that a commercial fishery is feasible. It should be kept in mind, however, that this figure relates to only the limited area investigated', Dr Wild added.

'Soela' had made the experimental trawls virtually as a sideline to a study of the multi-species fishery being operated by licensed Taiwanese fishermen closer inshore in the same region.

The trawls had been conducted in deep water well away from the coast, and present indications were that scampi and shrimp lived in areas of silty seafloor on the continental slopes.

CAT

The CAT Column is open to all members of CSIRO who wish to comment on communication matters.

Successful open days

The Chief of the Division of Mineral Physics, Dr Ken McCracken, was a recent participant at a media awareness course run by Film Australia in Sydney. He has written the CAT column this month based on his own experiences.

Acting on the hypothesis that the Christians would have done better if they had first practised mortal combat with some tame lions, seven CSIRO staff participated in the course, which aimed to teach us how to deal with the 'aggressive' interview—for press, radio, or TV.

A member of the Executive, the Secretary of CSIRO, a Director, and four Chiefs and OICs attended, along with senior officials from the several government departments.

The 'faculty' consisted of Film Australia staff, and nine media 'personalities' known for their 'no holds barred' reporting. The format was simple and effective. A member of the faculty was supplied with a dossier outlining the responsibilities, or views of a member of the course. An aggressive interview was then conducted for radio, and next day for TV (with a different interviewer). The audio and video tapes were then immediately played back to the whole class, and our performances analysed by the faculty and the class. Each member of the course was interviewed for both radio and TV.

STRATEGIES

The sort of questions asked were: 'Aren't you just empire building?' 'Can you guarantee that none of the live foot-and-mouth virus can escape?' 'Why did CSIRO close down its solar energy research?' etc. The TV crew was instructed to zoom up on the interviewee 'to see him sweating'. Guerilla warfare was also employed—the interviewer standing up during the interview—the camera crew dropping a three-metre aluminium ladder, etc. The goal was to acquaint us with the techniques that will assist the interviewee to cope with the aggressive interviewer, or the unexpected.

The instruction was excellent, and I came away with a much greater feeling of confidence insofar as dealing with the media is concerned. We were given many hints that I have now circulated to my Division. The more important hints are listed below:

GENERAL ISSUES

1. The average person remembers *very little* of what they read, see or hear. The pithy, colourful sentence that says what you are on about is vital. Don't qualify it to death.
2. Identify the main issue and *stick to it*.
3. The media is *entertainment*. We have to fit that mould.
4. Identify in advance whether it will be an agressive or information interview; and the broad detail of the questions.
5. Never forget—you are the expert. The other guy is fishing and has very little briefing. You actually control the interview—stop/'go back to the top' (that is, start again); as *you* wish (except live!).
6. *Always* be positive.
7. If it's off the record—say so FIRST.
8. Cultivate your reporter contacts. A good punchy interview is the best way to make them like you.
9. The media likes authority. The more senior the person, and the more authoritatively he speaks—the better.
10. Public opinion is created by constant exposure. Secondary (recycling) use of items in data files assists this. It takes about six months to fix an idea in the public mind.

AGGRESSIVE INTERVIEWS

1. Don't volunteer anything outside the question asked.
2. If the reporter keeps asking the same question (in an attempt to trap you into an indiscretion), keep giving the same answer, or say 'I believe I've already answered that'. Unless you're Bob Hawke, don't suggest he clean his ears out.
3. It can pay to tape record the interview yourself.
4. Remain pleasant—the reporter tends to be identified with by the viewer—don't put him down even if he asks for it (unless he is a particularly obnoxious twerp and you're good at it).
5. 'What is the cost of ....?' A good answer may be 'What is the cost if we don't ....?'.
6. Occasionally give very brief answers and force the interviewer to keep thinking of questions.
7. Correct any erroneous statements/assumptions in the question—but avoid emotive words (like 'correct'). Better to say: 'First let me explain that I am not ....'.
8. If it *really* isn't your business, say so.
9. If you are prohibited to talk about something, say so, but explain what prohibits you (and make sure it's a correct statement; and not seen as evasion).
10. Don't avoid an interview or use 'no comment'. Better that you give your view other than the other side of the argument give it for you.
11. Ask 'are we finished?' before relaxing. Once they've answered 'yes', you are then really off the record and protected by all sort of journalistic codes.

INTERVIEWERS' PROBLEMS WITH SCIENTISTS

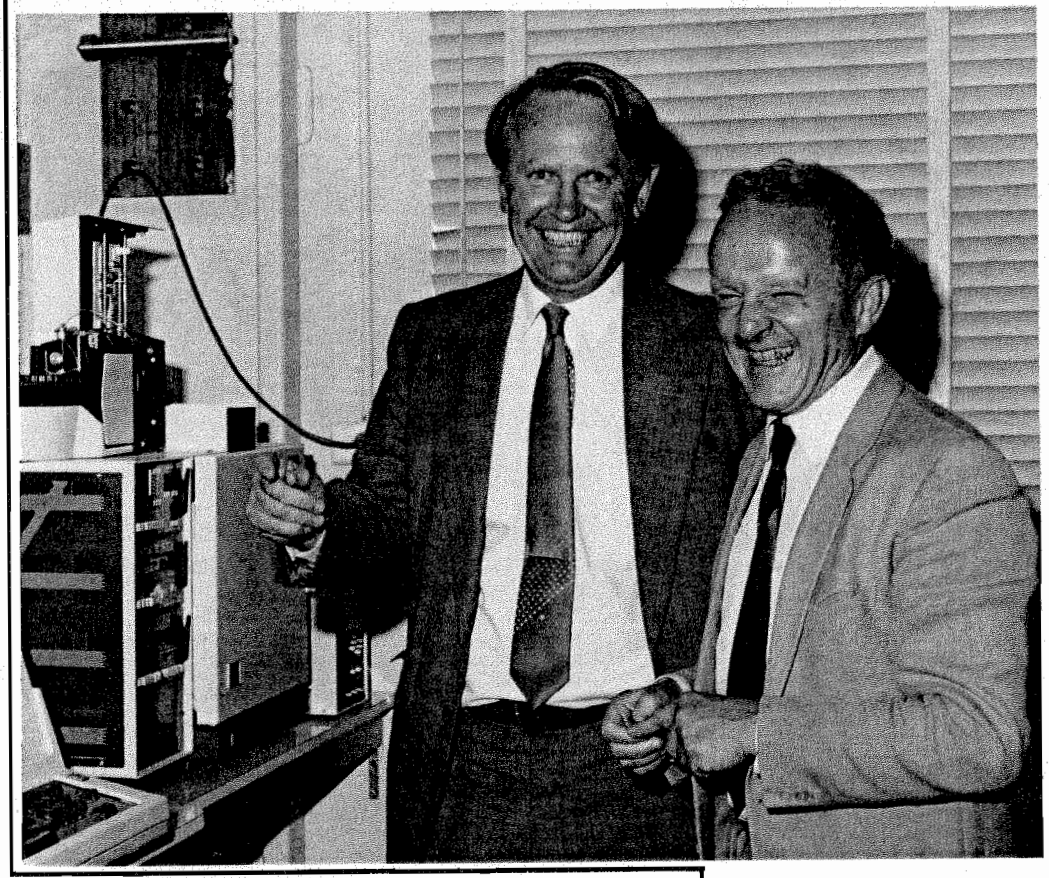
1. Use examples to illustrate the abstract or unfamiliar.
2. Concentrate on broad ideas—not on detail.
3. Keep the numbers simple.
4. Minimize strings of adjectives.

PRESS RELEASES

1. 6.00 pm on Sunday gets good coverage!
2. A telex press release is effective, and encourages brevity.
3. Papers seek impact—not detail.

TELEVISION

1. It's visual. A lab coat/equipment in background; a computer/etc. is better than an office.
2. Provide your own film clips/photos if they are relevant to 'set the scene'. They would then be used with your own voice as a 'voice over' to make it more interesting. Visual aids showing the speaker *himself* involved in research (say, in the field) would be particularly welcome. Good material such as this can turn an aggressive interview into a P.R. tour de force for yourself.
3. Dress relatively plainly. No kaleidoscopic ties or loud checks. Do *not* do up suit coat. Straighten tie and coat just prior to start.
4. Look at the interviewer at all times, both on TV and radio. It shows in your looks, and voice.



Dr Don Taylor, Chief of CSIRO's Division of Textile Industry, explaining the use of gas chromatography in the analysis of mothproofing agents, to the Minister for Industry and Commerce, Senator John Button.

CSIRO Division of Textile Industry, Belmont, held a successful series of Open Days from March 16 to 18.

On the first day, a conference which discussed recent developments in wool processing attracted an audience of more than 130 from the Australian wool textile industry.

Delegates heard talks on recent CSIRO developments, including Sirospun spinning, a new machine for continuously dyeing yarns, and the significance of protein contaminants in wool scouring.

Other talks reviewed general developments in wool processing, with emphasis on practical application.

The second day was devoted to tours by groups of schoolchildren and woolgrowers. More than 500 attended three specialized tours of wool processing, fabric properties, and chemistry in wool research.

On the final day, the Division was opened to the general public, and well over 5000 people toured the laboratories and discussed CSIRO research with staff.

The visitors included the Federal Minister for Industry and Commerce, Senator John Button, the Minister for Defence and Member for Corio, Mr Gordon Scholes, the Member for Corangamite, Mr Tony Street, and the Member of the Legislative Council for Geelong Province, Mr David Henshaw, a former Chief Research Scientist at the Division.

'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

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Safety inquiry:
Transfer of laboratory 'a matter of urgency'

The Applied Organic Chemistry and Advanced Materials Laboratories at Fishermen's Bend, Melbourne, are hazardous, and their planned transfer to an alternative site at Clayton should proceed as a matter of urgency, according to a report on the laboratories tabled in Parliament.

The 'Report of the Committee of Inquiry into Safety Standards at the CSIRO Applied Organic Chemistry and Advanced Materials Laboratories at Fishermen's Bend, Melbourne, and the Death of CSIRO Employee Dr R. Bergamasco', the 'Andrew Report', made several recommendations for the safety of the laboratories and the establishment of a CSIRO Safety Organization.

UNRELATED DEATH

The inquiry followed public controversy about safety standards in the laboratories following the death of Dr Ron Bergamasco from cancer last December. The Committee concluded that there was no evidence that Dr Bergamasco's death as a result of malignant melanoma was related to his occupation or work environment.

The Report noted that the occurrence of malignant melanoma in relation to ultra violet light was well documented, and was the cause of death of 23 per cent of cancer deaths in Australia in the age group 30-34 years. It said, 'The chance occurrence of one such case in 500 male workers over five years is not improbable.'

Tabling the Report, the Minister for Science and Technology, Mr Barry Jones, summarized the findings of the Committee and said that in the building in which Dr Bergamasco had worked.

- the laboratories were severely crowded;
- the exhaust from the house vacuum system was directly under and close to the air intake of the ventilation system;
- the ventilation of the organic chemical store was inadequate;
- the increase in number and efficiency of fume cupboards had led to a potential deficiency in the make-up air capacity of the building;
- many fume cupboards did not achieve an adequate air flow velocity unless cupboard doors were opened only a minimal amount;
- the exhausts from several auxiliary fume extractors had not been raised above roof level. Fumes could thus be recycled into the building through the many window-fitted air conditioning units or through the exhaust of fume cupboards that are not operating; and
- that asbestos was still in use as bench sheets and in oven packing, being discarded and replaced by other material as it became necessary to replace the equipment.

He said also that the Committee had been far more critical of the Advanced Materials Laboratory, which is 'located in a collection of old buildings posing a severe fire hazard, and totally unsuitable for modern research'.

TRANSFER RECOMMENDED

As a result of these findings, the Committee recommended the transfer of the laboratories, and their modification until that time, regular reviews of safety and the provision of a CSIRO Safety Organization.

SAFETY ORGANIZATION

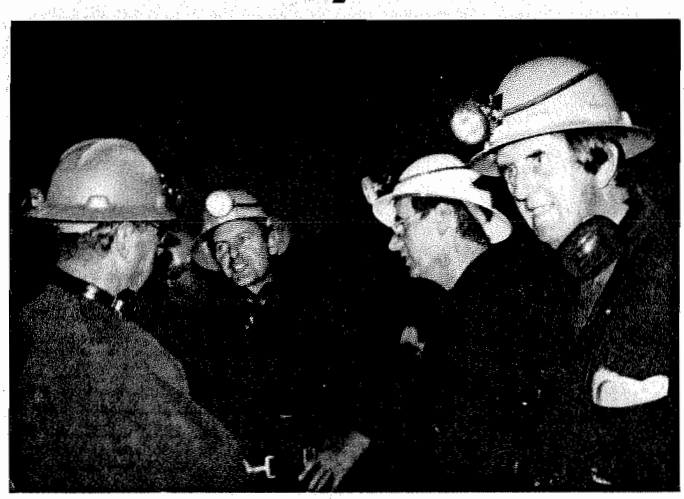
The Committtee suggested a Health and Safety Organization should be a separate unit within CSIRO. At present CSIRO has only one Safety Officer to serve the 42 Divisions in over 100 locations, a situation the Committee found incompatible with CSIRO's image as a world renowned scientific organization.

The Safety Organization would operate on a regional basis, with safety specialists in at least the major industrial States and a service to the other States. Full-time Safety Officers should be employed at sites of high hazard potential such as Fishermen's Bend. The suggested organization would include appropriate occupational health centres to serve CSIRO regional units on a group basis.

The Safety and Health Organization should ensure there is a continuing

Continued on page eight

Executive visit to Roxby Downs



The Chairman, Dr J. Paul Wild, 400 m underground at Olympic Dam (better known as Roxby Downs), where Western Mining Corporation and BP Australia are assessing the feasibility of mining a huge copper-, uranium- and gold-bearing mineral deposit.

With the Chairman are, from left, Mr Hugh Morgan, Executive Director of WMC and a part-time member of the Executive, Mr John Copping, Manager of the WMC subsidiary, Roxby Management Services, and Dr Bill Whitton, Director of the Institute of Industrial Technology.

The visit to Olympic Dam was one of the highlights of the Executive's week-long visit to South Australia in May, and produced the extraordinary spectacle of the entire Executive party in the nude. Unfortunately, no photographs are available.

The schedule for the South Australian visit left members of the party little time to put their feet up.

Monday's trip to Roxby Downs was followed by an Executive Meeting which lasted past midnight. Then followed two days of visits to the Divisions of Human Nutrition, Manufacturing Technology, Computing Research, Soils and Horticultural Research, capped by a formal Executive dinner for more than 100 of Adelaide's leading citizens. The South Australian Premier, Mr Bannon, was guest speaker.

On the Thursday, the party flew to Mt Gambier to visit CSIRO's forest research facility, meet the SA State Committee, and visit the SA Woods and Forests Department's timber mill and other local industries. On the final day, the party visited the Adelaide plant of Mitsubishi Motors Australia, whose Managing Director, Mr Graham Spurling, is a part-time member of the Executive, and held a second Executive Meeting.

CSIRO man elected to Parliament

Among the new members of Federal Parliament who recently took their seats for the first time is Mr Peter Staples, Labor Member for Diamond Valley, an electorate which covers outer Melbourne suburbs.

Peter, 35, was formerly a CSIRO researcher at the Division of Animal Health at Parkville, Melbourne, for 14 years, most recently working on the akabone and bluetongue projects.

Peter has an applied science degree, and is one of only eight Members with tertiary qualifications in science in both federal Houses of Parliament. He is also a Member of CSIRO's Advisory Council and attended his first meeting earlier this month.

Mr Peter Staples

In September 1982, he won pre-selection as ALP candidate for Diamond Valley and has now the doubtful privilege of being the Member with the most marginal seat, winning by only 692 votes, a combination of numbers he now uses as the lock on his briefcase. He defeated the former Minister for Communications, Mr Brown.

Peter has a broad interest in science and technology and believes too many opportunities have been lost in Australia because of the lack of an industrial base built on the new technologies. 'Countries such as Sweden, Japan, Austria and Switzerland have already made these changes and are now reaping the benefits of low inflation and unemployment rates alongside high growth.

'It's no coincidence that these countries far outspend Australia in research and development of new technology', he added. Peter says this will be his prime interest in the Federal Parliament and believes that his experience with CSIRO will assist him in his contribution to those who will be building the new industrial base. 'If Australia is to get this new philosophy off the ground, it has to realize that our real wealth and resources lie not in the earth, but in the minds and skills of the people and that an investment in this resource will yield a much greater return', he added.

'There is now an exciting new challenge for science and government, and for interchange between science and government in the search to develop our technological, educational, industrial and employment base.

'I am enthusiastic about being part of the challenge', Peter said.

From the Advisory Council

Mr Jan Kolm, Chairman of the Victorian State Committee, and a Member of the Advisory Council, has contributed this column.

The recent political summit was a lesson in human relations to both supporters and detractors. The entrenched gap between employers and unionists was not as large in close personal contact as it appeared from the encamped positions of their respective offices. This is not an observation in politics, but in psychology.

Is there perhaps a lesson in this for scientists and industrialists?

Maybe the gap between them is not comparable to that between industrialists and unionists. Yet, consider the polarity of just a few attitudes which are not entirely uncommon:

Scientist:	**Industrialist:**
Time scale 5 to 20 years plus.	Planning cycle 1 to 5 years.
Ambition: career, publication record.	Profitability, competitiveness.
Locked into international science (and fashions).	Constrained by competition and small markets. Local licensees and subsidiaries alike locked into international know-how.
Service to all (warm feeling).	Exclusivity (survival).
Science leads technology.	Science without development lacks economic credibility.
Rapid growth of new science.	Largest multiplier of advances occurs in existing industries.
Scientist:	**Industrialist:**
See my little bright idea—build an industry around it!	See my little problem with the large dollar sign attached to it—solve it!
Industrialist's answer:	**Scientist's answer:**
Bright ideas are cheap. Some millions of dollars later we will know how many survived.	Little problems are boring, pedestrian and don't produce papers. Why doesn't industry solve them anyway?

Scientists serving Australian industries, in CSIRO and in industry, have to bridge the gap between these extreme views and learn to navigate between the Scylla of pure science orientation and the Charybdis of solving trivia. This requires originality which cannot be learnt from the major industrial nations. The brunt of this task rests on the Executive, the team leaders and the planners. Yet, the equivalent of a summit between the vast and diverse numbers of industrialists and scientists is not manageable in an area where the detail is as critical as the science and technology; we can't have summits. At best, we can aim at mini-summits and bridges between the gaps.

In some respects the Advisory Council, and particularly the State Committees, can help bridge the gap by providing opportunities for mini-summits at the grass roots level.

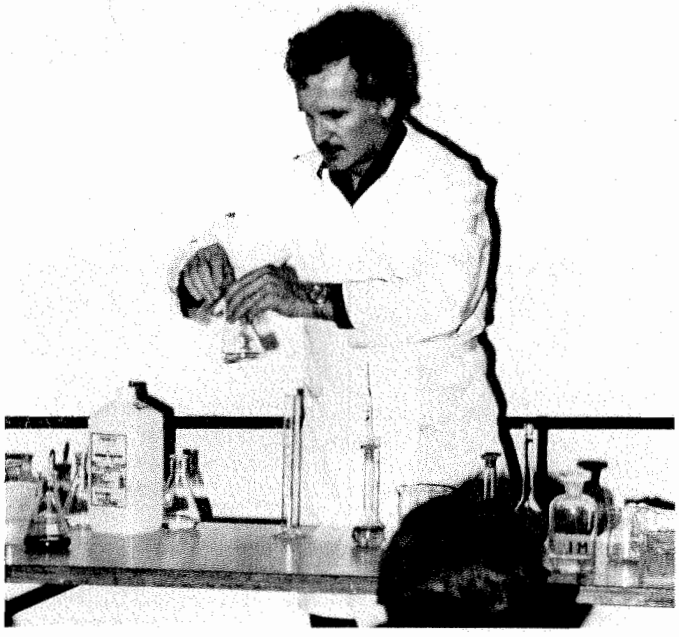
The State Committees endeavour to bring community and industry leaders into CSIRO laboratories to bring about personal contact and a feeling that they can interact and contribute. The Committees aim at senior people, not out of snobbery, but because they have a multiplier effect on their organizations and can lead in mutual understanding. They aim to bring in people whose business is close to the laboratory's achievements and potential. And they hope to build up a growing clientele of 'afficionados' of CSIRO.

In person-to-person contact, industrialists learn what CSIRO has done and what it might do for them; scientists learn to understand the constraints which make industrialists appear to lack enterprise—market size, development costs, and access to know-how without which industry cannot compete. Progressively the gaps become narrower and common niches are found.

Of course, these contacts have always existed, particularly amongst senior people; of course, the Organization has its own liaison professionals and, of course, the contacts established during State Committee meetings are only fleeting. Yet the Committees can bring about contact in an informal way which does not occur easily in other ways. Committees can do little more than make the first contact—albeit repeatedly— they can only create the opportunity to meet, to get to know, to get to like, and to shine a little. CSIRO scientists have to follow up the opportunities and contacts.

Progressively, fair, competent and critical mutual assessment of potential and ability between the two groups will narrow the gap, build the bridges and lead to more effective collaboration on more joint objectives.

Geology workshops for industry successful



Dr Mike Thornber of the Division of Mineralogy, demonstrates to an audience of exploration geologists, chemical processes involved in the weathering of ore deposits. Three Course/Workshops on 'Geochemical Exploration in Deeply Weathered Terrain' have been held during the past year to facilitate the transfer of research to the exploration users. A total of 93 participants, largely from industry, attended the courses, and the published workshop papers have sold well both within Australia and overseas.

Retirement

Mr Les Gavin of the National Measurement Laboratory, retired recently as assistant (Laboratory Services).

Les worked on the construction of the Laboratory for five years, then in 1977 worked on the assembly and testing of the 550 kN force standard. His ability to recognize anything unusual in the mechanical behaviour of the force machine and possible remedies made him a valuable member of staff.

Chief of new Division of Atmospheric Research

Dr Brian Tucker has been appointed Chief of the newly created Division of Atmospheric Research, to be located at Aspendale, Melbourne.

Dr Tucker, pictured above, was Chief of the Division of Atmospheric Physics.

The new Division is an amalgamation of the former Divisions of Atmospheric Physics and of Cloud Physics.

Present staff of the Division of Cloud Physics, now located at Lindfield, Sydney, will be transferred to Aspendale when progress on building extensions permits.

Dr Tucker, 53, graduated BSc from the University of Aberystwyth in 1951, and was awarded a PhD by the University of London in 1954.

He has been Chief of the Division of Atmospheric Physics since 1973.

Computers for crop management

A collaborative project to develop a computer-based system to assist irrigation farmers improve crop management is to be undertaken by CSIRO and the NSW Department of Agriculture.

The project, to be named SIRAGCROP , will be coordinated by the Assistant Chief of the CSIRO Division of Plant Industry, Dr R.D. Brock, and the Department of Agriculture's Regional Director of Research for the Murray and Riverina Region, Mr E.J. Corbin.

Mr Corbin said the project would initially involve scientists from CSIRO's Centre for Irrigation Research, Griffith, NSW and the Divisions of Plant Industry and Soils in Canberra, as well as advisory agronomists from the Department of Agriculture. Later the project could involve scientists from the Bureau of Agricultural Economics, the Victorian Department of Agriculture and other CSIRO Divisions.

Dr Brock said the project would act as a focus for research and would initially concentrate on irrigated wheat production, but would ultimately include summer crops.

LIFT YIELD

Mr Corbin added that the project would assist farmers to lift the average yield for irrigated wheat from 2.5 tonnes per hectare. The best yields for the irrigated wheat are above seven tonnes per hectare.

'Irrigated wheat producing these high yields requires early management decisions to ensure maximum return', he added.

'SIRAGCROP will aim to develop a computer-based management system identifying the various management strategies necessary for individual wheat crops.

'Farmers will be able to obtain a range of management options from the computer, then make their individual decisions, as to the most appropriate action', Dr Brock said.

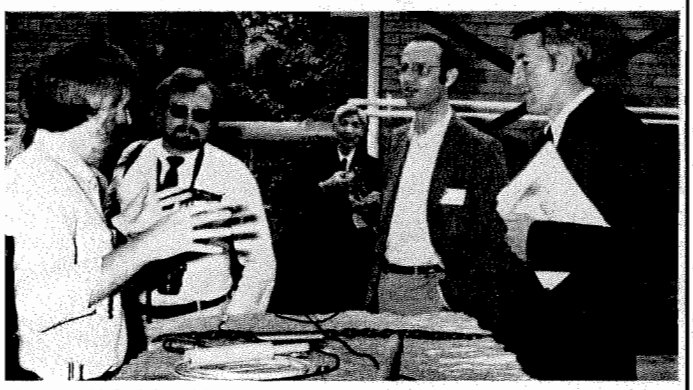
INDUSTRY SUPPORT

Mr Corbin said the Department of Agriculture's agronomists who will be closely associated with developments, will advise irrigated wheat growers on the use of the computer programs.

The project is supported by industry and farming organizations which have made land available at Whitton for research through the Irrigation Research and Extension Committee.

SIRAGCROP will allow scientists from a number of research groups to collaborate on ways to improve the efficiency of irrigated agriculture by developing management models using the latest computer technology', Dr Brock said.

A rock's responses



The new Chief of the Division of Geomechanics, Dr Barry Brady, right, listens as Tony Siggins describes the vibrational response of a 7-tonne granite block to visitors from the International Society for Rock Mechanics.

Adelaide home for Rangelands Research Group

Adelaide is the new location for the headquarters of the Rangelands Research Program of the Division of Wildlife and Rangelands Research.

The Chairman of CSIRO, Dr J. Paul Wild, said the decision was part of the Organization's plan to strengthen research into Australia's arid and semi-arid lands.

This would include expanding the present efforts of the Rangelands Research Program at Alice Springs.

Adelaide was chosen over Alice Springs, Broken Hill, Canberra, Charleville, Darwin and Perth as the new base for the program which now has its headquarters at Deniliquin, NSW.

ADELAIDE'S ADVANTAGES

Dr Wild said the advantages of Adelaide included easy access to the Rangelands experimental sites, the laboratory at Alice Springs, and the Division's headquarters. Adelaide also provided a good scientific and industrial support infrastructure. Both Adelaide and Flinders Universities carried out related research and scientists in the program were already collaborating with South Australian Government Departments.

Adelaide was also the choice of the Rangelands staff.

Dr Wild said CSIRO hoped the transfer of the headquarters could be made as early as 1987-88.

He said that under the new plan, CSIRO would place greater emphasis on mobile field laboratories. It was still investigating accommodation requirements for the Adelaide base.

About 50 staff would be based in Adelaide, most of them transferred from Deniliquin and Canberra.

Dr Wild said the Division's research at Alice Springs would be strengthened with the number of staff there being increased from the present 16 to 26 over the next few years.

Up to six new positions would be created in the Rangelands Program.

The Rangelands Program is concerned with the management and maintenance of Australia's 5.5 million square kilometres of arid and semi-arid lands. Research topics include the effect of fire and grazing on vegetation, the impact of rabbits, the competing interests of pastoralism, tourism and conservation, and non-biological matters such as land tenure legislation.

Australia's rangelands encompass a large area of low rainfall country, with a flat to undulating landscape vegetated with spinifex and Mitchell grasses, saltbush, mulga and eucalypt woodlands.

Of this arid and semi-arid land, 65 per cent is grazed by either sheep or cattle, 26 per cent is unoccupied and 9 per cent comprises Aboriginal reserves and national parks.

The region is sparsely settled with a population of only 234 000 people.

AMALGAMATION

The Rangelands Research Unit was recently amalgamated with the Canberra-based Division of Wildlife Research to form the Division of Wildlife and Rangelands Research.

Daley award for science journalism

A science journalism award has been established to commemorate the commitment made by Michael Daley who for many years was a science commentator in Australia.

Michael died in May last year and the Award was announced at this year's ANZAAS Congress which was held in Perth, Western Australia.

At the time of his death, Michael was Executive Producer of science features for the Australian Broadcasting Commission.

Announcing the Award, the Minister for Science and Technology, Mr Barry Jones, said the Award would carry a cash prize of $1000. It has been sponsored by the Department of Science and Technology in association with ANZAAS.

Mr Jones said the Award was an incentive to quality science and technology reporting in Australia and was a fitting memorial to a journalist who for much of his professional career tried to present high quality science reports in both the print and electronic media.

The Award will be judged by an independent panel of experts in science, technology and communications.

The first winner will be announced at the 54th ANZAAS Congress in Canberra in May 1984.

From the Chairman -

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

In April 1982, I wrote in this column at some length about the Australian National Animal Health Laboratory at Geelong.

I made the point that the much-discussed issue of whether or not live FMD virus should be imported before an outbreak was a controversial one and needed to be decided by the Government.

Recently, the Labor Caucus decided to recommend, on the advice of ASTEC, to delay this decision until the end of 1987. This precisely reflected my advice to our Minister because ASTEC's views were essentially similar to those of the Executive. But the more important issue concerns the general role and future of the Laboratory.

On this matter, much ill-informed hot air has been generated in the media, with occasional references to a white elephant. It was therefore most gratifying to read the report of ASTEC which came down firmly in support of the important role which ANAHL has to play. It concludes: 'Australia needs a microbiologically secure animal disease laboratory, and the underlying rationale for ANAHL has not diminished since the concept was developed in the early 1970s.' To opponents of ANAHL, ASTEC says: 'It has been suggested that the need for ANAHL has been much reduced because of the development of techniques for rapid diagnosis of animal pathogens, perhaps on the suspect property, using inactivated reagents. ASTEC does not accept this view.'

This report must be heartening news for all those who have striven to make ANAHL a success. They have performed their task under conditions about as quiet and peaceful as those experienced by Allied air-crew on a 1943 mission to Berlin. If the Government adopts the ASTEC recommendations ANAHL will be assured of a secure future with a vital function to perform on behalf of Australia's vast livestock industry. Our role in that future will depend on the range of viruses eventually approved for importation.

All those who visit the Laboratory come away greatly impressed by its wonderfully designed security arrangements which make it the best high-security laboratory in the world. I congratulate the CSIRO staff at Geelong as well as our Building and Property Section and the Department of Housing and Construction for the splendid job they are doing. The Laboratory is likely to be opened next April.

The Executive spent the second week of May in South Australia. While there we were shown the work of the Divisions of Soils, Human Nutrition, Horticultural Research and Computing Research (VLSI) met with the State Committee, hosted a dinner for the leading citizenry, including the Premier and the Lord Mayor, inspected the Roxby Downs project and went down a copper/uranium mine and visited timber mills and a cheese factory in Mount Gambier. It was a very full and rewarding week and I thank all those who made it so.

Our contacts with industry were continued on June 2 when we held a seminar on manufacturing industry in Melbourne. The audience of 140 included many from industry as well as CSIRO and university scientists and the press. It was chaired by Graham Spurling, and opened by the Minister. The speakers came from industry as well as CSIRO and the occasion was marked by excellent presentations, frank talk and constructive criticism. Next day it earned a whole page of the *Financial Review* under the headline 'Protection is the Smother of Invention'!

During the course of the manufacturing industry seminar, one of the industry speakers made a plea to the Executive 'to abandon its policy of publish or perish!' I hastened to point out that the Executive had no such policy. Publications represent only one form of evidence of achievement and the Executive is determined to ensure that all types of achievement are recognized, especially for those working close to industry where the type of work or commercial confidentiality may not make publication possible or relevant. To this end the Executive, at its last meeting, approved new guidelines for the promotion of research scientists; this followed full consultations with Chiefs and the Officers' Association. The new guidelines include the following quotes:

- 'Research scientists may be engaged in any part of the spectrum of scientific activities ranging from fundamental research to the application of research skills and knowledge to the investigation of specific industrial needs.'

Assessment criteria include (note that 'he' means 'he or she'!):

- 'the extent of his contributions to industry, e.g. through patent registrations, or the development of processes or products. (While developments which reach the market place are of obvious merit, qualified recognition should also be given to cases where worthy developments have not done so, e.g. through economic circumstances);
- the extent to which he has endeavoured to see that his research has been followed up to the development stage;
- the extent to which he has collaborated with and advised industry.'

I hope these and other references specifically written into the guidelines will put paid to the myth that in CSIRO you must publish or perish. Achievement is the thing.

I end with two quotations from a book which I have recently reviewed. The second, alas, we in CSIRO cannot afford to heed:

- 'I must be careful not to speak more clearly than I think.' **Neils Bohr**
- 'Science is a wonderful thing if one does not have to earn one's living at it. One should earn one's living by work of which one is sure one is capable. Only when we do not have to be accountable to anybody can we find joy in scientific endeavour.' **Albert Einstein**

Paul Wild

Retirement

When Miss Flora McDonald retired last month after 43 years with CSIRO, more than 70 friends, former colleagues and officers from various laboratories and offices attended her farewell dinner.

Flora began with CSIRO in 1940 as a typist in Head Office, then in Melbourne. She was the travel officer in the Regional Office in Melbourne from 1968 until her retirement, and was well known to all staff from the Melbourne region travelling overseas. For 21 years Flora was the First Aid Officer in the RAO, Melbourne.

... People... People... People... People ... People ... People ... People ... Peo

Bob Couper, information person extraordinaire of Building Research, recently had the foresight to send a supply of the leaflet entitled 'Repairing Flood-Damaged Buildings', with a view to the Brisbane office distributing these to Queensland folk in distress.

Several hundred copies were sent out amid enthusiastic publicity by the ABC. Little did **David Thomas** at the Regional Office believe the hints contained in the leaflet would be put to immediate practical use but as luck (or Murphy's would have it a water pipe burst in the building early one morning recently and a team of fire brigade, works and office personnel have been mopping up ever since.

David says it's one way to spring clean the office!

□ □

Professor Miles Keenleyside, from the University of Western Ontario, USA, visited the Division of Fisheries Research recently and gave a seminar on the behaviour of various fish groups and how it affects their reproduction. Dr Keenleyside is in Australia on a Senior Queen's Fellowship in Marine Science. His primary interest is in the evolution of reproductive strategies, with special emphasis on mating systems and parental care.

□ □

The 1983 Jordan Medal of the Lepidopterists' Society will be awarded to **Dr Errol Zimmerman** in the United States in July. 'Zimmie' won the prestigious award for his publication 'Insects of Hawaii', and in recognition of his original research in lepidopterology—the study of such insects as butterflies and moths.

□ □

Dr Joe Gani, former Chief of the Division of Mathematics and Statistics, has been elected Honorary Life Member of the Statistical Society of Australia in recognition of his contribution to statistics in Australia.

Professor Bill Jackson from the USA is visiting the Division of Tropical Crops and Pastures in Brisbane for six months. Bill is Professor of Plant Soil Relations at the North Carolina State University, and will be working with **Frank Smith** on the regulation of phosphate transport in Stylosanthes.

□ □

The *Financial Times* seems to have some inside information. **Ivan Newnham**, Director of the Institute of Energy Resources, is pretty well known, but a recent letter to him addressed to IVANRALIA made some wonder whether our country was now better known for its problems with Russian diplomats.

□ □

Dr Douglas Waterhouse, so recently elected an honorary fellow by the USSR Academy of Sciences, has now been notified that he has been elected a foreign associate of the National Academy of Science of the United States of America.

Dr Waterhouse joins 10 other Australians who have been elected as foreign members.

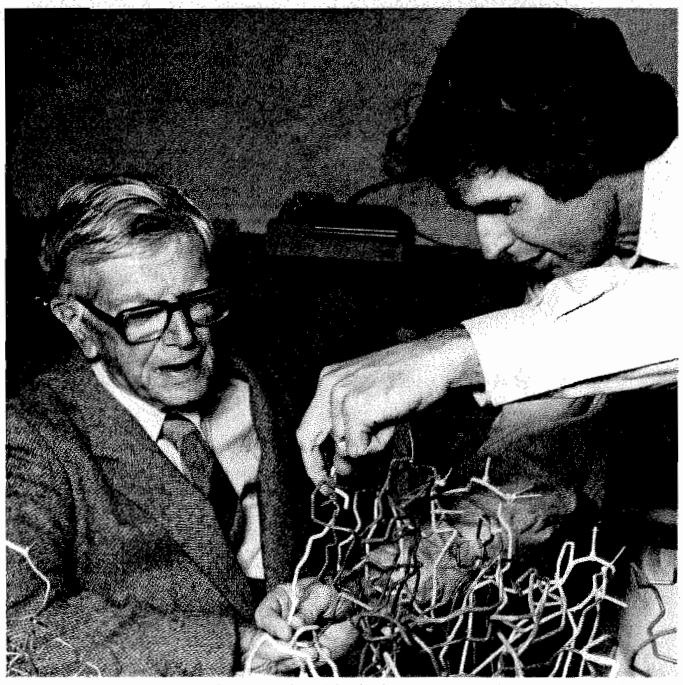
He has no plans to journey to Washington, where the Academy has its headquarters, to accept the award.

□ □

Dr Jim Hogan of the Division of Tropical Animal Science recently returned from Pretoria, South Africa, where he attended an international conference on Animal Production in the Tropics. He is now in Vienna attending a workshop on the use of nuclear technology in Animal Science.

□ □

The new Assistant Chief of the Division of Entomology is **Dr George Rothschild**. In addition to his section head responsibilities, George will advise the Chief on broad Divisional policy issues and liaise with international organizations on a broad range of entomological matters.



Sir Macfarlane Burnet, left, recently visited the Division of Protein Chemistry in Melbourne to discuss developments in influenza virus research. He is seen here with Dr Peter Colman from the Division and a model of neuraminidase, part of the flu virus which changes causing new strains of flu.

Photo by Leona Monarch

Bob Kerslake recently spent three weeks at DSIR's Plant Physiology Division at Palmerston North, New Zealand. He was looking at the design and operation of their controlled environment rooms for Tropical Crops and Pastures' new laboratory. He also prepared the way for further visits by CSIRO and Housing and Construction engineers and architects.

Thirty years employment with CSIRO is perhaps not so much of a record these days, but **Erik Holm** at the Division of Entomology is wondering whether his years of service to just one scientist is? Erik began working for **Murray Wallace** at 8.45am on June 3, 1953, and he's worked as Murray's technician ever since. Can anyone beat the record?

It's curtains for Sirovilla...

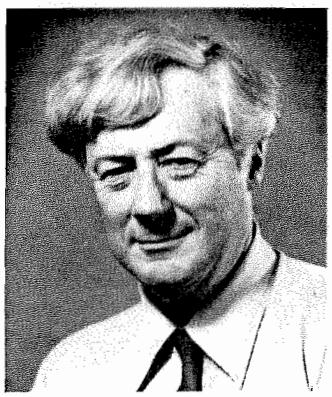
A job experience scheme supported by donations from 50 staff at Geelong's Division of Textile Industry is giving Lee Jennings, 18, pictured right, an opportunity to develop important work skills.

Lee is making curtains for 15 new units at Sirovilla, an elderly persons' housing complex which has been supported by the Division of Textile Industry's Social Club. She is using fabrics woven at the Division and purchased through the Social Club, and is working with guidance from drafting assistant Verona Martin, pictured on the right.

Lee is hopeful that the experience she gains will enable her to run her own curtain-making business from a family workshop. 'I've already got the equipment, and at home we have a large garage which I hope to convert to a workshop. My work at Sirovilla is really helpful in developing my machining skills', she said.

Employed by the Sirovilla Elderly Persons Society, Lee's salary and compensation insurance are paid by staff donations totalling $300 per fortnight and a $70 Commonwealth grant under the SYETP scheme.

After having only two short-term jobs in the 18 months since she left school, Lee was referred to the scheme by the Commonwealth Employment Service. Geelong has a predominately manufacturing-based economy, and unemployment rates are higher than national average, leaving the younger population with limited opportunities for developing employment skills.



The Chief of the Division of Environmental Mechanics, Dr John Philip, has been awarded an honorary Doctorate in Engineeering by the University of Melbourne in recognition of his pioneering research on the physics of the hydrologic processes that occur in soil.

Dr Philip developed the physical theory of infiltration, the process whereby water enters and moves downward in the soil, and the means of analysing it mathematically. He has mude many other contributions to the understanding of the physics and mathematics of the natural environment. In 1981, the Australian Academy of Science awarded Dr Philip its Lyle Medal, and in 1982 he received the Horton Medal of the American Geophysical Union.

After completing his term as Director of the Institute of Physical Sciences last February, Dr Philip returned to the Division of Environmental Mechanics, where he is continuing his research on water in the natural environment.

□ □

Merv Ludlow of the Division of Tropical Crops and Pastures and John Passioura of the Division of Plant Industry are in China taking part in an exchange visit between the Australian Academy of Science and Academia Sinica. With **Dr T. Neeles** of the University of Melbourne and **Professor C. Osmond** of the Australian National University, they are visiting six research institutes where stress physiology work is being done, giving lectures and discussing local research with Chinese scientists.

Frank Smith and **Peter Kerridge** of the Division of Tropical Crops and Pastures, **Paul Haydock**, Division of Maths and Stats and **Merv Probert**, Division of Soils, presented papers at a recent five-day seminar on 'Sulfur in South East Asia and South Pacific Agriculture' in Ciawi, Indonesia.

□ □

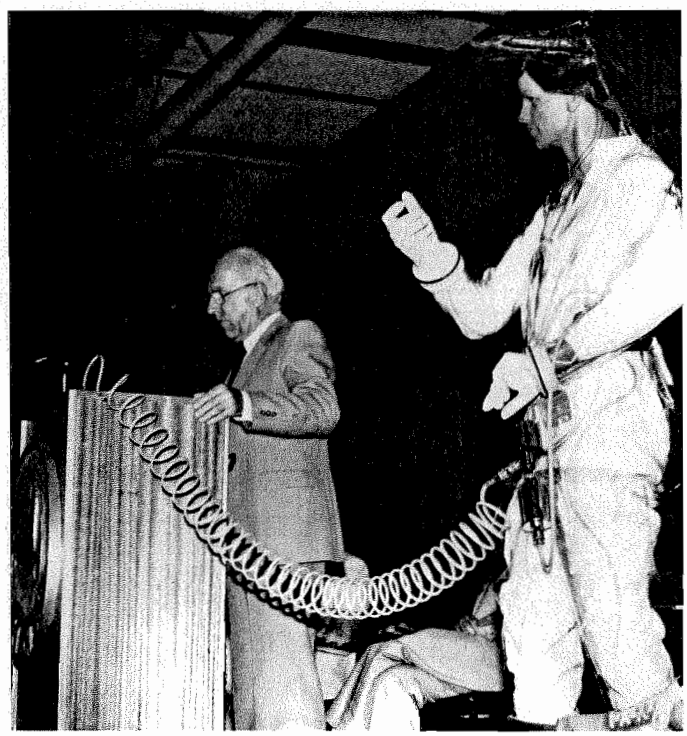
Cliff Thompson from the Division of Soils is visiting the UK and Europe for two months. While in Britain he is studying the British soil classification system and how it may be used in Australia. He is also visiting a number of centres in Europe, and is spending a week in Denmark studying the genesis and classification of podsols.

□ □

Andy Chapman of the Division of Tropical Crops and Pastures, **Alan Moore**, Division of Soils, and **Brian Gunning** of the Australian National University are in China for three weeks as part of a study group under an Australia/China scientific exchange program. They are looking at the use of Axolla, a nitrogen fixing plant, in rice culture.

□ □

Dr David Ho of the Division of Building Research is spending six weeks in New Zealand, Japan, Europe and the UK. While in the UK, he will attend a conference on Corrosion of Reinforcement in Concrete Construction, and will present an invited lecture to the Concrete Society of London.



'Fred' models the 'spacesuit' that will be worn by staff at the Australian National Animal Health Laboratory (ANAHL) who work with animals infected with diseases communicable to man.

Arthur Jenkins, a bio-engineer at ANAHL, took Fred to Geelong High School when he gave a talk to morning assembly. The talk is one of many laboratory staff have given to community groups, though it was the first given in a school.

CSIRO images go on show in Melbourne

CSIRO photographers from four States recently displayed photographs of their work as part of the giant Photographics '83 Exhibition held over four days at the Melbourne Exhibition Buildings.

The display of photographs by professional photographers and students was held in conjunction with the largest exhibition of professional and amateur photographic equipment ever held in the Southern Hemisphere.

The CSIRO display was coordinated by members of the CSIRO Victorian Photographers Group.

Financial support for mounting materials was received from the Headquarters Science Communication Unit.

All of the prints received have been sent to the SCU for use in future exhibitions of the work of CSIRO.

Photographers show themselves

Photographers love having their photo taken. Members of the CSIRO display organizing committee (left to right): Neil Hamilton, Leona Monarch, Peter Lee and David Whillas.

Helping hands for the tandem accelerator

Particle accelerators are becoming an important tool in mineral, energy and geological research. The Division of Mineral Physics is therefore installing a Heavy Ion Analytical Facility (HIAF) at its North Ryde Laboratory. It's scheduled for commissioning in September, and is a national facility based on a General Ionex 2.25 MV electrostatic tandem accelerator.

In establishing an accelerator laboratory in the Division, the scientists have depended upon the engineering expertise—in both the mechanical and electronics fields—of CSIRO support staff. Only the basic accelerator was purchased, and most of the associated research equipment is being designed and built on site at North Ryde.

SPECIAL REQUIREMENTS

One important feature of the accelerator facility is the ultra-high vacuum requirement of the 'beam lines', which transport the beam of energetic particles from the accelerator to the experimental areas, where the beam is actually utilized. This ultra-high vacuum technology was just one of the many challenges faced by the site support staff when they began this project at the beginning of 1982. They had hitherto no specific experience in manufacturing accelerator-associated components, but showed themselves more than equal to the challenge.

Engineering drawing office staff, Chris Byrne and Cyril Labone, translated concepts and specifications into intricate technical drawings which were executed in the workshop under smooth flow to the construction of the seemingly endless stream of requests for HIAF apparatus. The workshop staff made a valuable contribution to the design of the many components, and overcame various problems in their manufacture.

STAFF TALENT

Several workshop staff in particular contributed their talents. Phil Cahill mastered the difficult art of welding delicate parts of ultra high vacuum components. Complex movements were machined meticulously by Melvin Banks.

Keith Spiers not only carefully constructed the precision beam optical lens system, but contributed to its design. The lens system is one of the major pieces of the apparatus used to shape the beam from the accelerator to the micron (thousandths of a millimetre) size required for probing minute grains of minerals. In this respect the accelerator is similar to an electron microprobe, which has now become a standard tool in mineralogy, by identifying elements from the characteristic X-rays produced when the beam strikes the target. However, the particle beam microprobe increases the sensitivity by at least a thousand times. The ion beam microprobe project is supported in part by the Division of Mineralogy.

VALUABLE USES

In addition, the accelerator can be used to derive structural information about the target material by: (a) altering the nucleus of atoms of certain elements in the target into the nucleus of other elements; and (b) scattering off the nucleus of target atoms in a characteristic manner.

Each piece of apparatus for the vacuum system was thoroughly cleaned by using special techniques. It was then tested for 'leaks' by John Pearson, to ensure that a vacuum of around one thousand millionth of a Torr (1 bar = 760 Torr) could be obtained. The vacuum minimizes the contamination of samples.

One major ancillary piece of apparatus was constructed by Andrew Restuccia and Mike Beveridge, who were part of the workshop team involved in many phases of the HIAF project. They manufactured a gas handling system for sulphur hexafluoride, which is used in the accelerator to insulate the high voltage terminal.

HANDLING TECHNIQUES

About 600 kilograms of the gas, at pressures up to 8 bar, are required for the accelerator. As sulphur hexafluoride is expensive, the special handling system is needed to remove the gas from the accelerator and store it during servicing. A cryogenic system, which uses liquid nitrogen to freeze the gas, was designed for this purpose. It maintains gas purity, unlike the traditional gas handling method of using a mechanical compressor and pumps, and so ensures that the gas retains its insulating property.

NML ASSISTANCE

A number of pieces of apparatus were built at the National Measurement Laboratory of the Division of Applied Physics in Lindfield. An electrostatic analyser, involving precise machining of spherical surfaces, was manufactured by using the numerically controlled mill. The analyser is used to filter beams of a certain energy and charge state from the accelerator.

Combined with the large analysing magnet, the electrostatic analyser forms part of the accelerator's ultra sensitive mass spectrometer system. This sytem provides a revolutionary method of determining the ratios of various isotopes of elements, which is a few orders of magnitude more sensitive than conventional mass spectroscopy. (An isotope is one of two or more forms of a chemical element that differ in atomic weight but have the same chemical properties.)

The accelerator mass spectroscopy makes it possible, for instance, to date sediments and mineral nodules by detecting rare radioactive isotopes such as beryllium 10, which occur only in very small quantities. Detection of chlorine 36 is also important as a tracer of the movement of the underground water.

A selection of special electronics devices is being designed and built by the electronic engineering group of the Division of Mineral Physics. Components such as computer-controlled fast scalers and an assortment of devices essential for automating the accelerator operation, as well as experimental control and data collection, are being produced under Bruce Ridley's direction.

The HIAF project has stimulated the site support staff, firing their imagination and sense of participation. The project will also be a vehicle for extensive collaboration with other CSIRO Divisions and other Institutes, such as the Australian Atomic Energy Commission and Universities.

Steven scores again

The annual BHP Science Prize received a boost in the United States of America in May when 16-year-old Adelaide schoolboy Steven Delean won the special zoology award at the 34th International Science and Engineering Fair in Albuquerque, New Mexico.

Steven, runner up in this year's BHP Science Prize for his study of gekkos and the discovery of a new species, won the General Motors Award (US$250) and a cash prize of US$250 for his Adelaide school, Aubrey Park Outdoor School, of US$250.

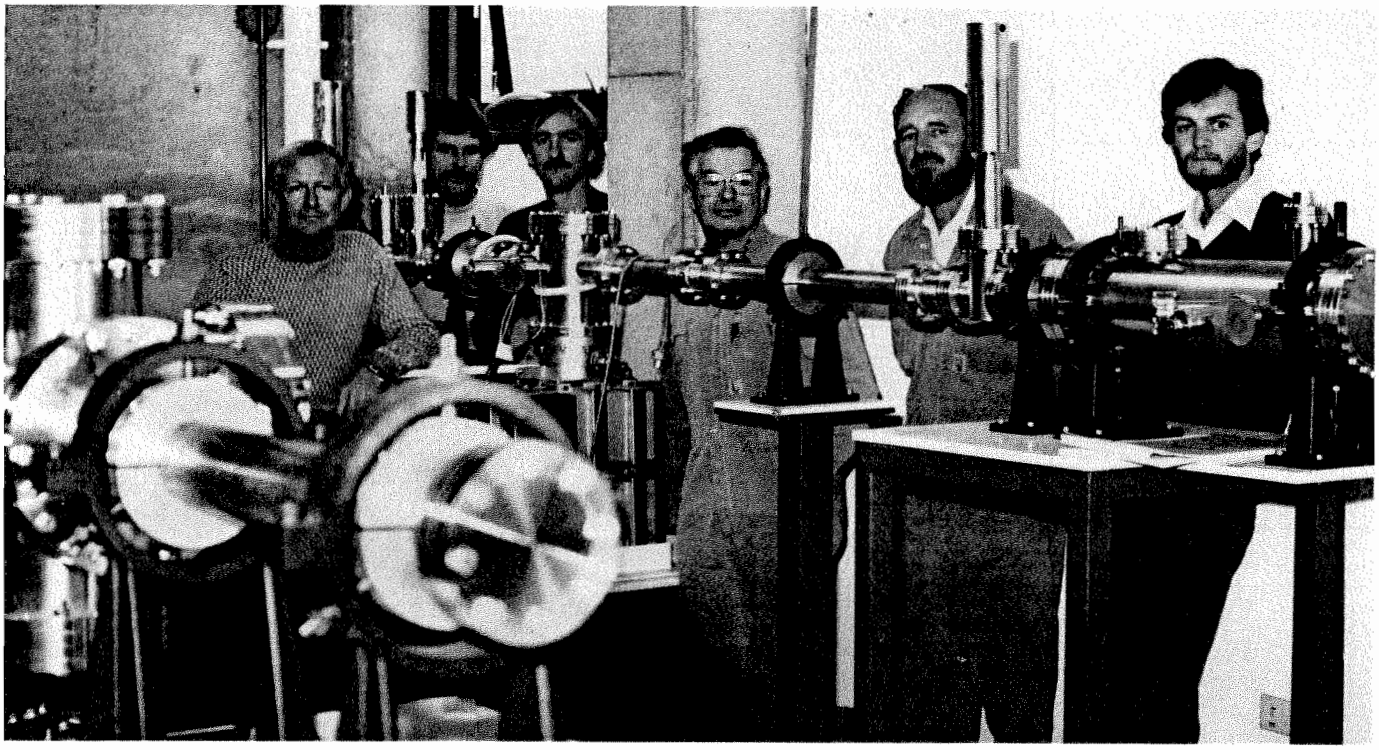
He also won a further US$100 for his photographic work.

Steven won the award in competition from American, British, Irish, Taiwanese and Porta Rican students.

Steven was in Alburquerque as part of his BHP Science Prize as runner-up. The science prize winner, Lorraine Dommett, 16, of Brisbane, was being judged in the physics section of the Fair.

Steven is the son of Mr and Mrs G. Delean of Seaview Downs, Adelaide.

Lots of support from the backroom boys...



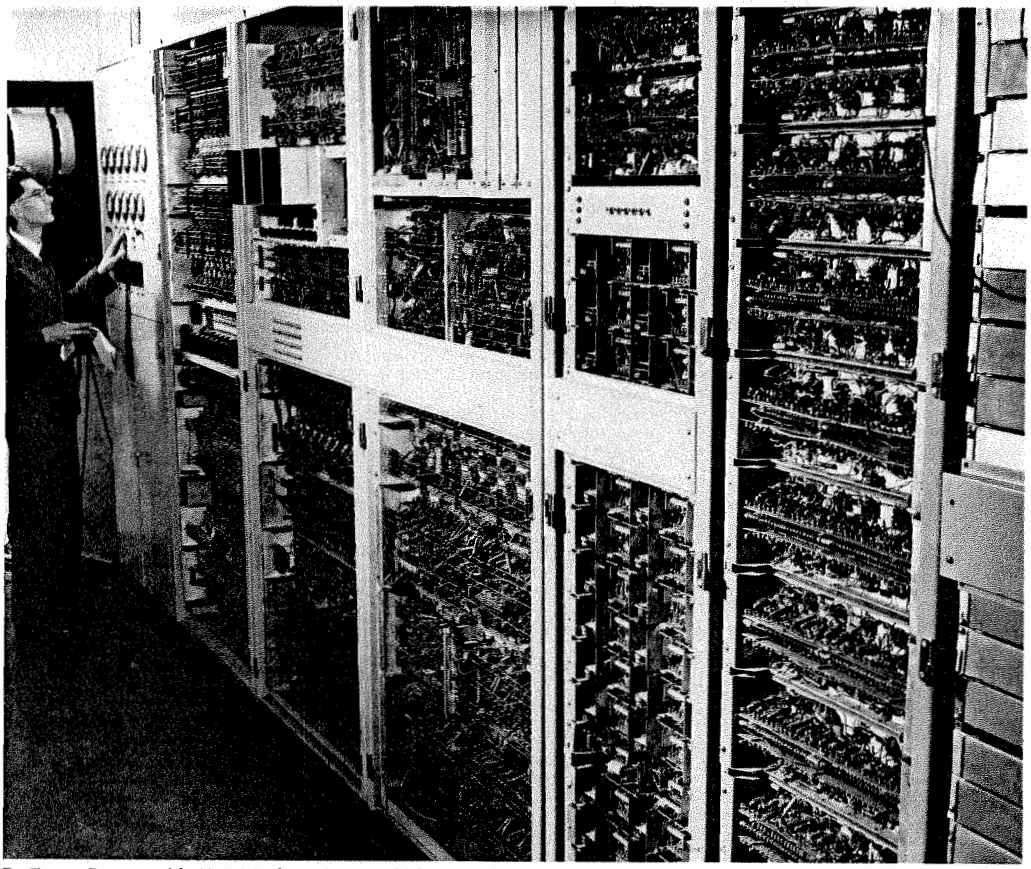
Some of the people involved in the construction of the Division of Mineral Physics accelerator facility. The two beam lines shown have been assembled in this temporary staging area for testing. From left to right, Phil Cahill, Mike Beveridge, Chris Byrne, Keith Spiers, Charlie Dawson and John Pearson.

A nostalgic visitor at the ASIA meeting

ASIA, the Australian Scientific Industry Association, is supported by CSIRO but is a non-profit-making company whose members come from the scientific or 'high technology' industries, the universities, CSIRO staff and in fact, any persons or organizations that are involved in the development, production or marketing of 'high technology' goods.

The NSW Branch of the Association runs the occasional conversazione which aims to bring together the members of the Association and other invitees for the purpose of informal discussion on some new scientific topic.

In April, the conversazione was technology tinged with nostalgia, particularly for the members of CSIRO who were present. The nominated topic, 'Trends in Computer Architecture—Large and Small', presented by Professor John Bennett, did not in itself suggest any nostalgic leanings but rather smacked of hard core logic, esoteric computer languages, flashing lights and artificial intelligence operating at *n* gigaflops per second.



Dr Trevor Pearcey with CSIRAC, the computer which at the time was the second in the world. Dr Pearcey is now at the Chisholm College of Advanced Education and this computer is an exhibit at a science museum in Melbourne. CoResearch is indebted to Henry Armstrong from the Division of Radiophysics who unearthed this photograph which was taken in the early fifties.

NOSTALGIA

The nostalgia crept in due to the presence of Dr Trevor Pearcey, now at the Chisholm College of Advanced Education, who, with Mr Maston Beard, designed the first computer in Australia in 1948—the second in the world. The computer, which occupied two large rooms at the National Standards Laboratory, was nicknamed CSIRAC Mk 1 and at the time Dr Pearcey envisaged it as the first in a long line of increasingly complex industrial computers. Unfortunately, in 1955, due to a lack of funds in CSIRO and a lack of any apparent interest in industry, the research was dropped, the computer dismantled and Dr Pearcey went to England. There never was a CSIRAC Mk 2. CSIRAC Mk 1 was later reassembled at the University of Melbourne and used until 1964, when it was sent off as a sad relic of what might have been to a science museum in Melbourne where it resides to the present day.

The moral of this story is of course obvious. CSIRAC Mk 1 was just one in a long line of missed opportunities . . . missed for a variety of different reasons, all quite valid at the time. Now, in 1983, instead of leading the world in computer manufacture, as we might have been able to, we are in a position where we are importing over $400 000 000 worth of computing equipment per year, with this figure steadily rising.

Australia has only a handful of companies in the computer manufacturing business, Digital Electronics being the largest. It is the type of 'high technology' company which ASIA is seeking to encourage and support. One of the ways in which this support may be given is by the provision of conversaziones or think-tanks, where people from manufacturing industry, government laboratories and universities may meet informally as it were, to strike ideas off each other's brains for mutual benefit. In Japan, these think-tanks have been conducted for many years, leading to what has become known as the highly successful 'Japan Inc.'.

BARRIERS

In Australia, as in many other countries with similar cultural backgrounds, there has been a triangle formed by government research, university research and manufacturing industry, with the three elements eternally separated as if by some strange hidden force. If we can break down these barriers with think-tanks, conversaziones and the like, we may be on the way to making an Australia Inc., utilizing the research which we have shown we are capable of generating to our own national advantage, rather than letting it slip out of the country and then being in the ignominious position where we have to but it back. If we do not cooperate in this way we could end up, as Rod Carnegie said recently, 'the poor white trash of the Pacific'.

Professor Bennett was a contemporary of Pearcey's and is now Head of the Basser Department of Computer Science at the University of Sydney. So he's seen it all. After dealing with the history of computer architecture, Professor Bennett pointed to the future, dealing with the trends to increasing smallness, increasing speed, increasing integration, Josephson junctions, optical discs and something which he called the optical analogue of the transistor, the transphasor, which can switch from one state to another in a picosecond. However, his most important message was a human one—the need for human communication, human cooperation and the utilization of the offspring of our essentially human minds, both for the good of our high technology industries and the good of Australia.

For those who would like to read the full text of Professor Bennett's paper, please apply to: Professor John M. Bennett, Basser School of Computing Science, University of Sydney, NSW 2006, tel. (02) 692 3424.

In addition, readers who would like to join or learn more about the Australian Scientific Industry Association can apply to: Dr Clive Coogan, c/- RAO, Melbourne, tel. (03) 268 7111; Ms Yvonne Esplin, c/- Division of Applied Physics, Sydney, tel. (02) 467 1441; or Dr Bob McCredie, c/- CSIRO Headquarters, Canberra, tel. (062) 484211.

When you go on tour to China...

A number of Australian scientists visit China to give courses on a variety of subjects, many to do with agriculture.

Glynn Bowen, from the Division of Soils, returned recently after giving a training course in the stimulation of plant growth by vesicular-arbuscular mycorrhizal fungi, and made some observations on the running of the course which others may find useful.

He writes: 'On arrival, it is worth while to check the facilities to ensure all chemicals, microscopes and minor equipment are available and thus avoid an SOS to Australia. It is a good idea to take some good material with which to 'blood' the participants before they start working on samples from their own crops—there is nothing more frustrating than having poor material and trying to explain what they 'would' have seen if they had been lucky enough to have a soil laden with the fungi in question.'

A pre-course tour of the local laboratories is helpful as it aquaints the scientists with many of the practices and problems of Chinese agriculture, and gives them an opportunity to get to know the participants.

Lecturing is hard work, and Glynn found, along with his colleagues from the University of Western Australia, Dr Alan Robson and Dr Lynette Abbott, that living away from the campus is almost a necessity. With an eight-hour teaching day, it was necessary to 'cut-off' at lunch and at the end of the day: there was still plenty of time for discussion and socializing. Additionally, they found that some of the participants in the practicals had been detailed to return at night and instruct others who had not been able to be admitted to the practicals due to class size restraints, and had they been on campus would have felt obliged to go back at night also.

The practicals of the two-week course were split: the first week being used to teach the essential methods in mycorrhiza research and the second to concentrate on personal counselling on the research programs of individuals or groups, and on discussion groups. Previous experience in Malaysia has shown Glynn that this is a most effective way of teaching.

Finally, don't let the cynics say that training courses don't work because of language difficulties. They do, as was shown in feedback from the 'think-tank' sessions on experiments.

Two senior CSIRO scientists were honoured in the recent Queen's birthday awards.

The Chief of the Division of Tropical Crops and Pastures, Dr Ted Henzell, was awarded the Order of Australia in recognition of his services to agricultural research, while Dr Allan Antcliff, a senior principal research scientist at the Division of Horticultural Research at Mildura, was made a Member of the Order of Australia (AM) for his public service in the field of horticultural science.

Dr Henzell's research activities have led to his recognition as a world authority on the efficient use of nitrogen in tropical agricultural systems. Currently one of his main interests is the study of factors influencing decision-making on agricultural research policy.

262-1983

CAT

The CAT Column is open to all members of CSIRO who wish to comment on communication matters.

Headquarters is currently represented on CAT by Bob Marshall, the liaison officer between CSIRO and the Office of the Minister for Science and Technology. Bob has written this month's column.

Scientists and politicians would probably agree that our future life style will largely depend on scientific discovery and the decisions the community makes about the applications of science and technology. Yet scientists and politicians, two groups closely involved in determining our future, are often far apart when it comes to understanding each other's roles, motivations and attitudes.

The new Government has a number of policies aimed at bridging this gap. They include a public information campaign to demystify science so that the Australian people and their political representatives can be directly involved in choosing between options and determining priorities, the establishment of a joint Parliamentary Committee on Science and Technology to enable the Parliament to take an active part in national science policy determination and ensuring that government science bodies respond to the needs of significant community movements for greater scientific knowledge and data availability.

CSIRO and the Department of Science and Technology have been discussing possible contributions which could assist in the implementation of these and other policies of the new Government. Proposals being considered include support for a National Science Centre in Canberra (already proposed as a bicentennial project), further development of specialist science education centres, encouragement of scientists to be available to the media for comment on their specialist topics (including training in media techniques, so well described by Ken McCracken in last month's column), shop-front science information centres and community service campaigns aimed at raising public confidence in Australia's ability to be successful in high technology industries and at encouraging top-level secondary students to take up science.

We have also been exploring ways of encouraging members of Parliament to be more closely involved with CSIRO. Several years ago, the parliamentary representatives on the CSIRO Advisory Council surveyed Federal MPs and Senators to determine their interest in attending lunch-time seminars in Canberra on topics of current interest in science. The response to the survey was excellent and several seminars were held. However, the number of parliamentarians who actually attended was rather disappointing. The problem was, of course, that political crises and meetings at Parliament House organized at short notice prevented many of them from getting away.

To overcome these problems, we are now proposing visits by small groups of local parliamentarians to CSIRO establishments during parliamentary recesses. There may also be merit in fostering the scientist-parliamentarian pairing scheme which was initiated by the Officers Association. However, the pairing scheme will only be successful if it fulfills its original ideals of providing parliamentarians with an additional resource of scientific information and does not generate into a grievance or lobbying exercise.

Greater involvement by parliamentarians in science is going to mean more work for scientists, science communicators and administrators. We can expect more submissions to and appearances before parliamentary inquiries, more requests for briefing material, often at very short notice, and more parliamentary questions. But we should see these not as annoying interruptions in our real work, but as valuable opportunities to inform our ultimate decision makers about issues in science and technology.

Seminar told: Policy on mfg industry research now being defined

There was a very real and widespread effort in CSIRO to define its policy and priorities for research oriented towards manufacturing, Dr Geoff Taylor, Member of the Executive, told a recent CSIRO Executive seminar.

About 110 business executives, industry representatives, academics, Chiefs, Directors and Executive Members attended the seminar on CSIRO and Australian Manufacturing Industry.

'It is our desire and intention to have in place as soon as possible an agreed statement of CSIRO's policy and research priorities for manufacturing industries', Dr Taylor said.

'We have tried to formulate criteria for selecting the broad research areas in which CSIRO should work, and for selecting projects within these areas. We have quite unambiguously put emphasis on the importance of industry being likely to utilize the results of CSIRO research', he said.

A concern about the gap that has existed at times between CSIRO research and industry adoption of results had led to a great deal of emphasis to enhanced CSIRO-industry working relationships which began with research planning and goal setting and continued through into development and production.

'CSIRO needs to strengthen links with industry wherever feasible and I hope we shall see more collaboration, secondments in both directions, and CSIRO-industry task forces set up where appropriate. Such collaborative arrangements already exist—we would like to see more', he said.

Dr Taylor summarized specific criteria which CSIRO could use in allocating manufacturing research resources as:

- new technology resulting from research should have potential application in more than one industry or at least very broad application within one industry;
- research should be appropriate to CSIRO and CSIRO should have the necessary scientific and technological expertise available.
- the likelihood of significant advances should be sufficiently high;
- sufficiently comprehensive data on which to base experiments should be available; and
- the outcome should encourage a 'quantum leap' in Australian manufacturing industry.

Dr Taylor said the current or prospective industry's ability to contribute to national income and productivity and the likely significance of new technology in the area concerned to the industry's productivity and efficiency were other criteria to be considered.

Dr Taylor sought industry reaction to the criteria and the discussion that followed centred on the need to look at world markets for local products and the heavy investments in skills and money needed to turn an idea into profit. The real shortfall lay in the resources available for the link from research laboratory through to the market, the seminar was told.

OFFICIAL OPENING

The seminar was opened by the Minister for Science and Technology, Mr Barry Jones, who endorsed the emphasis CSIRO was giving to directly involving industry in its policy, development and planning activities.

CSIRO man President of Energy Institute

Mr Colin Paulson, a researcher in the Division of Fossil Fuels in Sydney, has recently been elected President of the Australian Institute of Energy.

Colin has been a vice-president and was for five years, secretary of the Institute so he's well qualified for the job.

Lemberg Medal for CSIRO woman

Dr Jan Anderson, of the Division of Plant Industry in Canberra, has been awarded the Lemberg Medal for 1983 by the Australian Biochemical Society.

Dr Anderson's Award was in recognition of the outstanding contribution to the understanding of photosynthetic apparatus in chloroplasts. At the Society's recent conference, she gave the opening plenary Lemberg lecture entitled 'The Grand Design of Photosynthetic Membranes'.

Attention all funrunners

The now nationally famous CSIRO fun run is on again this year, beginning at 12.30pm on Friday, July 15th.

The Black Mountain area will again be alive with the patter of running feet, the sounds of tearing ligaments and the intoxicating smell of Dencorub as the men and women of CSIRO leave their benches to compete for the highly coveted Black Mountain Cup.

Runners, joggers, walkers and others interested in the scenery who wish to wrench their wracked bodies over the 5.6 km course on the gentle slopes of Black Mountain should get their entries in soon to Greg Heath (46 5692) or Colin Hazelton (46 5891) at the Division of Environmental Mechanics, PO Box 821, Canberra City, 2601.

Last year the Cup was won by the Division of Land and Water Resources. However, a strong challenge is expected this year by runners from Entomology and Plant Industry and hopefully, some Sydney and Melbourne Divisions.

Safety inquiry:

Continued from page one

program of surveillance, education, training and research on health and safety matters.

SAFETY CODE

The Committee concluded that the Government's 'Code of General Principles for Occupational Safety and Health in Australian Government Employment' was binding on CSIRO and other Government instrumentalities.

TRANSFER URGENT

The major recommendation of the Committee concerning the Fishermen's Bend laboratories was to accelerate the planned transfer of the Advanced Materials Laboratory to the partially complete complex at Clayton, Melbourne, as a matter or urgency and high priority.

The transfer of the laboratories was part of the 1981/82 Civil Works Program, but was excluded following the Review of Commonwealth Functions. The transfer of the Division of Materials Science was included in the 1982/83 Civil Works Program, but the transfer of the Division of Applied Organic Chemistry was deferred until 1983/84.

Until the transfers can be made, urgent modification of the building in which Dr Bergamasco worked have been recommended. These include checking fume cupboards and upgrading their exhausts, the installation of a new cooling tower for the house vacuum system, improvements to the make up air capacities and improvements to the ventilation system and the installation of a fume cupboard in the organic store area.

REGULAR REVIEWS

Regular reviews of chemical handling procedures and general housekeeping are suggested with the aim of removing from the area all chemicals, solvents, gas cylinders and equipment not in frequent use.

The Committee made 16 recommendations, based on 14 written submissions, verbal evidence from 21 people, a visit to the laboratories and consideration of 89 documents.

The Minister commended the report to the House of Representatives and said a considered response from the Government would be tabled in the Budget Session, after full consultation with CSIRO. He also thanked the members of the Committee, which comprised: Emeritus Professor R.R. Andrew AO, Director of Medical Education at St Francis Xavier Cabrini Hospital (Chairman); Professor L.J. Opit, Department of Social and Preventive Medicine, Monash University; and Professor W.R. Jackson, Department of Chemistry (Organic), Monash University. The Secretary to the Committee was Mr J.A. Froude of the Department of Science and Technology.

'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.

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CoResearch

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Minister's view :

Extra funding for 'sunrise' research

The Minister for Science and Technology, Mr Jones, said he would like to see CSIRO given more money to expand its research in areas such as 'sunrise' and manufacturing industries.

Mr Jones said he did not believe CSIRO should have to reduce its research in any area, such as agricultural research, in order to expand its research elsewhere.

The Minister was speaking at a conference last month at the Australian National University on 'Science Research in Australia: Who benefits?' The wide-ranging discussion of research policies, priorities and objectives included some strong criticism of CSIRO and other scientific bodies.

Mr Jones' comments were made in a reply to a question from CSIRO's Executive Secretary, Mr Gratton Wilson, who asked the Minister for his views on the distribution of R&D resources between the various sectors of the economy.

Mr Jones said he was worried that CSIRO's pre-eminence in areas relating to the primary sector had perhaps inhibited its development in some other significant areas.

SUNRISE INDUSTRIES

He had recently said that he hoped CSIRO would 'come out of the closet' and be far more deeply involved in areas such as the 'sunrise industries' his Government had been promoting, he said.

'I see heartening evidence that the Organization is itself re-orienting its priorities to some extent.

'But, look, I have to say this: I'm not keen on CSIRO contracting in any area . . . what I would like to think is that we would hold the line in what we were doing in primary industry which is, as you quite rightly say, of vital importance.

'But you'd have an opportunity to expand in other areas and if you can't do it properly this year we'd hope that you would be able to do it in the immediate future.

'So that if you changed your proportionality, it wouldn't mean that your absolute commitment (to any area) was necessarily reduced', Mr Jones said.

RESOURCES REDISTRIBUTION

The Chairman, Dr Paul Wild, considered the problem of redistributing CSIRO's resources between the main economic sectors in his paper to the conference.

He said this problem, now being examined by the Organization's planning unit, would come to a head in a year or so.

'It is a terribly difficult one', he said.

'Some people say that such and such a sector is going to employ more than half the work force in 10 years' time, look!—you are only devoting one-tenth of your resources in that direction.

'That is worrying, but there are other questions to be asked—what are the opportunities and impact of scientific research going to be in that sector?

'But suppose the CSIRO Executive is bold enough to say for instance: We should be spending 20% less on the rural sector and putting the resources into the information and service industries—well, all I know is that all hell would break loose.

'I present this as an illustration of a dilemma—the dilemma of being able to satisfy competing beneficiaries with limited resources. But change we must, for upon change depends vitality and life itself', Dr Wild said.

CSIRO's research priorities also drew comment from other speakers at the conference.

TRADITIONAL ROLE

The Secretary of the Department of Science and Technology, Dr Greg Tegart, said the emphasis on agricultural research, mainly carried out by CSIRO, in Commonwealth R&D expenditure reflected the traditional role of agriculture in the Australian economy.

'If we are to survive as an exporting nation in manufacturing and thus maintain our standard of living, I believe that there is a very strong case for concentration of more of our national R&D resources into that area (manufacturing).

'While CSIRO has recently identified manufacturing as a high priority area and is slowly shifting resources to support it,

Continued on page four

Paterson's Curse :

CSIRO settles the High Court Case

CSIRO has agreed to a perpetual injunction which restrains it from continuing its program to control Paterson's Curse/Salvation Jane, using insects.

Legal proceedings between CSIRO and the four plaintiffs in the Paterson's Curse/Salvation Jane case were completed recently in the South Australian Supreme Court.

The parties also agreed not to proceed with the public inquiry into the desirability or otherwise of controlling the plant, as was previously announced.

CSIRO will pay the legal costs for the four plaintiffs in the case, estimated to be $93 000.

The injunction applies to insects of the kind previously imported by CSIRO for the biological control program and to other insects which might be used for the same purpose.

It also provides that the parties are at liberty to apply subsequently to the court for a variation or a complete lifting of the injunction.

This provision allows CSIRO to have the matter reconsidered should legislation be passed positively authorizing biological programs against Paterson's Curse. In that event, CSIRO may wish to proceed with some elements of such a program.

LITIGATION ENDED

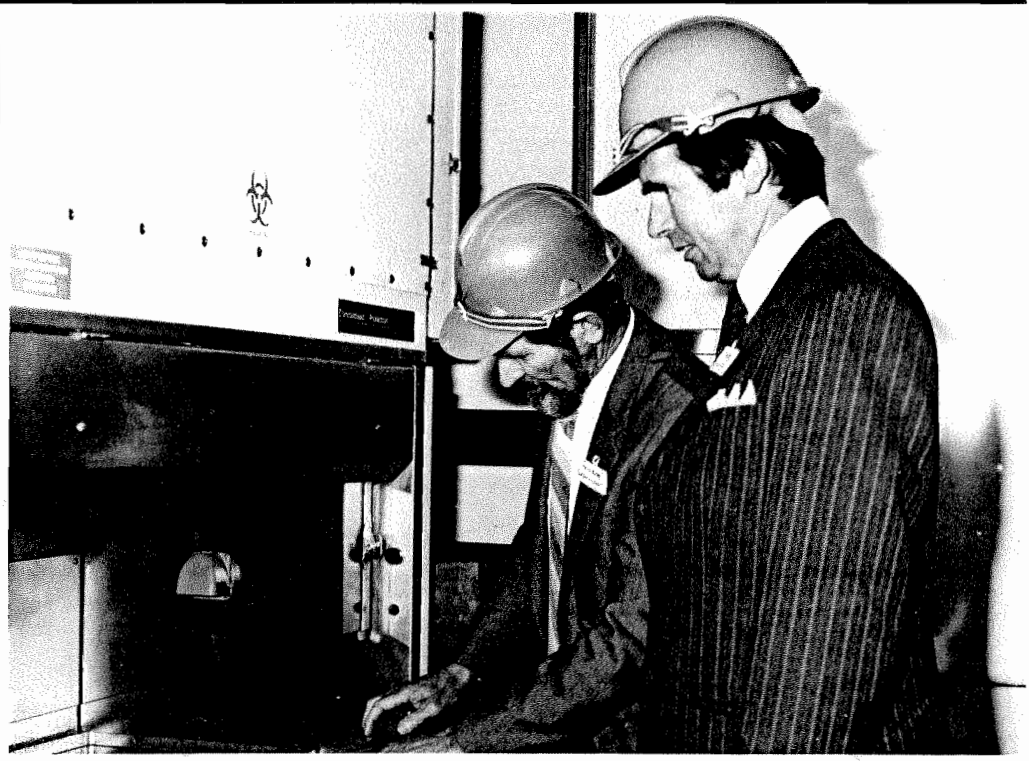
The settlement of the case brings to an end litigation which began in July 1980 when two beekeepers and two graziers obtained a High Court injunction to stop the release of insects which were aimed at reducing the incidence of Paterson's Curse in Australia.

The insects included a leaf mining moth, a stem boring beetle and two types of leaf-eating flea beetles.

Paterson's Curse was introduced into Australia from Europe, probably in the 1850s. It spread throughout southern New South Wales to much of south-eastern Australia. It has grown particularly well because it arrived in Australia without its natural predators from Europe.

Farming and grazing interests in fertile and higher rainfall areas want the plant controlled because they believe that it smothers more desirable species, poisons stock and contaminates crops. In drier areas, however, some grazing interests believe that the plant provides valuable fodder, particularly during droughts.

Beekeepers do not want the plant controlled because they use it to build up their hives in spring and to produce a popular honey.



Well-known television personality and conservationist Mr Harry Butler (left) and Dr Bob Campbell of ANAHL, investigate the operation of a Class II Biosafety Cabinet at ANAHL. Harry was a speaker at a recent seminar on Australia's defence against exotic diseases of livestock and domestic animals, organized by ANAHL and the Victorian Department of Agriculture. The seminar was held to inform the public and those concerned with animal breeding of the dangers of exotic diseases and the need for quarantine regulations. The role of ANAHL in dealing with exotic disease outbreaks and the steps which the Victorian Department of Agriculture has taken to ensure that the State is properly prepared to deal with an outbreak were also discussed.

Letters to the Editor

Dear Editor,

Perhaps following a change of government is the time to review some of CSIRO's more authoritarian and outdated procedures.

Firstly, the general opening of mail entering and leaving Divisions, including Bankcard statements and anything else not marked 'Personal', is not only offensive but inefficient. The legality and morality of opening mail addressed to others must be questioned. It has happened that incoming mail has been redirected, say to Editorial, and has been received by the addressee too late to take action.

More importantly, the question of Divisional approval of publications, as recommended for investigation by the Birch Report (p.79), remains open. Currently it is not even possible to use disclaimers stating the work represents the opinion of the author and not that of CSIRO. Such disclaimers have become standard practice for officers of government departments engaged in research, where the work is either controversial, incomplete, represents a particular point of view, or has not had time to pass bureaucratic checking requirements.

CSIRO's insistence that all presented work must represent the views of the Organization is stifling to the free exchange of information and the generation of debate. There are occasions when the Organization clearly benefits from having an officer attend a particular conference, but he is unable to speak if his statement represents a personal opinion. This simple freedom is accorded to employees of educational establishments, and to a lesser degree private and government bodies, as a matter of course, and does not seem to have harmed any of these organizations, but rather has allowed them to mix freely in the academic community.

Anachronistic practices such as the above reflect the 1949 controversy over military secrecy which resulted in public service control over staffing procedures. The paternalism and lack of trust which they embody are inappropriate to present-day conditions.

Joe Flood,
Division of Building Research

Dear Editor,

In the April/May issue of *CoResearch*, Dr Wild wrote at some length about reviews of Divisions—the aims of these reviews; the response of people to them; and the problems of timely and effective communications before and after reviews, especially before consequent Executive decisions.

Our Division (Fossil Fuels) has recently been the subject of review, and as a result some changes are imminent. Whilst we recognize that change is an inevitable and necessary part of our development, there are some aspects of the review which give cause for concern. We have communicated this concern to our Chief, Director, and to the Executive. We have subsequently been visited by a member of the Executive, to discuss matters with the Division at large, and in more detail with people especially affected by the changes.

INDIVIDUALS CRITICIZED

However there is still one matter that in particular has not been resolved, namely criticism that was made of identifiable individuals in the report of the Review Committee. Like Dr Wild, we do not seek a whitewash operation. Nonetheless we believe, like other professional scientists, that criticism should be levelled in a proper manner. In the case of our Division, the review report, widely circulated in the Australian scientific and industrial communities, criticized the scientific quality of research of projects led by identifiable scientists, without the production of substantiating evidence, and without the chance of the scientists concerned to reply effectively to the criticism. Further, the criticism was aimed at the nature and achievements of work that has long been a part of our Division's program and that has, to our certain knowledge, produced results of lasting scientific and industrial importance.

GUIDELINES NEEDED

It is our hope that future review committees will receive suitable guidelines for their task, that the comments on review reports by research staff are given due consideration before Executive decisions, so ensuring, in Dr Wild's words, that the interests of every individual person will be looked after.

K.McG. Bowling, E.C. Potter,
M. Shibaoka, I.W. Smith,
J.W. Smith, D.J. Swaine,
D.J. Williams
Division of Fossil Fuels, Sydney

NSW State committee goes west to visit

The NSW State Committee at the Namoi Cotton Co-operative, as part of their visit to the Narrabri and Wee Waa Districts.

The NSW CSIRO State Committee recently visited the Narrabri and Wee Waa Districts.

The Committee held their formal meeting and visited the CSIRO Cotton Research Unit, CSIRO Division of Radiophysics Culgoora Research Station, Namoi Cotton Co-operative Headquarters and container packing and loading facility, the Co-operative cotton gin at Merah North and the Auscott Pty. Ltd cotton property at Myall Vale.

The Committee met with several local community and industry leaders over dinner and, on the following day, more than 50 people from the district attended a barbeque luncheon hosted by the Namoi Cotton Co-operative at Wee Waa Golf Club. The Chairman, Mr Keith Satchwell, addressed the gathering and spoke of the role and activities of the State Committee and highlighted the excellent relationships that existed in the area between CSIRO and the community generally. He said the great success of the SIRATAC Cotton Farm Management Service illustrated what could be achieved by cooperation between the cotton growers, the cotton industry and the research staff of CSIRO and the Department of Agriculture. Dr Dick Manchester of the Division of Radiophysics spoke about the Australia Telescope project and the part the Culgoora Research Station would play in the overall plan for the telescope.

Fire fighting from the sky

CSIRO will lease a Douglas DC6B Airtanker from Conair Aviation Ltd, of British Columbia (Canada) for fire-fighting trials in Victoria this summer.

The trials, to be carried out with the cooperation of the Victorian Forests Commission, will be a major part of Project Aquarius, CSIRO's three-year research program aimed at evaluating both the technical and cost effectiveness of large airborne tankers as an aid to conventional bushfire control techniques.

CSIRO will lease the 11 000 litre tanker for 90 days at a cost of $293 000, with an option to extend the lease to 120 days at additional cost. Conair's tender was the lowest to meet specifications which, among other requirements, called for an aerial tanker of at least 5300-litre capacity.

Conair has been instrumental in the design and development of systems, techniques and operational procedures for many aerial application programs, with particular emphasis on forest fire control and resource management.

Conair will provide flight crews experienced in low-level application work for the Victorian trials, which will involve experimental burning of plots of tall eucalypt forest in eastern Victoria, beginning next January.

The Victorian Forests Commission is already preparing the experimental area to ensure the experiment is conducted with maximum safety.

Soil Science Medal to George Hubble

Mr George Hubble, formerly of the Division of Soils, has been awarded the 1983 J.A. Prescott Medal for Soil Science by the Australian Society of Soil Science.

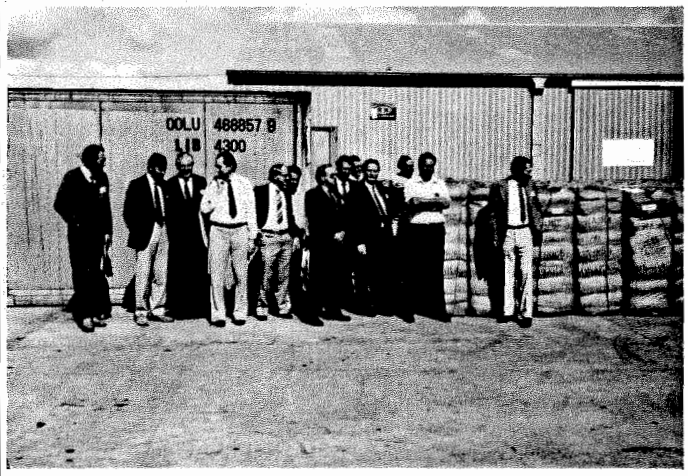
George was given the medal for his contributions to the systematic pedology of Australian soils and its communication, to the training and motivation of many soil scientists, and to the development of the Australian Society of Soil Sciences.

George joined CSIRO in 1936 and was associated with the developmental stage of soil survey in Australia, initially working in the irrigation areas of the Murray Valley. As Regional Soils Officer in Tasmania after World War II, he made a significant contribution to the characterization of Tasmanian soils.

In 1948 he transferred to Queensland and was concerned with soil mapping and irrigation assessment of the Lower Burdekin Valley. He examined and described soils over a large part of the State, and in 1958 compiled the first large-scale soil map of Queensland.

Since retiring from CSIRO in 1978, George has maintained his professional interests and is still active in soil science circles.

Executive visits Horticulture in Adelaide



The Chairman, Dr J. Paul Wild, and some of the members of the Executive party discuss research under way at the Division of Horticultural Research with Dr Nigel Scott, third from left, and Dr John Possingham, Chief of the Division, far right.

During their recent week-long visit to the South Australian region, full and part-time Executive members, together with the Secretariat, spent time at the Division of Horticultural

During a short seminar they discussed the Division's research on how plants are able to tolerate high salt levels, and the techniques being developed for screening or breeding salt-tolerant fruit species. This is a topic of great concern to irrigated horticulture. There were also laboratory demonstrations of research on the pollination biology of macadamia and custard apple, plant response to environmental stress, and the relationship between nuclear and chloroplast DNA in plant cells.

At an informal get-together, both visitors and staff applied themselves with vigour to the task of getting to know one another.

From the Chairman-

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

I want to talk about a rather difficult and almost completely misunderstood subject of vital concern to certain parts of CSIRO—the earning of revenue, and what happens to it.

The Organization has all manner of ways of earning revenue—by the sale of books, journals, agricultural products and goods and services of various kinds. But what happens to money so earned? The popular misconception is that it goes 'back to consolidated revenue' and therefore there is no incentive to increase revenue. This is not so—but the answer is grey, not black or white. Here are the factors to be considered:

(1) Following changes to our Act in 1968, revenue earned by CSIRO flows into the Organization's own bank account. (15-love)

(2) When the Organization's estimates of expenditure for the following financial year are considered by the Department of Finance and eventually approved by the Minister, the amount estimated to be earned from revenue is subtracted to arrive at the net sum sought from Government. (15-all)

(3) On the other hand if a Division can anticipate that in the following year it will increase its revenue-earning activity it can apply to have the cost of this activity added to its estimates. (30-15)

(4) If the Executive is persuaded that the revenue activity is generally consistent with our proper role then, within the bounds of limited liability, it will back the request. (40-15)

(5) Will the Executive successfully obtain such funds as an addition to its appropriation? Getting a clear answer to this question is about as easy as it was, in mythical times, to get an answer from the Oracle. Indeed the First Assistant Secretary of the Department of Oracle and the Muses will tell you 'your revenue and revenue-earning activity will be taken into account when arriving at the sum to be sought from the Government by appropriation'. (let)

I think we are making progress but I don't think we can claim to have won the game.

My serious message to Divisions relates to (3): If you expect increased legitimate revenue-generating activity during the next financial year, provide the information through your Institute.

I should make it clear that when I speak of revenue I am not talking about funds obtained on a contractual basis or through collaborative arrangements entered into with private companies. Such funds are directly available to the Division in question.

●

The biggest single overseas project that CSIRO has ever been involved in is the joint Indonesia-Australia Project for Animal Research and Development at Ciawi near Bogor, Indonesia. It was a wonderfully ambitious concept to set up a centre of excellence with the aim of enhancing animal production. Through the dedicated efforts of successive Officers-in-Charge (Jim Lambourne, 'Smithy' Gurnett-Smith, Harry Wharton, Barrie Purser and now John Wheeler) and their staffs, as well as Ken Ferguson, it has come to fruition and now has reached the phase in which Indonesian scientists are progressively taking over the complete operation. I have twice visited the project and know both the problems and the success achieved. It was fitting that last month they were visited by the Prime Minister who had this to say at a press conference:

'It has been a matter of particular pleasure to me this morning to have been able, with our visiting party, to inspect the project at Ciawi which to my mind supremely meets all the requirements of an ideal aid program. There you have Indonesian and Australian experts working together, doing research on animal husbandry. We can see there concrete evidence of how cooperation can lead directly to the improvement of conditions of the people of Indonesia.'

●

The report of a recent committee of inquiry concluded that as an organization we should be doing more to ensure safety standards. For instance it recommended that there should be a 'continuing program of surveillance, education, training and research on health and safety matters'. I take this criticism very seriously. Even before this report had been issued the Executive had set up a special committee under the chairmanship of Professor David Craig, to take a long hard look at our overall safety practices as a matter of urgency. This committee is expected to report before the end of the year and I have the feeling that it will urge us all to take this subject much more seriously than in the past.

Hazards have long plagued the scientist. The following is an extract from a letter to a friend written in 1823 by Michael Faraday, then pioneering the field of cryogenics (what didn't that man do!):

'I met with another explosion on Saturday evening which has again laid up my eyes. It was from one of my tubes, and was so powerful as to drive pieces of glass like pistol-shot through a window. However, I am getting better, and expect to see as well as ever in a few days. My eyes were filled with glass at first.'

●

In my youth I was fascinated with the fact that we (the British) had a Ministry of Information, while they (the Germans) had a Ministry of Propaganda. Even at that tender age it was clear that the Germans were more honest in their nomenclature than we.

What is the difference between information and propaganda (assuming the latter to be factually based)? Suppose on a given issue it is possible to muster 100 verifiable facts; and suppose 50 favour the case for and 50 against. Then to my mind if you present all 100 facts you are supplying information; but if you present only one set of 50, you are indulging in propaganda.

A few months ago I asked a journalist 'Why did you publish only one side of the story when you were perfectly aware of the other?'. 'Oh', came the reply, 'because then there would have been no story'. Man must still bite dog, it seems.

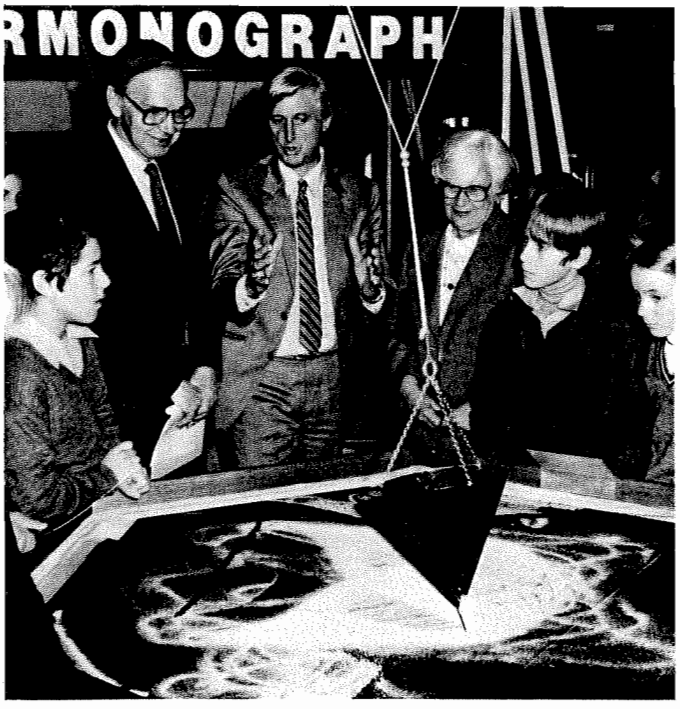
CSIRO receives its fair share of criticism. It is a very easy target because of its size. My advice is: be quick to discern between genuine criticism and propaganda; if it is the former react and put your house in order; but if it is the latter take it with a smile as a form of flattery.

●

When the history of Australian science comes to be written I wonder which category will be judged the more virulent exponents of tribal warfare: the astronomers and astrophysicists of the 1960s and '70s; or the veterinarians and virologists of the 1980s?

Paul Wild

FUN PHYSICS FOR G-G



The Governor-General, Sir Ninian Stephen left and Lady Stephen listen as Dr Michael Gore of the Questacon explains the physics of the harmonograph to a group of Canberra primary school students. Dr Gore is currently overseas on a Churchill Scholarship visting science centres in several countries. The Questacon was devised and designed by Dr Gore of the Australian National University, and several of the hands-on exhibits were contributed by CSIRO. —'Canberra Times' photo

In retirement

Dr Maurice Mulcahy

The atmosphere at North Ryde will never be quite the same again following the retirement of Dr Maurice Mulcahy, one-time leader of the Atmospheric Chemistry Section and more recently Assistant Chief of the Division of Fossil Fuels.

Maurice literally entered CSIRO with a bang, his early research being devoted to the detonation of nitro-glycerine under impact. The retention of his limbs to the present time is ample testimony to his experimental ability. Whether his calm, unruffled exterior owes its existence to the need for caution during these dangerous experiments or to lazy afternoons on the Isis is a matter for conjecture. However, it was at Oxford, where he was awarded a D.Phil for his research under that doyen of physical chemists the late Sir Cyril Hinshelwood, that Maurice brought his absorbing interest in chemical kinetics to fruition, an interest first nurtured in the Chemistry Department at the University of Melbourne.

As a physical chemist, Maurice was able to apply his knowledge to diverse areas. From the Division of Tribophysics, he travelled north to Sydney where, as a member of Coal Research, he undertook pioneering work on coal combustion and on the kinetics of atomic- and free-radical reactions. This knowledge equipped him to lead research on photochemical smog and urban haze aimed at making this fair city even fairer. In the late '70s coal, for so long out of fashion, became desirable once more, and the formation of the Division of Fossil Fuels saw Maurice as Assistant Chief, able to impart the wealth of his experience to researchers on atmospheric science, coal chemistry and coal combustion, to mention but a few of the major activities of the Division. He was elected as a Fellow of the Australian Academy of Technological Sciences in 1980.

For Maurice, retirement does not mean relaxing in the garden waited upon by an attendant family. He is now in Gottingen as Gauss Professor, sharing his considerable experience with his European colleagues. Next February he has been invited to spend some time as Visiting Professor at Leeds University on combustion research. In advising me of his acceptance of an invitation from the Academy of Technological Sciences to convene a conference on 'Natural Disasters' in 1985, I wonder if he was echoing the words of Madame de Pompadour to Louis 'Apres nous le deluge.'

CSIRO and the Division of Fossil Fuels have been privileged to have the services of Dr Mulcahy who, throughout his 41 years in the Organization, has supported it loyally. During my 8 years with the Division, I could have asked for no firmer support nor better friendship than that given by Maurice Mulcahy. We are delighted to know that, as a Post-retirement Fellow, he will not have deserted us completely and that we will still be able to enjoy and benefit from his apposite remarks, be they on scientific matters or on the main source of his inspiration, Dr Samuel Johnson.

—Tony Bradshaw

CAT

The CAT Column is open to all members of CSIRO who wish to comment on communication matters.

This month's column has been contributed by Shaun Coffey of the Science Communication Unit.

Community attitudes to science have changed markedly in the past 10 years, and controversy and criticism have now become acceptable. CSIRO has not been immune and our sometimes tortuous responses to criticism raises the question: 'How do we best handle our critics?'

I am reminded of Hugh Mackay's distinction between the 'hypodermic' view and the 'release' view of communication. The 'hypodermic' view goes something like this: We have an important message, we know it's right and we know its significance. If we can load up the media with our message (thinking of the media as a kind of 'hypodermic syringe' in the form of a leaflet or a radio program, TV slot or some other kind of communication 'syringe') and then inject it into the heads of the audience via the eye and/or the ear, then the desired effect will take place. Simply because they have heard our significant, accurate, important message, they will in some profound and mystical way be changed by having been exposed to it.

If that were true, we would hardly need elaborate education systems, an advertising industry, information and PR services, nor columns like this. Of course it isn't true.

When we load up the public communication syringe with good stuff about science and inject it into the brain of our audience we will not necessarily produce a desired effect.

So, to the second basic view of communication. The 'release' view says that communication works when the message releases something which is already in the audience. When the audience already has a view and the message is in some very direct way designed to be relevant to that view, communication is likely to occur. In other words communication will work if we accept that the framework within which it can work is the framework of the existing attitudes, beliefs, values, prejudices, etc. of the audience. It works when we recognize that, if the audience is going to do something with what we say—if anything is going to happen at all—then what the audience does with our message will be a function of what is already in their mind.

It can be argued that the conflict between organizations like CSIRO and their critics results from a triggering of the wrong biases—or, more likely, lack of knowledge of the existing framework of attitudes, beliefs and prejudices—lack of knowledge about what the audience is thinking—a lack of common ground on which to communicate.

There comes a time when it is almost essential that for effective communication the individuals should know one another by sight, that they should, from time to time, come within greeting distance, and preferably within spitting distance; that they should regularly touch one another's portable personal space. In any area of controversy, tension can be relieved when the cause of anxiety is faced and positively dealt with—arrange the distasteful meeting to discuss the nagging differences. Effective communication comes after the people 'know' one another.

Some organizations call it management by communication.

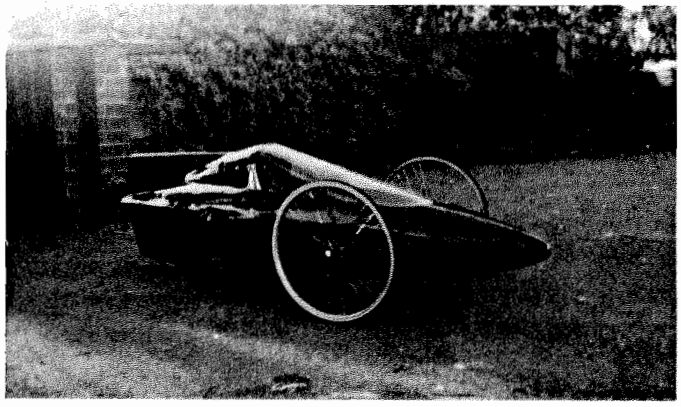
850 miles per gallon : marathon mileage

With a car that does 850 miles to the gallon, Mr Lindsay Derriman, of the Division of Groundwater Research in Perth, won the private class of the recent Shell Mileage Marathon at Amaroo Park, Sydney.

The car, which only travels at 30 kilometres per hour, has a fibreglass frame and weighs a mere 26 kilograms. It is powered by an 8½ cc engine with a water-cooled cylinder head designed and built by Lindsay.

Not only did Lindsay win the Private Class, he won the Australian Automobile Racing Club Trophy for Ingenuity and Enterprise. He was placed sixth outright behind such entries as the Ford Motor Co., which won with a phenomenal 2900 miles per gallon.

Lindsay won the Private Class last year as well, and is already preparing for 1984.



Lindsay Derriman's winning car, which does 850 miles to the gallon.

... People... People... People... People ... People ... Pe

Dr Len Webb, who retired from CSIRO in 1980, has been awarded the 1983 Mueller Medal for his contribution to Australian rain forests.

Len is an internationally recognized rain forest expert, and is continuing his contributions to science from his honorary position at Griffith University. The Mueller Medal honours Baron Sir Fernand von Mueller who was one of the pioneers of exploration and science in Australia. He was Government Botanist in Victoria for 44 years during the latter half of the 19th century.

▼

Henry Nix (Division of Water and Land Resources), **Alan Stewart, Bill Rawlins, Geoff Gartside** (Division of Chemical Technology), and **Bob Ferraris** (Division of Tropical Crops and Pastures) recently attended a guayule workshop in Mexico under a Mexico/Australia Science Agreement. Guayules are plants which produce a type of rubber. Another conference on the subject was held in California, and on the way back Henry lectured in Caracas, Venuzuela, in an Advanced Course on Crop Environment Information for Agro-technological Transfer.

▼

Dr Brian Eaton from Canada is the latest recruit to the research staff at ANAHL. He is a nucleic acid chemist and joins the molecular nature of infectivity, virulence and antigenicity of micro-organisms program at the Laboratory.

▼

Mr John Watt, Officer-in-Charge at the Lucas Heights Unit of the Division of Mineral Physics, was in Cracow, Poland recently to attend the International Atomic Energy Agency's Research Co-ordination Meeting in connection with the Coordinated Research Program on Nuclear Analytical Techniques for mineral exploration, mining and processing. He returned via the United States where he visited manufacturers of solid state detector systems.

▼

Dr John Pitt, Division of Food Research, recently returned from the United States where he was guest speaker at the Gordon Research Conference, Plymouth, New Hampshire. He also attended the annual meeting of the American Mycological Society.

▼

Mrs Elizabeth Oldfield, Division of Food Research, has been awarded a European Chemoreception Research Organization Training Grant, and is working at Gottingen University, West Germany. Of the five awards given since 1979, two have been won by the Division.

Mr Alec Moodie of the Division of Chemical Physics has been made an Honorary Doctor of Applied Science by the Royal Melbourne Institute of Technology. Alec, the leader of the Division's electron diffraction section, received the doctorate, which was the first of its kind awarded by RMIT, in recognition of his contributions to electron diffraction and electron microscopy.

▼

Doug Howick of the Division of Building Research recently attended an International Pest Control Conference in Hong Kong. Doug was seminar chairman and discussion leader.

▼

Dr Chiharu Takahashi of the Japan National Research Laboratory of Metrology (NRLM) is working at the Division of Applied Physics for a year on the development of a small saturator which will allow a portable humidity generator to be constructed. Dr Takahashi is the fifth member of the NRML to visit the Division.

A delegation of the Jiangsu Scientific Instrument Investigation Mission from the People's Republic of China visited the Division of Chemical Physics recently. The four-member party visited various laboratories in the Division, particularly those concerned with the development of scientific instruments and processes. The visit formed part of a tour of research institutions and scientific instrument manufacturing companies.

▼

Mr Jeffrey Tapping of the Division of Applied Physics is spending a year at the United States National Bureau of Standards where he is working on two projects: the development of a photoelectric pyrometer, and the further development of a higher temperature optical-fibre thermometer.

▼

Mr Graham Kieseker, of the Dairy Research Laboratory, has been awarded the 1983 Australian Society of Dairy Technology Silver Medal, otherwise known as the Loftus Hills Dairy Science Award.

'sunrise' research

Continued from page one

there is still an imbalance between the R&D efforts devoted to rural industries and to manufacturing industries', Dr Tegart said.

CRITICAL COMMENT

Dr Stuart Macdonald of Queensland University's information research unit, used the example of CSIRO to argue the need for changes to Australia's research structure.

'CSIRO now spends more on R&D than all of Australian manufacturing industry put together; what CSIRO spends on agricultural research alone in one year is almost five times more than the ALP planned to provide for 16 sunrise industries'.

CSIRO was 'so sheltered from structural change in the Australian economy that it has been able to preserve overall research directions more suited to a plantation economy', he said.

'Momentum moves such an organization, and swift change of direction—no matter who is at the helm—is impossible. For a nation seeking just such a change of course and rapid acceleration, CSIRO—like a grand old battleship, too expensive to convert and too valuable to scuttle—seems to exemplify the costs of the existing Australian research structure', Dr Macdonald said.

DISTURBING IMBALANCE

The abstract of the paper by Dr Peter Farrell, Director of the University of NSW's centre for biomedical engineering, promised more strong criticism of CSIRO; it urged the need to redirect the Organization's priorities to correct 'a disturbing imbalance between funds available for scientific research for its own sake compared with funds for mission-oriented commercialization of ideas'.

But in the event, he said little about CSIRO. The Organization had been more concerned with the generation of Fellows of the Royal Society and the Australian Academy of Science, and of peer-review papers, he said, and welcomed the Chairman's comments about CSIRO's efforts to improve contact between the Organization and manufacturing industry.

CSIRO should be given incentives to interact more closely with industry, he said.

'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.

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CoResearch

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BUDGET 1983:
Research package for sunrise industries

The Federal Government has allocated a $316.9 million Budget allocation to CSIRO, including a $4 million research package specifically provided by the Government to assist the creation and development of sunrise industries.

The $4 million has been earmarked for the development of new technologies upon which several of the Government's identified sunrise industries could be based, and to promote the adoption of CSIRO's research results by new and existing Australian industries.

In addition to the $4 million Government package, CSIRO itself will provide an additional $1.1 million for the same purpose by redeploying funds.

Apart from funding a series of new research initiatives, the 1983-84 Budget will also provide support for CSIRO's plans to establish a company, SIROTECH, to assist in encouraging industry to develop the Organization's inventions.

The new company will provide CSIRO with access to the business and entrepreneurial skills necessary for effective commercialization of its research results.

NEW INITIATIVES

The new CSIRO research initiatives to be funded in the Budget involve:

- *Biotechnology.* CSIRO's core research effort in biotechnology, a rapidly-developing field with immense social, economic and scientific significance, would be intensified and expanded to provide a continuing basis for further industrial development. Initially, increased resources would be concentrated in CSIRO research programs directed at the development of new industries for the rural and manufacturing sectors through genetic modification of plants, animal cell genetics, veterinary vaccines, and diagnostic reagents.
- *Advanced materials.* CSIRO would undertake a concerted program of further research and development into its tough new ceramic, partially-stabilized zirconia (PSZ), which holds exceptional promise for development of a wide range of new products. This work was regarded as urgent because other countries were also engaged in work on similar materials and there were dangers that Australia's leadership in the field could be overtaken. CSIRO would also undertake research on other advanced materials, including other new ceramics, sintered products, composite materials and polymers, with the aim of creating new industries. New products and processes resulting from such research held strong prospects for the creation of new industries.
- *New generic technologies.* 'Generic' technologies such as microelectronics and integrated engineering were expected to lead to a substantial upgrading of manufacturing industry through the adoption of new technologies and creation of new industries. CSIRO would aim to expand its work in microelectronics design and application, computer-aided design and manufacture (CAD/CAM), machine tool systems, and robotics.
- *Information technology.* Information technology was emerging not only as the basis of entirely new major industries but also as a vital future component of existing industries. CSIRO proposed to create a new research group whose primary function would be to develop the knowledge base, expertise and potential of information technology. The group's work would include new technologies for the manipulation, transmission, storage and retrieval of inform-

Continued on page 3

Mr Justice Kirby joins Executive

CSIRO's newest part-time Executive Member, Mr Justice Michael Kirby said he believed it was vital for scientists to speak out on their research.

In an interview following the announcement of his appointment by the Minister for Science and Technology, Mr Barry Jones, Mr Justice Kirby said he understood that many scientists felt diffident about communicating their science in simple language because they worried that their peers would condemn them as trivializing important matters. 'But it is no longer acceptable for them to retreat into that secret world which might have been tolerable in previous centuries but is now unacceptable because community understanding of science and technology is important to mankind', Justice Kirby said.

SCIENTIFIC INTERESTS

Mr Justice Kirby, 44, was appointed as a part time Member of the Executive to replace Mr Hugh Morgan who resigned after four-and-a-half years. Justice Kirby is a graduate in law, economics and arts from the University of Sydney, and practised as a lawyer in Sydney before his appointment as Chairman of the Law Reform Commission eight years ago.

He said he had been 'relatively weak' in science and mathematics at school, preferring instead poetry, language, history and words, but had become interested in

Continued on page 8

Stripping the cowhide

Mr Robin Cranston, right, of the Division of Protein Chemistry Leather Research Group shows, from left, Mr David Wright, Professor David Craig, and Dr Don Weiss, hair he has stripped from a cowhide treated with the Group's new Sirolime process.

Letters to the Editor

Dear Editor,

In June's CAT column Bob Marshall discusses how to bridge the information gap between parliamentarians and scientists.

He describes several recent and praiseworthy efforts by the new Government and by CSIRO to achieve regular and meaningful interchange on scientific issues and policy. He refers to the difficulty of attracting parliamentarians to lunch-time seminars in competition with pressing and often unexpected parliamentary business, and he proposes to avoid this problem by arranging visits to CSIRO establishments at times when Parliament is in recess.

This is fine, except that parliamentarians may be fidgety listening to clever people dispensing scientific niceties when they would really prefer to be briefed on the broader issues.

COMPLEX ISSUES

Scientific research today is much too intricate for busy parliamentarians to explore properly, and the temptation will always be for public figures to simplify what they hear or read, sidestepping the difficult bits, so that broad conclusions of memorable brevity and finality can be voiced as debate demands. One can accept they pursue this course genuinely from a sense of duty and responsibility but it also seems that scientists and scientific administrators must take part of the blame when half-baked or oversimplified statements and ideas get into circulation.

Putting the message across to important people is a gift that too few CSIRO scientists seem to possess. Fortunately the skills can be acquired, and the CSIRO Executive surely ought to encourage their acquisition by scientists with the aptitude, even if it means hiring some of the instructors from elsewhere.

The Officers Association pairing scheme, to which Bob Marshall refers, has the advantage that no scientist is obliged to put on a performance, and the volunteers who take part do so using their enthusiasm and aptitude to provide fruitful briefing sessions for the parliamentarians with whom they have paired. Perhaps in this way we may eventually inspire those in government who hold the purse-strings to fund us adequately and lift Australia to a level of independent scientific endeavour such as other progressive nations sustain.

—E.C. Potter, President
Officers Association

Dear Editor,

In the July issue of *CoResearch* Joe Flood raised some interesting matters but a number of points invite further comment.

First, the vexing issue of having his personal mail opened. Procedures vary from Division to Division and in many cases individually addressed mail is *not* opened. Local problems of this kind really ought to be sorted out in his own Division's mail room (or he should have his Bankcard statement sent to his home. . .).

PUBLIC COMMENT

The questions surrounding public comment by CSIRO officers were addressed in Sir Robert Price's statement of January 1975, which was given wide dissemination and should be readily available in Divisions. This statement shows that CSIRO officers generally have the same right as any other citizens to express their views publicly.

There are inevitably some constraints. An officer, when speaking as a private citizen, should clearly establish that his or her views are being put forward as personal views and not CSIRO views. Further, all officers have an obligation to protect any CSIRO confidential information of which they have knowledge and are expected not to disclose (for example, information of a commercial nature). Lastly, there are a few senior officers whose management responsibilities require them to accept some constraint in public comment if they are to carry out their official responsibilities effectively. These constraints are no greater for CSIRO staff than for most other people in comparable employment elsewhere.

However I am aware that CSIRO's position on public comment and the publication of papers is interpreted differently from Division to Division. I understand that the Executive is also aware of the concern that this is causing among staff and is currently examining the situation with the intention of issuing an updated statement.

—P.J. Judge,
Officer-in-Charge,
CILES

Apology

Co-Research apologizes for any confusion resulting from the transposition of photographs of the NSW State Committee and Executive visit to the Division of Horticulture, as they appeared in the last issue.

Victorious funrunners

The winning team in the 1983 CSIRO fun run; from left, Eric Rumbo, Kim Pullen, Rosemary Longstaff and Roger Farrow, all from the Division of Entomology.

Because it is there

By around 1.20 p.m. on Friday, 15 July it was all over bar the gasping: the 1984 CSIRO Black Mountain Fun Run had been, apart from a few stragglers, run and won.

Less than half an hour before, four score and six runners of almost all shapes, sizes, ages, and perhaps even sexes, and from the four corners of the globe, had set off on the 6 km race around the so-called 'little hill', a spur of Canberra's second highest mountain.

Apart from the local Divisions, all but one of which appeared to be represented, teams came from Animal Production and Applied Physics in Sydney.

HIGHEST HONOURS

Highest honours for the day went to Entomology. The now legendary 'Mountain Masochists' recaptured the coveted Black Mountain Cup thanks to sterling performances by winning team members Rosemary Longstaff, Kim Pullen, Roger Farrow and Eric Rumbo. Rosemary was, in addition and as usual, the first lady of the race.

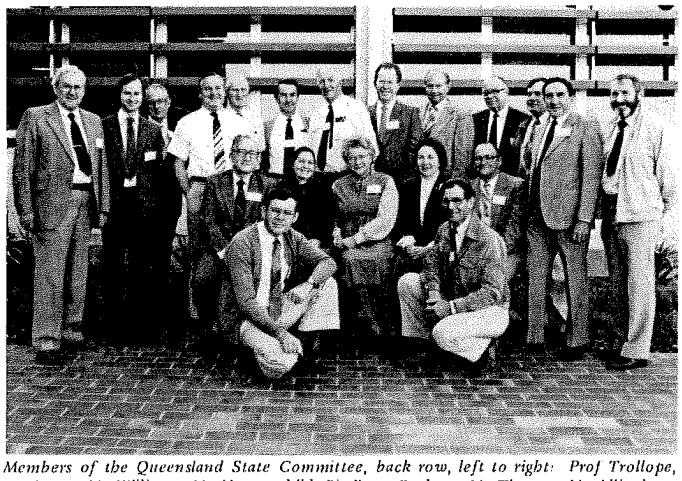
Other great performances were put in by outright winner Keith Bradley, believed to be from the ANU, who just ambled the course in under 20 minutes. (Is there a spare position we can offer that man?) Jeff Culnane of the Science Communication Unit was the first veteran home—veterans in running are the 40s and over—in the astonishingly good time of 22'26.6".

VETERANS

Super veterans, Keith Perroux of Environmental Mechanics, and Jack Pennington from the ANU were neck and neck all the way until Keith just got the edge near the finish. He beat Jack by a mere 10 seconds, finishing in a fraction under 25 minutes. Jela Stojanovic of the Division of Computing Research spent a lot of lunch hours on the hill in the months before the race. It paid off. She turned in a creditable 26'42".

So with all these winners, who lost? Well, you know, just to run on that day in July and to reach rarified heights above the Nation's Capital is to win: there are no losers. See you next year. Ed Highley.

Queensland State Committee visit Gladstone and Rockhampton



Members of the Queensland State Committee, back row, left to right: Prof Trollope, Dr Jones, Mr Williams, Mr Hauenschild, Sir Peter Derham, Mr Thomas, Mr Allingham, Dr Alfredson, Mr White, Dr Allen, Mr Wilson, Mr Rivett and Dr Vercoe. Seated, left to right: Dr Alexander, Mrs Akroyd, Mrs. Meynink, Mrs Sheridan and Dr Mahoney. In front, Mr Baker and Mr Hudson.

The Queensland State Committee recently travelled to Gladstone and Rockhampton to see the research being conducted on the Rundle Oil Shale deposits near Gladstone, the work of the Tropical Animal Science Research Centre and the National Cattle Breeding Station at Rockhampton.

The Committee was joined by the Chairman of the CSIRO Advisory Council, Sir Peter Derham, the President of the Trades and Labor Council, Mr Harry Hauenschild, the Chief Geologist of Queensland, Mr Rod Allen, the Director of the Institute of Energy and Earth Resources, Mr Ivan Newnham, Chiefs and senior staff of the Divisions of Energy Chemistry, Geomechanics Mineral Chemistry, Mineral Engineering, Fossil Fuels, Mineral Physics and Groundwater Research, and the Physical Technology Unit.

At Gladstone, a strong representation from local government and industry was present to hear the CSIRO speakers explain their projects.

Later a visit was paid to the site of the open cut and stock pile of the shale with a visit en route to the premises of Southern Pacific Petroleum to examine a complete drill core of the shale and overburden.

At Rockhampton the Committee hosted a cocktail party for leaders of industry and government and spent a full day being shown the Belmont cattle property and the main laboratory.

While flying from Brisbane to Gladstone, quick work by the pilot in diverting to a small airport when an engine failed saved the Committee and CSIRO party from honourable mentions in the national media—publicity of this sort was not the Committee's aim, they concentrated upon more conventional means of getting the message to the press and television while making the visits.

SIROMATH plans further expansion

SIROMATH, the consultancy launched in 1981 to provide research and services to industry, commerce and government, is planning further expansion, following its trebling in size in the past 12 months.

SIROMATH has recently advertised in Australia and overseas for 10 more professional staff which aim to consolidate the SIROMATH groups in Melbourne and Perth, and to build SIROMATH strengths in quantitative planning and computer systems porting and maintenance.

The main growth in SIROMATH has been in areas of mathematical and statistical analysis and operations research. The company has carried out a wide range of this work, including design and analysis of experiments for major chemical companies such as Bayer and Merck Sharp & Dohme, development of forecasting models for passenger traffic movement or sales of manufactured products such as wine, or design and optimization of information flow and materials control. SIROMATH is advertising for extra consultants in these areas in Melbourne, Sydney and Perth.

DIVERSIFICATION

In 1982/83, SIROMATH has also diversified into quantitative planning and demographic modelling, in conjunction with the Division of Building Research and the Division of Water and Land Resources; into areas of computer software consulting, especially for the UNIX operating system, jointly with Division of Computing Research; and has set up SIROMINES, a group to consult on ore reserve estimation and mine planning, with the French School of Mines. The current expansion calls for a manager and consultant in Melbourne to consolidate the growth in quantitative planning, and also for two consultants in the UNIX development group in Sydney.

Dr Richard Tweedie, General Manager of SIROMATH, said that these positions should enable SIROMATH to cope with existing workloads and also provide viable groups to help identify further areas for SIROMATH to work. Although SIROMATH has already achieved a client list of over 100 companies and instrumentalities, he felt that only a small fraction of Australia's real needs were being met.

SIROMINES GROWTH

He also predicted further growth of SIROMINES, with more positions planned for later in 1983.

'The mining industry has already provided SIROMINES with a very gratifying workload; moreover SIROMINES' clients have also been using SIROMATH staff in other quantitative areas such as quality control', Dr Tweedie said.

Two other critical positions now being advertised also illustrate the increasing scope of SIROMATH's Australia-wide involvement. These are posts of Regional Manager in Victoria and in Western Australia.

SIROMATH is budgeting for a turnover in excess of $1.5m in 1983/84, roughly doubling its 1982/83 figures. Expected growth areas include quality control, computer operating systems and demographic and other quantitative planning areas.

SIROMATH is currently staffed by a mixture of people who had previously worked in CSIRO, university, government and industry positions. SIROMATH sought consultants with a high level of technical competence, but Dr Tweedie felt that of equal importance was proven ability to apply those skills in practice, and an entrepreneurial attitude to promoting their activities.

Dr Tweedie attributed the rapid growth of SIROMATH to its efforts in seeking projects rather than waiting for them to come in: he believed that CSIRO in general had many resources of use to the wider community but its scientists often seemed to wait to be asked to use these resources rather than actively seeking to collaborate with potential users.

Dr Donald is new Chief for Animal Health

An internationally recognized parasitologist with a special interest in the control of worm parasites in domestic livestock has been appointed Chief of CSIRO's Division of Animal Health.

Dr Alan Donald has been acting as Chief of the Division since the completion of the term of the former Chief, Dr A.K. Lascelles.

Dr Donald, 50, graduated from the University of Sydney with honours as a BVSc in 1956, and joined the Division of Animal Health in 1961 as a veterinary parasitologist. He was awarded a PhD from the University of Bristol in 1966.

Announcing the appointment, the Chairman of CSIRO, Dr J. Paul Wild, said Dr Donald had made significant contributions to understanding changes in parasite numbers in animals.

'Dr Donald has made important studies of the epidemiology and control of parasitic worms in sheep and cattle.

'This area of research will become increasingly vital when the current revolution in biology produces vaccines which require a specialized knowledge of the relationship between livestock and the parasites such as those studied by Dr Donald', Dr Wild said.

Dr Alan Donald

Dr Donald has also carried out a study of the effects of environmental factors on the development and survival of parasitic worms during the period of their life cycle spent on pasture.

'In particular, this work showed that the infective stages of the parasites on pasture lasted for much longer than was previously thought, and that the development rates during this 'free living' stage were slower than previously thought', Dr Wild said.

'Further research based on these findings has led to major improvements in parasite control, combining grazing management with the use of anti-worm drugs', he added.

From the Chairman-

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

On page one of this issue there appears a summary of the outcome of CSIRO's budget for 1983/84, so here I would like to talk about how we intend to implement the budget and what will be its effects on the Organization's operations.

The budget contains both good and bad news. First the bad news. Whilst the total salary component of our appropriation has been provided for—and that is likely to include provision for future salary increases—our recurrent operating funds, some $70 million, will be the same as last year: no allowance for inflation has been made.

It is essential that we maintain the funds necessary to support our research at the same relative level in real terms. Therefore it will be necessary to reduce our salary bill and transfer funds from salaries to operating funds. Our calculations show that for the general programs of the Organization there will have to be a shrinkage in both staff and operating funds of some 2½%. The shrinkage of staff (about 150) will occur initially through the non-filling of vacancies; at a later stage Divisions and Institutes have been asked to ensure that a proper balance take place as regards programs and different categories of staff.

The ultimate aim always is to maintain the quality of continuing programs even though the quantity of programs may have to be slightly reduced. It is a difficult and painful process and will have the effect of greatly reducing the number of young scientists that can be recruited during the year. I venture to give the opinion, now as in the past, that the damage done to a research organization like ours by cuts of this magnitude far exceed the benefits which the Government gains through the money it saves. Even so, we should count our blessings and realize we are in a much better position than those who have lost their jobs in industry through the economic downturn.

On the brighter side of the picture, two of our new policy proposals have been funded. The first is a new building at Clayton for the Division of Applied Organic Chemistry; the second is an increase in resources by $4 million for selected areas of new technology. These include biotechnology, generic engineering, advanced materials, information technology and the foundation of the new company SIROTECH for fostering the commercialization of CSIRO inventions. Our Minister fought hard against an unresponsive system to gain acceptance of this latter package which, as you know, is close to his heart.

● ●

After the Executive visited Adelaide last May, I reported on the various laboratories that we inspected. I forgot to mention the Woodville laboratories of the Division of Manufacturing Technology, which also houses the Adelaide staff of the Division of Applied Physics. I apologize to the staff concerned for this oversight. As they would know, I have had a special interest in their development and have visited them three times, including during the first week of their existence under the CSIRO flag in September 1977. It has been a revelation to witness the enormous progress made during that period. Work we were shown included sheet metal forming, casting of hard, wear-resistant high chromium white irons, and development of continuous tubular welding electrodes.

All this work is a splendid example of successful collaboration with manufacturing industry. Our impression of collaboration was heightened later in the week when (by courtesy of Graham Spurling) we visited the Mitsubishi Motors plant and saw the results of Manufacturing Technology's sheet metal forming work being used in practice. Mitsubishi are delighted with the results, and seeing a modern car factory in operation was a rare and thrilling experience.

Paul Wild

BUDGET 1983:

Continued from page 1

ation, computer architecture, very large-scale integrated circuits (VLSI), software engineering, and application of these new technologies in the manufacturing, mining, tertiary and information sectors of the economy.

CSIRO's total allocation of $316.9 million in the 1983-84 Budget comprised $276 million for salaries and operating costs, and funds of $40.9 million for the purchase of large equipment items and other capital costs related to:

- construction of CSIRO's oceanographic research vessel
- construction of the Australia Telescope
- construction of new buildings
- developmental studies.

This year's allocation for annual operational costs represents an increase of $26.6 million, or 10.6%, over CSIRO's initial allocation in 1982-83.

After allowing for additional funds allocated to CSIRO during 1982-83, this year's allocation represents an increase of $12.4 million, or 4.7%, over actual operational expenditure in 1982-83.

Apart from the $4 million earmarked for the development of new technology industries, this year's allocation provides an increase of $2.6 million for inescapable salary costs, an increase of $2 million towards the cost of ANAHL, and $1.8 million for the continuing cost of the aerial fire-fighting study, Project Aquarius.

In addition, an amount of $40.9 million had been allocated to CSIRO in 1983-84 for a number of specific capital projects.

These include $9.5 million for the continuing construction of the marine research laboratories in Hobart, Tasmania; $8 million for the continuing cost of construction of the Australian National Animal Health Laboratory at Geelong, Victoria; $3 million to commence construction of a new laboratory for the Division of Materials Science at Clayton, Victoria, $7 million towards the construction cost of CSIRO's oceanographic research vessel; $3.5 million towards the cost of building the Australia Telescope, $1.8 million for the purchase of homes for CSIRO staff in the Northern Territory, and other property acquisitions.

Approval was also granted for the letting of a contract for a new laboratory for the Division of Applied Organic Chemistry.

Dr John Thorn of the Division of Plant Industry died recently after a long illness. He was recognized as a foremost authority in his field of photosynthesis research, having made major contributions to the understanding of how chloroplasts capture solar energy and convert it to chemical energy.

John joined Plant Industry in 1958 as head of the electronics section. In the early 1960s he built a spectrofluorometer with automatic quantum corrections long before such machines were commercially available. This led to the development of his biological research interests in energy transduction in photosynthetic membranes, and eventually recognition of his work by the award of a DSc from the University of London in 1975.

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The Division of Atmospheric Research is sad to record the death of **Mr 'Sandy' Troup** after 5 months illness. Sandy had been with CSIRO for 34 years and had wide-ranging interests in meteorology, particularly the Southern Oscillation, use of satellite data and cold-fronts research.

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Dr Ted Henzell, Chief of the Division of Tropical Crops and Pastures, was awarded the Order of Australia in the Queen's Birthday Honours List recently in recognition of his services to agricultural research. Dr Henzell is a world authority on the efficient use of nitrogen in tropical agricultural systems. He joined CSIRO in 1956, and became Chief in 1977.

□ □

In the 'fleet of foot' department is **Julie Siedses** who recently won the B grade modern trophy of the Commonwealth Society of Teachers of Dancing in Melbourne. Julie, from the Division of Building Research at Highett, apparently has enough trophies for dancing to need a special room to store them.

Mal Sinclair of the Division of Radiophysics in Sydney, left, renews acquaintance with Gordon Stanley during a visit to the United States recently. Gordon was a well known member of the Division and, as an electrical engineer, was a member of the Dover Heights team of astronomers headed by John Bolton. Gordon accompanied John Bolton to the United States during the 1950s, and took over the directorship of the Owens Valley Radio Astronomy Observatory when John Bolton eventually returned to Australia. Since he retired, Gordon has become a gentleman farmer in the Santa Barbara region, but still works as a consultant in electronics.

Mr Robert Troedson, a research officer, is working with **Dr Bob Lawn** at the Division of Tropical Crops and Pastures for a year. He is researching the acclimation of soybeans to saturated soil.

□ □

About three years ago, when 'sheep-napping' was rife in the agroforestry project at the Division of Groundwater Research in Perth, researcher **Geoff Anderson** installed metal detectors linked to radio signals to alert local foresters that an intrusion into a quarantine area was made. The device worked well, and is now being used by the WA Forests Department who suspect that cannabis growers are active in the forest. The device has enabled foresters to discover when, and by which route, unauthorized entries are being made.

Dr Christoph Reichmuth has joined the Division of Entomology's stored grain research laboratory at Black Mountain for a one year visit, to work on aspects of fumigation of stored products. His visit is in the nature of an exchange following the visit to Berlin of **Jim Desmarchelier** recently.

□ □

Dr Chris Heyde of the Division of Mathematics and Statistics has been named President Elect of the Bernoulli Society for Mathematical Statistics and Probability of the International Statistical Institute.

The Bernoulli Society is essentially the theoretical section of the International Statistical Institute and it will be the first time that the Presidency has been held by an individual from outside Europe and the USA.

A distinguished visitor at the Division of Applied Physics in Lindfield is **Professor Florin Abeles**, the Director of the Laboratory for the Optics of Solids at the University of Paris V1, University Pierre et Marie Curie. Professor Abeles is being jointly sponsored by the Division and the University of Sydney, with support from Macquarie University.

Professor Abeles is a world expert on thin films and surfaces, particularly those of absorbing materials. He originated the well-known 'Abeles method' for measuring the optical properties of thin films. He expects to spend some time at the Division and giving lectures at the Universities, but plans to join in a number of research projects.

□ □

Dr Richard Vanderlip, Professor of Agronomy at Kansas State University USA, recently joined the Division of Tropical Crops and Pastures for six months. He is working on sorghum modelling.

□ □

Dr Ken Edwards, Head of the Department of Genetics at the University of Cambridge, is spending three months at the Division of Plant Industry where he is collaborating in a project concerned with cloning genes from barley and wheat.

□ □

The name **Dr P. Wild** is again associated with the Division of Radiophysics and the Australia Telescope. It is not, however, that the Chairman has returned to his old Division. A recent recruit to the Division of Mathematics and Statistics, Dr Peter Wild, has been giving assistance to Radiophysics researchers with configurational aspects of the proposed telescope. For the record, Dr Wild is a finite geometer who has studied at the University of Adelaide and Westfield College, London.

□ □

Jim Longhurst, retiring after 21 years with the Division of Textile Physics in Sydney, came up with a novel way of saying goodbye and announcing his plans for retirement. He simply wrote a poem which Divisional Secretary **John Platt** said was enthusiastically received and probably applied to more than just Jim:

The time has come for me to go,
I'll wish you all good luck,
I did my best, now need some rest,
can't stop here and get stuck.
I might buy a family business
or give fishing a good try,
I'll do whatever pleases me
until the day I die.

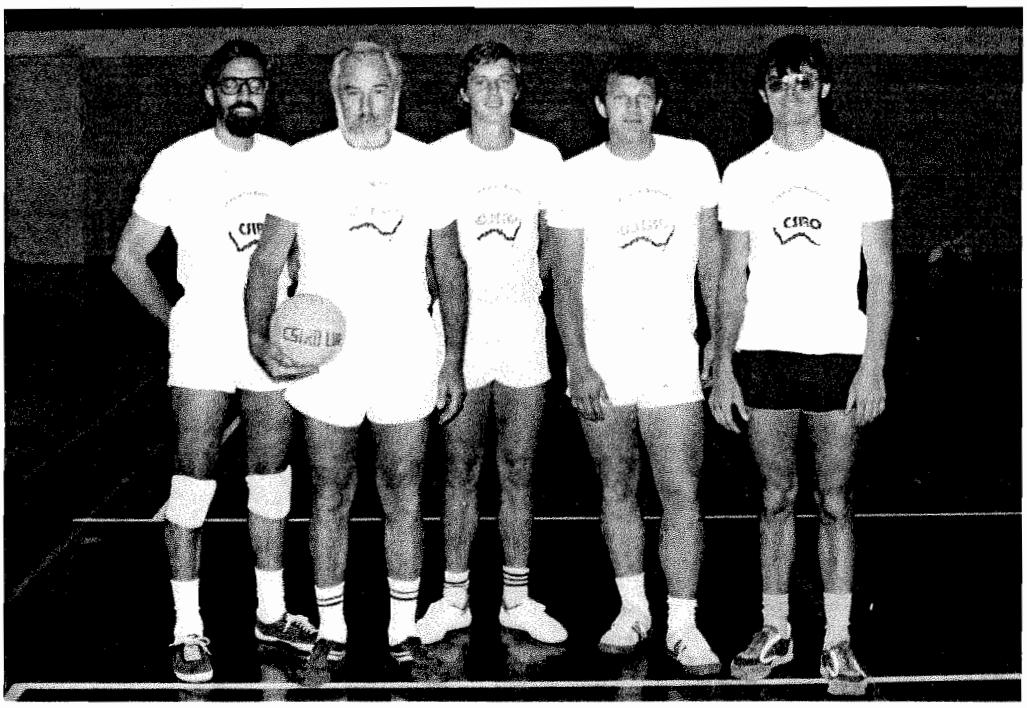
There's more to life than fighting hard
to prove you're worth your salt,
There's more to life than working on
with money in the vault.
I'll practice on my banjo,
sing songs and ever play
to the music of the bush band
I'd like to join one day.

I'll buy a camping wagon and
with the wife set sail,
There's plenty of Australian air,
that's still safe to inhale,
We'll loiter by a peaceful creek,
while I go fish for whale,
And, 'Mother put the billy on',
before we hit the trail.

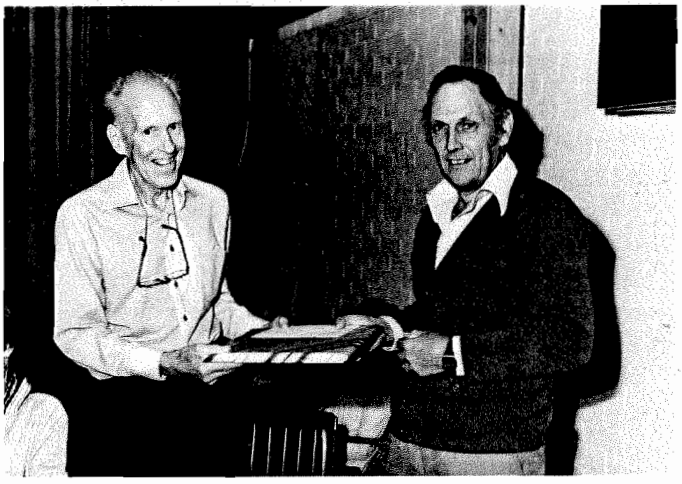
Way down through Wagga Wagga
and up past Gundagai,
There's plenty of Australia,
to see before we die,
We're not afraid of going through
the pearly gates one day,
but thank the Lord we won't be bored
while travelling on the way.

Then back to Lake Macquarie
we intend to settle down,
Not really in the bush mate,
but really in the town,
but there's miles of open water
to play and fish and swim,
and there's miles of bushy foreshores,
in the stakes of life, we win!

Beating the ball to victory



Pictured above is the most successful CSIRO team in the recent ACT volleyball competition. From left, John Guggenheimer, John Schneider, Richard Bath and Cyril Runko who were also in the fourth grade team which won both the winter and summer competitions in 1981. The six-man team has now taken out the 1983 third grade winter championship. The fifth member on the far right is Otto Fabey. Absent is Dr Ken Parker, well known for his timing and especially his great skill in appearing at the last minute and saving the day. This photo, unfortunately, was taken the minute before. The trophy can be inspected at the Division of Water and Land Resources, Canberra.



Mr Ian Fergus, right, presents Dr Dik van Dijk, left, with records on his retirement.

Dr Dik Van Dijk retires

Dr Dik Van Dijk retired from CSIRO in July after 31 years with the Division of Soils.

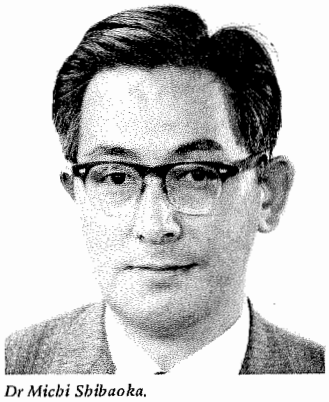
Dik commenced work in the Canberra region of the Division in 1952, where his studies were concerned with soil features in relation to erosional history. He published papers on soils of parts of the Murrumbidgee irrigation areas, and around Canberra, among others.

Following his transfer to Brisbane in 1966, he continued his research on geomorphology and soil landscape patterns in the clay plains of the Brigalow lands around Tara, and subsequently extended his concepts of landscape history to other parts of the Murray-Darling catchment.

At an afternoon presentation, Dik was given a collection of records as a token of appreciation from the staff of the Cunningham Laboratory and his colleagues in the Division of Soils in Adelaide, Canberra and Townsville.

A happy hour was held for Dik Van Dijk and his wife later in the afternoon and this gave his friends and colleagues an opportunity to wish him well in his retirement.

Dik will still be around the Laboratory for some time to complete some manuscripts on his research into geomorphology and pedology.



Dr Michi Shibaoka.

Dr Michi Shibaoka, from the Division of Fossil Fuels, was a special guest at the 1983 International Conference of Coal Science held in Pittsburgh, Pennsylvania in mid-August. Dr Shibaoka has also been invited to present the Baragwanath Lecture at the 1983 Australian Workshop on Coal Liquefaction, to be held in Melbourne in November. Both distinctions are in recognition of his important contributions in the field of coal research.

Dr R. Kulkarni has retired, on medical grounds, from the Division of Atmospheric Research. During six years of post-doctoral appointments and a further 15 years in CSIRO, his special interest was with stratospheric ozone, both as a tracer for studying large-scale atmospheric movements and as an absorber of the potentially harmful ultraviolet component of solar radiation.

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Mr (Tony) Evans has retired after 40 years with CSIRO, mostly with chemistry Divisions but for the last six years in charge of the urban meteorology group of the Division of Atmospheric Research. He has taken up a half-time Research Fellowship to continue his research interests.

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Retirement speeches are often the time when events are recalled which some individuals would rather forget. At the recent farewell to **Jim Dodds**, caretaker-in-residence for five and a half years at the Division of Textile Physics, recollections were made about the researcher who complained that he knew his office floor had not been vacuumed the night before because his finger nail clippings were still on the carpet from the previous day.

Gold medal for ex-CSIRO man

The Gold Medal of the Ecological Society of Australia for 1983 has been awarded to a retired CSIRO scientist, **Dr Len Webb**. Dr Webb, formerly of the Division of Plant Industry's Rainforest Ecology Unit, was given the award for his sustained investigations of the types of Australian rainforests, their distributions and relations to environmental factors, and for his leadership in raising public awareness of rainforests. Len joined the Australian Phytochemical Survey within CSIRO in 1944, and while working for the Organization, studied at the University of Queensland successively for a BSc, an MSc and a PhD, awarded in 1956.

In 1953, Dr Webb switched to the Rainforest Ecology Unit, where he remained until his retirement in 1980. Since then he has worked as an honorary professorial fellow at Griffith University in Queensland.

During almost 30 years with CSIRO, Dr Webb contributed to the understanding of Australian rainforests. In the 1950s, he pointed out the importance of disturbances such as cyclones in rainforests and devised a classification scheme for the description of rainforest vegetation. More recently, he contributed to the growing realization that Australian rainforests are not intruders but have evolved indigenously.

CSIRO staff members in Melbourne vacating their houses for periods of two or more weeks anytime this year could assist in one of the Division of Building Research's projects by allowing **Ken Biggs** and **Ian Bennie** to set up equipment to monitor air infiltration rates. The measurements are entirely non-destructive. You won't even know they have been in your place and you could even regard their efforts as a free security service while you are away! If able and willing to help, please contact Ken Biggs, Ian Bennie or Marie Zara at the Division of Building Research on (03) 555 0333.

□ □

Two senior scientists with the Division of Plant Industry retired recently.

Dr Erwin Schwinghamer retired as Principal Research Scientist after a career in plant pathology and genetics. He first joined CSIRO in 1962 from the United States and returned to the US in 1965, only to rejoin Plant Industry in 1969.

Mrs Dawn Perrin, chemist and Senior Research Scientist, retired after 25 years with the Division. She worked in the New Zealand Departments of Scientific and Industrial Research and Agriculture and in London before settling in Australia and joining CSIRO in 1958. Mrs Perrin is a leader in research on host-pathogen interactions.

Mr L.N. (Bill) Clarke retired in July after 38 years service with CSIRO. He was first appointed to the Division of Forest Products in 1945, where his knowledge and expertise in electronics and instrumentation led to him being appointed as head of an instrument group. Since then, he has been of great assistance to many officers and projects within the Division of Forest Products and since 1972 within the Division of Building Research.

Bill has also given valuable service to the Officers' Association as Returning Officer for more than 20 years.

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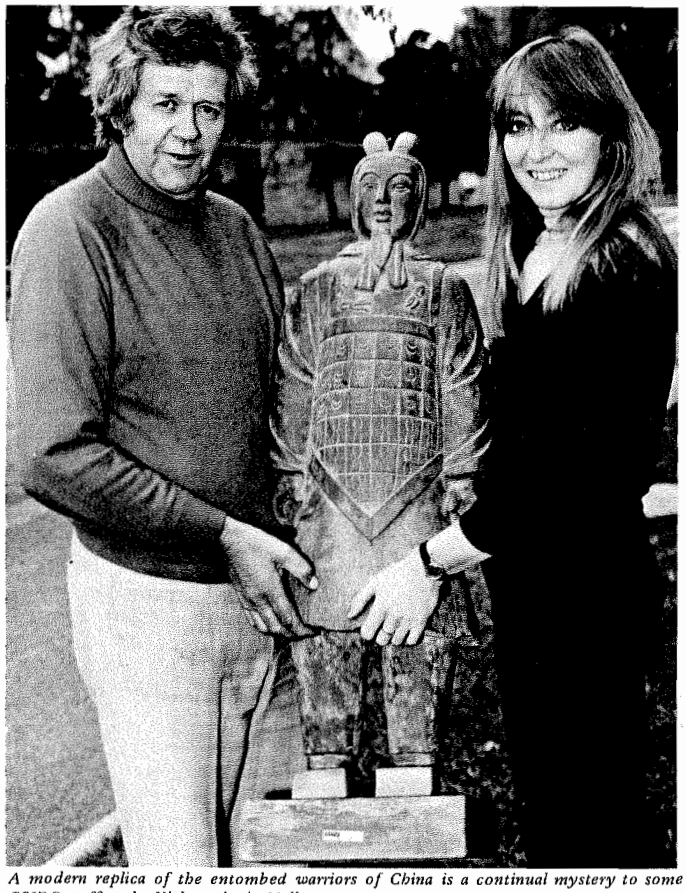
Ms Moira English, a post graduate student from Griffith University recently joined the Division of Tropical Crops and Pastures to work with **Dr Bob Myers** on nitrogen cycling in grain legume cereal rotations.

□ □

Is it the international reputation of CSIRO or the efficiency of Australia Post which enables it to continue to deliver letters with the strangest addresses?

A letter recently received at the Division of Applied Physics in Lindfield was addressed 'National Measurement Land', while a letter from Tokyo to Dr Clive Coogan was simply addressed 'Dr C.K., 9 Queens Road, Melboure, Australia'. Both letters found their owners.

Cracking the problem



A modern replica of the entombed warriors of China is a continual mystery to some CSIRO staff at the Highett site in Melbourne.

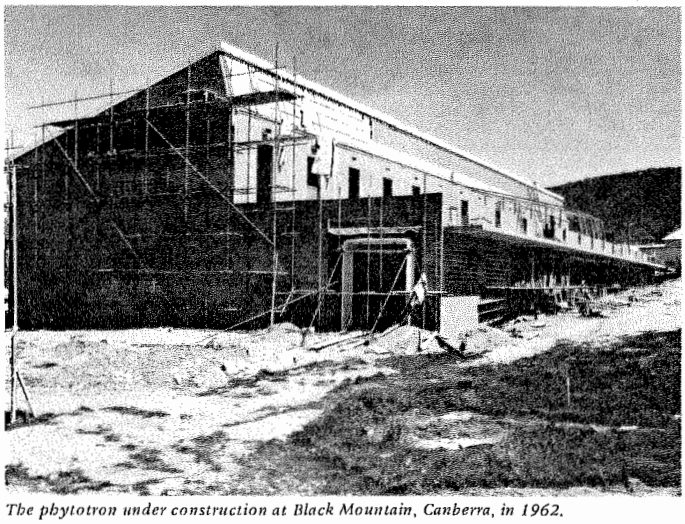
An antique dealer, Mr Ron Ashley, contacted Mr Harold Breitinger at the Division of Building Research about recently-made sets of the entombed warriors he imported from China after they started cracking.

Hugo Ilic of the Division of Chemical and Wood Technology identified the wood in the models as Chinese elm and oak. The wood is covered in a type of clay which is being analysed by Ari Antonovosky, also of DCWT. Tests by DBR's Fran Young found that the timber used to manufacture the models was not yet dry. Keith Fricke, also of DBR, is preparing advice on the proper seasoning of the wood.

Tests on the replica are continuing as DBR and DCWT staff hope to solve the mystery of the 'Cracking Entombed Warriors'.

Pictured above with one of the warriors are Ron Ashley and Fran Young.

Phytotron has 21st birthday party



The phytotron under construction at Black Mountain, Canberra, in 1962.

CERES is coming of age. The Controlled Environment Research Laboratory at the Division of Plant Industry in Canberra, named after the Roman goddess of agriculture, is turning 21 and celebrating in due style with a dinner party in September.

Looking ominous from the outside, the mysteries of the phytotron are only revealed once the double doors and air-locks are penetrated and plastic sandals and laboratory coats donned. Lights flash, switches click, water sprays and machinery hums across the vast cement floors, rows of cabinets and enclosed glasshouses where the biology of plants is unearthed and unravelled.

UNIVERSAL USE

Opened by Sir Robert Menzies in 1962 as a national facility, CERES, otherwise known as the phytotron, has been used by agricultural researchers in CSIRO, from around Australia and from overseas.

Most Australian agricultural plants and many native and exotic species have been grown in the phytotron, and millions of plants, from seedlings to eucalyptus trees, have been studied there.

Processes such as germination, photosynthesis, and flowering are controlled by many environmental factors, including temperature, daylength, light intensity and humidity. In nature, it is practically impossible to determine the relationship between a plant and its environment, but by allowing the researcher to control these variables, the phytotron has contributed substantially to knowledge of these relationships.

CONTROLLED RESEARCH

The controlled environment allows researchers to determine which part of the plants respond to particular environments, and how. They can also assess the response of a particular plant to a range of environmental conditions.

The phytotron is also used to grow plants under standard conditions for use in other experiments. It can accelerate the progress of many kinds of research including plant breeding and is vital to complement field studies.

Research in this laboratory has covered a whole range of activities, from the physiology of flowering to the development of tobacco strains resistant to blue mould fungus. Rates of photosynthesis, growth and yield have been studied, and nutrition and in vitro genetic experiments done. In 21 years, more than 500 papers have been written on the work done in the Canberra phytotron.

ENERGY EFFICIENT

CERES was designed by CSIRO engineers and cost £600 000 to construct and equip. It differs from many other phytotrons around the world in that it uses natural light to the greatest possible extent and has had no need of extra heating.

Surplus heat from the sealed artificially lit cabinets and from the glasshouses is stored in a large heat-exchange pond, from which it can be drawn later to heat the glasshouses by reverse cycle operation of the heat pumps.

BIRTHDAY PARTY

A birthday party for the phytotron will be held at Bruce Hall at the Australian National University.

Salinity problems in China

During May a group of six Western Australian scientists was invited by the China Association for Science and Technology to tour northern China. The objective of the visit was to present papers on Australian work in controlling and utilizing saline soil, and dryland agriculture. Dr Adrian Peck of the CSIRO Division of Groundwater Research was a member of the party.

Salinity is a considerable problem in China and the party was shown sites where the Chinese were experimenting with methods of ameliorating the effects of salinity and bringing land back into productivity.

During the tour and subsequent discussions with Chinese scientists the party found many areas of common research interest. Although the laboratories visited were very well equipped the Western Australian group often found it difficult to judge the depth of the science. However, where communication was good, they found the quality of staff impressive.

One of the first areas visited was Ling Xian Country in Shandong Province. Here salinity problems are encountered on low-lying areas of the alluvial plains of the Yellow River. Salinity in this area has been overcome by drainage, improving soil nutrition and structure with green manure and compost wastes and reforestation which reduces wind erosion and crop damage. The areas shown to the group provided evidence of successful reclamation of soils which had low productivity due to salinity and water-logging.

The group was told that the Yellow River carries 50 per cent by weight of sediment, and deposition results in an average increase of water level of 0.1 m a year. As a result, levees must be continually raised, and the river flows above the level of the surrounding plain. It is no wonder the Yellow River is also called China's Sorrow as it has burst its banks 26 times through recorded history and the last time, in the late 1930s, about a million human lives were lost.

On visiting Yu Cheng County in the same Province the group found a similar history of salinity but in addition to drainage ditches, wells are pumped to lower the water table.

The first seminar was held at Handan, a city in the Hebei Province. The seminar began with a number of papers by Chinese specialists on many aspects of salinity including reclamation, the use of salt tolerant crops, seasonal changes in salinity, features and control of salt movement in soils in a monsoonal climate and the use of LANDSAT for mapping and classifying saline soils. Members of the Australian party gave papers on their various areas of expertise, Dr Peck concentrating on an overview of soil salinity in Australia.

Wugong in the Shaanxi Province is a centre for research related to agriculture and the party spent four days there visiting laboratories and attending seminars on dryland agriculture. After a brief visit to a field experimental station where fertilizer rates are studied, the party travelled to Chunhua County which is an elevated area of loess where erosion affects 90 per cent of the land. As a consequence there is a great interest in soil and water conservation, and methods used to control this erosion include terracing, which will reduce slopes, and tree planting. Many dams have been constructed in erosion valleys to trap sediment and provide water for irrigation. One dam which was visited will probably silt up within 50 years.

The visit to this area took the party by surprise as they didn't expect to visit a cold mountain area and did not take suitable clothing. As a result they ended up putting on virtually everything they had and anything they could scrounge. In this assorted attire the party were guests at the local opera—the audience of about 2000 gave a standing ovation when the motley group of Australians eventually entered!

The extent of China's human resources were revealed by figures given in this County. To help control erosion, in one area about 80 hectares of land were levelled in one month by concentrating the manpower of the local commune (about 1200 people) on this single task. The visitors were also taken to a mountain area which was reforested by calling on the labour of 10 000 people, each of whom planted 500 trees in five days. Many methods of controlling erosion are in operation in these mountain areas but there is no way of controlling erosion from the steepest land and some of the effects of this erosion are quite spectacular.

It was at Xian, also in the Shaanxi Province, that the pottery army, part of the tomb of Emperor Qin, was discovered by people drilling for water. The party were shown parts of the excavation. It seems Emperor Qin made some radical changes in China; for instance he decided a pottery army should be buried along with him when he died rather than the leading civil servants and military men as was the tradition up until his time! Emperor Qin was also responsible for joining earlier sections into China's 'Great Wall'.

On their return to Beijing (Peking) the party flew over areas of apparently saline soil. The flight took them along a northern arc through inner Mongolia and large areas of saline land were seen in the vicinity of the city of Yinchuan. While in Beijing the party did manage to visit some cultural sites including the Forbidden City and Summer Palace. The origins of the Summer Palace are particularly interesting—it appears the Empress of the time used all the money set aside to increase China's naval power to build the palace and even had a large lake excavated by hand. As a token gesture acknowledging the source of her money she had a stone ship moored in the lake!

Dr Peck feels the tour was extremely useful and thinks that future exchanges with China could focus more closely on particular problems or methodology. Personal contacts were made during the tour which the Chinese appear eager to develop.

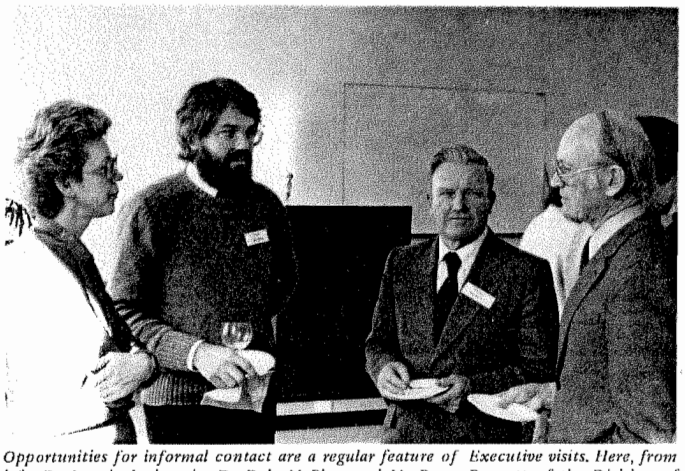
Planting for retirement

It was a fine day for a tree-planting when gardener, Mr Barry Rayner, front left, asked Mr Don McBean to plant a tree to commemorate his retirement from the Division of Food Research. The peg bears a plaque recording the event.

Don retired after 41 years of service. Since the Food Research Laboratory moved from Homebush abattoirs in 1960, Don and Dr Thelma Reynolds, now retired, were responsible for the supervision of the grounds at North Ryde, which are now a fitting tribute to their enthusiasm and dedication.

A combined party was held for Don and Mr Wilf Bailey, who retired as a senior technical officer after 17 years of service. He is retiring to his property just outside Orange to rectify the problems that arose from the long drought.

Executive meeting



Opportunities for informal contact are a regular feature of Executive visits. Here, from left, Dr Jagoda Ignjatovic, Dr Dale McPhee and Mr Percy Prewett of the Division of Animal Health chat with Executive member, Dr Geoff Taylor.

A busy three days

The July Executive meeting in Melbourne was held during three days of intense activity for all concerned.

In addition to the Executive meeting on the night of July 13, the members of the Executive, plus the Executive Committee, participated in an Executive Seminar on Advanced Materials (see adjoining story), visited the Melbourne laboratories of the Divisions of Protein Chemistry, Materials Science, Animal Health and Applied Organic Chemistry, and attended a farewell dinner for Mr Hugh Morgan, part-time Executive member.

During the visits, Divisional staff gave Committee members an overview of work in progress on various programs. Perhaps the most notable feature of the presentations, apart from the obvious high quality of much of the research described, was the enthusiasm researchers showed in describing their work and its potential for Australian industry.

EFFORTS MADE

Comparisons between research teams on the quality of their presentations would be invidious, but the team that dragged a wet cow hide out a tanning vat and unhaired it in a few seconds in front of the onlookers must have created a lasting impression. Also noteworthy was the soft sell approach of the group who casually left a copy of *Nature* with a cover story on their most recent discovery lying around the laboratory.

SOCIAL CONTACT

The central event during each visit was the meeting with staff over morning tea, lunch, or later in the day, other forms of refreshment. Inevitably, these were somewhat formal affairs with an address from the Chairman followed by questions from staff. However, there was always time for a certain amount of informal contact, where issues of current concern were aired between Divisional staff and the visitors.

A number of significant matters were canvassed in the question and answer sessions with the Chairman. They ranged from concerns about the 'greying' of CSIRO, the promotion of scientists spending a large proportion of their time working closely with industry, and recent criticism of the Organization in the media.

COMMUNITY RELATIONS

Several Headquarters activities were mentioned in the response to the last issue. However, a very interesting point made in discussion was that the activities of individual officers are the real key to preserving community goodwill. This is because willing and enthusiastic Divisional staff who can explain the research goals and achievements of the programs that they are concerned with to potential users of their findings and other interested persons in the community will have a greater and more lasting impact on the public than occasional statements from 'on high' or rather specialized meetings in Canberra.

Other issues raised concerned the lack of opportunities for bench scientists to interact with Directors in some Institutes, how well the Institute structure has worked in practice, what will we get out of the budget, and the difficulties caused by the uncertainty over resources every year.

—James Lumbers

Materials Science review

CSIRO would re-examine the whole thrust of its work in materials science, the Director of the Institute of Physical Sciences, Dr Neville Fletcher, said in Melbourne recently.

Dr Fletcher told an Executive seminar on materials science that CSIRO would:

- assess the scientific quality and impact of its research programs in an international context;
- examine the place of its research alongside that of Australian university and industrial laboratories; and
- extend the impact of its work both in supporting existing industry and in stimulating new ventures.

'CSIRO is concerned with research in a wide range of fields related to materials', Dr Fletcher said.

'It ranges from precise measurements of the thermal properties of pure materials at temperatures below that of liquid helium, and exacting electron microscope studies of the structures of dislocations and of atomic order in thin metal films at one end of the scale, to the development of improved welding rods at the other', he added.

CIVILIZATION'S PROGRESS

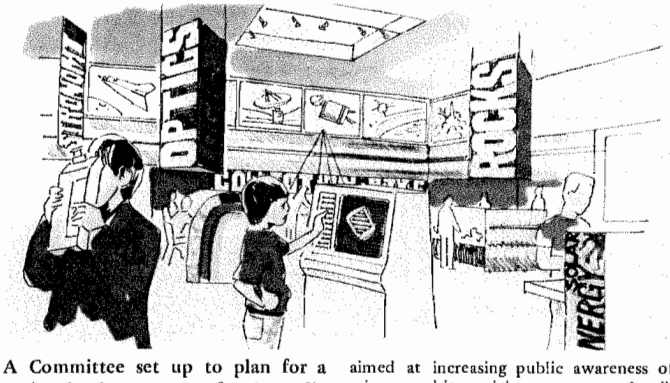
Dr Fletcher opened the seminar and said that the progress of civilization was marked by the use of new materials.

Civilizations such as the stone, bronze and iron ages had been named after their technically most advanced material.

'In this second half of the twentieth century, our advanced materials still define, to a large degree, the frontiers of the possible.

'If civilization survives long enough for our own age to be given a name by future historians, then it is unlikely that a single word will suffice unless this time is called the age of materials', Dr Fletcher said.

National science centre



A Committee set up to plan for a national science centre for Australia expects to make its report to the Australian Bicentennial Authority by October.

The Director of the Bureau of Scientific Services, Mr Sam Lattimore, is a member of this Committee which was established earlier this year by the Department of Science and Technology at the request of the Authority. The Deputy Secretary of the Department, Dr Roy Green, is Chairman of the Committee.

The Committee has proposed that a national science centre be established to provide the Australian community with a focus for scientific and technological matters.

Through various information and extension services, the centre will reach out to Australians in all States and Territories, including remote centres of population. It will be designed to communicate scientific principles to the general public and the practical applications of these principles to everyday life.

The centre will actively promote events aimed at increasing public awareness of science and its social consequences. It will organize public conferences, liaise with the mass media and prepare appropriate written and visual materials intended to help non-scientists form opinions on matters of concern to them.

Workshops at the Canberra headquarters will provide the interactive exhibits which will feature so heavily in the centre's immediate appeal to the public.

Mr Lattimore said the proposed centre would be an exciting and vital facility, reflecting the nature of science itself.

'It will act as an active focus for, rather than as a monument to, the discipline and will provide an outlet and challenge for the curiosity which is in all of us', he added.

Mr Lattimore said it was hoped the centre would open in 1988 as a Bicentennial project.

'It would seem a suitable occasion to recognize science's contribution to the development of the nation by raising it to the same status in the public consciousness as acheived by the arts through the Australian National Gallery and the proposed Museum of Australia', he said.

Obituary:
Death of Norm Noble

With sadness we record the death in Sydney on 26 July 1983 of the first Editor-in-Chief of CSIRO, Dr Norman Scott Noble.

Dr Noble was appointed to the Editorial and Publications Section in 1947 to edit the Organization's publications and to establish a series of national scientific research journals which CSIRO proposed to publish in collaboration with the Australian National Research Council and later the Australian Academy of Science. Two series of the *Australian Journal of Scientific Research* were published in 1948—Series A for the physical sciences and Series B for the biological sciences. It was soon apparent that these two series could not cater for all the scientific research being carried out in the Organization's increasing number of Divisions, not to mention the growing amount of work being done in the universities, State departments and other institutions throughout Australia. Thus Series A divided into the *Australian Journal of Chemistry* and the *Australian Journal of Physics* and Series B became the *Australian Journal of Biological Sciences*. This latter journal soon budded-off the *Australian Journal of Botany* and the *Australian Journal of Zoology*. Three more journals were soon to be established under Dr Noble's editorship, namely the *Australian Journal of Agricultural Research*, the *Australian Journal of Marine and Freshwater Research*, and, shortly before he retired, the *Australian Journal of Soil Research*.

As well as placing the journals on a firm foundation, Dr Noble also continued to publish the CSIRO Bulletin series, besides establishing the many Divisional Technical Paper series and Pamphlet series. In addition, he participated in the development of the semi-technical magazine *Rural Research in CSIRO* and laid the groundwork for the publication of the great variety of popular scientific literature which the Organization now produces.

He graduated in agricultural science with first-class honours from the University of Sydney in 1928 and was appointed an assistant entomologist with the New South Wales Department of Agriculture.

In 1929 he was awarded a Walter and Eliza Hall Agricultural Research Fellowship which enabled him to carry out entomological research for two years at the Imperial College of Science at the University of London before going on to the University of California in 1931. These studies rewarded him with a diploma from Imperial College and an MSc from California. He returned to the NSW Department of Agriculture in 1932. In the field, he made a significant contribution to the understanding of the roles of parasites of several important insect pests, and he published 27 entomological papers, including two definitive bulletins on citrus gall wasp and its parasites.

Australian science owes him much. When he assumed his position, the Australian 'cultural cringe' was at its worst, and the first volumes of the *Australian Journal of Scientific Research* are full of papers of purely local interest. When he retired, unfortunately because of ill-health, he was in charge of eight specialist journals with a valid claim to be read overseas, and the author index of each journal is replete with names that were later destined to become famous. Because of his insistence in the meticulous presentation of scientific research and the high standards he set for the journals, where scientific discipline and rigour are finally put to the test of public scrutiny, he deserves a place among all those who helped Australian science to come of age.

—L.A. Bennett

CAT

The CAT Column is open to all members of CSIRO who wish to comment on communication matters.

Grahame Jackson of CILES has contributed this column on trade names.

Communicators in CSIRO will be familiar with the situation of picking up a telephone to hear 'I have been told . . . /I read in the paper/ . . . I saw on TV that CSIRO has developed the "SIROWHATSIT", could you please give me more information on this marvellous development?'

You have often never heard of a SIROWHATSIT!

It could be one of an increasing number of terms coined within CSIRO and disseminated to one of our many hungry 'publics' without being circulated within CSIRO.

The problem associated with the proliferation of SIRO trade names are essentially of two kinds—regulation and awareness.

The question of regulating SIRO trade names has been considered in the recent 'Review of CSIRO Commercial Activities' and the Executive will be deciding on this in due course.

Awareness of SIRO trademarks is another matter. It is vital to the image of CSIRO, that any communicator in CSIRO should be able to supply basic details of CSIRO developments and be able to refer enquiries to the responsible Division if further technical details are required. It is therefore proposed that a database, microfiche listing or paper listing be produced containing the following information for each CSIRO trademark. For example:

Trademark: SIROFLOC
Description: Water purification technique
Definitive article: *IR News* No. 132, *Ecos* No. 21
Division: Chemical and Wood Technology

This database could be maintained centrally, updated regularly and made available as either
i) an online interactive database on CSIRONET; and/or ii) distributed on microfiche and/or paper depending on user prefences.

The following is a partial listing of the currently identified tradenames. How many can you identify and tie to the Division responsible for development?

BELL-SIRO CHEESEMAKER, BIOCLONE AUSTRALIA PTY LTD, CORAN, ELISA, QEM*SEM, SCRIMBER, SIRAGCROP, SIROASH, SIROBIC, SIROCHECK, SIROCHROME, SICOT, SIRO-CT, SIRODRILL, SIROFLOC, SIRO GRITOMETER, SIRO-KEEN, SIROLAN, SIROLAP, SIROLARM, SIROLEVEL, STRATOSNOOP, SIROLIFT, SIROLOG, SIROMAG, SIROMAN, SIROMARK, SIROMATH PTY LTD, SIRONEM, SIROPHAN, SIROPLAN, SIROPULPER, SIRORA, SIROREZ, SIROSA, SIROSCALE, SIROSEEDER, SIROSMELT, SIROSORB, SIROSPUN, SIRATAC LIMITED, SIROTEM, SIROTHERM, SIROWET.

If you got all those right, how about these two which are well known in Victoria, but relate more to social than scientific achievement, i.e. SIROSAMPLING and SIROSIP (hic!)?

To enable us to complete our listing, we invite all CSIRO staff to submit details of any CSIRO tradename not appearing on the above list to:

Grahame Jackson
Central Information Service, CILES
PO Box 89
East Melbourne, Vic. 3002
Tel: (03) 418 7274

High technology art:

CSIRO has artists in residence

Complex high technology equipment at a CSIRO laboratory in Sydney is to be made available to allow artists to experiment with the application of technology to their art.

The Australia Council and the Australian Film Commission are providing funds for up to three artists, creative film-makers or technicians to work in residence at the Division of Applied Physics at Lindfield in Sydney.

The Division has a wide range of mechanical and optical equipment used in its research related to industry and the community.

Announcing CSIRO's cooperation in the new venture, the Chief of the Division of Applied Physics, Dr John Lowke, said each individual would spend up to three months full-time residence in the 12 month period beginning in September.

'A living allowance of up to $8000 per artist is being made available by the Australia Council and the Australian Film Commission', Dr Lowke said.

MODERN FACILITIES

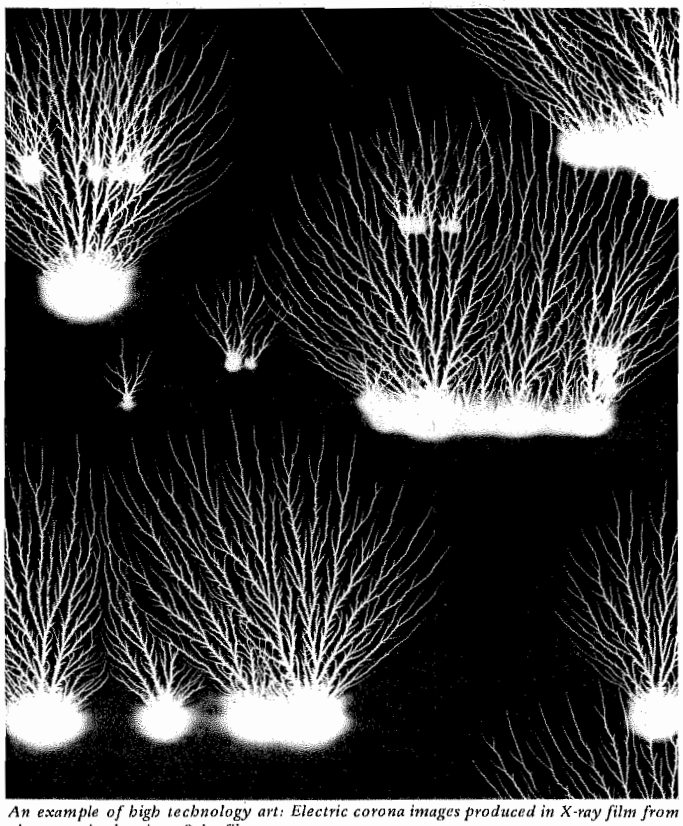
He explained that the Division had facilities in a range of modern technologies including computer-controlled machining, computer graphics, electroplating, photo engraving and laser machining, as well as a fully equipped photographic laboratory.

Dr Lowke said he was enthusiastic about the involvement of the Division in the 'artist in residence' scheme.

He said the artists would be working with his staff of 400 researchers who were highly skilled in the use of the new high technology equipment.

COMPUTER INFLUENCE

Dr Lowke said he believed many people were unaware of the influence of technology on the arts. He likened the present developments in computer art to the revolution in popular music which occurred in the 1950s following the development of the electric guitar.



An example of high technology art: Electric corona images produced in X-ray film from electrostatic charging of the film.

'Most people believe that the introduction of rock and roll music was initiated by Bill Haley singing 'Rock Around the Clock'.

'However it was really due to the application of new technology to the production of music.

'In particular, it was due to the invention of the electric guitar', Dr Lowke said.

'For the first time it was possible to produce music and rhythm at such an intensity that it could shake the body of the listener', he added.

'Ear splitting volumes with completely new sounds could be combined to make possible new modes of artistic expression.

'These days, we have computer music and electronic music using a wide range of instrumentation', Dr Lowke said.

'Computer graphics makes possible new forms of patterns and symmetry so that whole art exhibitions are devoted to work produced using computers.

'Holography has introduced new potential to make images in three dimensions and computer-controlled machines have made possible the cutting of metal in complex configurations and shapes which previously were almost inconceivable.

'As well, we have lasers, glassy metals and even the possibility of laser sculpture with these new materials', Dr Lowke said.

Mr Justice Kirby joins Executive

Continued from page one

Mr Justice Michael Kirby

science and technology when the Law Reform Commission had received references which had involved aspects of science.

Mr Justice Kirby said he viewed CSIRO with a mixture of pride in its achievements and ignorance of its present organization. He said he was concerned that the Organization, like any other body at the frontiers of science, should pay attention both to communicating to society CSIRO's problems and achievements and to listening to the lawyers in society.

INTELLIGENT LAYMAN

Justice Kirby said there were three areas of science which interested him and that he regarded as most dynamic at the present time. 'Nuclear physics, biotechnology and informatics are areas which are having a fundamental impact on our society', he said. Mr Justice Kirby said he did not intend to 'dust off his school science books' because he believed it would be a mistake to ever become a 'psuedo scientist'.

'I would think my role on the Executive would be that of an intelligent layman, aware of the social implications of science and technology and willing to speak to scientists interested in their endeavours at CSIRO', he said.

Justice Kirby said he believed Robyn Williams of the ABC's Science Unit deserved a doctorate from an Australian university in acknowledgement of his achievements in bringing scientific matters to a general audience without trivializing or scandalizing the personal issues.

'He has a small team of people working with him and he gets quite a degree of support from the scientific community but it is too much to expect one man or a small team of people to bring such a range of developments to the entire community.

COMMUNICATION VITAL

'I believe more scientists have to speak out themselves, rather than succumb to what I believe is snob peer pressure against communicating complicated matters to society.

'It is a snob attitude which I deprecate in my own profession and which I regret when it comes to science because whereas you might, by living a different, quiet and obscure life, be able to avoid the law, it is very difficult in today's world to avoid the implications of science.

'It is absolutely vital that scientists communicate with the rest of us', Mr Justice Kirby concluded.

'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 Editors, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editors: Jeannie Ferris and Penny Gibson.

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CoResearch

CSIRO's staff newspaper *Sept./Oct. 1983* **265**

SIROTECH:

New CSIRO company to boost industrial research

CSIRO announced major initiatives to improve its links with manufacturing industry at the National Technology Conference held in Canberra.

Central to the move will be the establishment of SIROTECH, a company to encourage commercialization of CSIRO's research results and to improve awareness within the Organization of the needs of Australian industry.

The Minister for Science and Technology, Mr Jones, has welcomed the initiatives.

'The Federal Government believes a technological renaissance in Australian industry is vital to the nation's future.

'I am confident that this step by CSIRO, together with Government initiatives to boost industrial research and development, will be an important stimulus to this end.

'CSIRO will gain, through SIROTECH, business skills it currently lacks.'

Mr Jones said the Government had specifically allocated almost $600 000 in the Budget for SIROTECH and for CSIRO to contract the development of its research to outside agencies.

NON-PROFIT COMPANY

The Chairman of CSIRO, Dr Paul Wild, said SIROTECH would be a non-profit company largely financed initially by CSIRO and with an industrialist as chairman. It would have three main functions:

- Arranging the development of CSIRO research results to the stage where decisions on commercialization can be made, by contracting development work to industry or arranging for collaborative development.
- Facilitating the transfer of CSIRO research results to industry through undertaking or commissioning market analyses, negotiating licensing agreements with firms, or participating in the management of companies set up to commercialize products, resulting from CSIRO research.
- Assisting CSIRO Divisions to identify and undertake relevant research by liaising between Divisions and companies, informing Divisions about technological and market requirements, and arranging contract research for individual firms.

Dr Wild also said CSIRO had endorsed the main thrust of a report by an independent committee set up in April 1982 to review CSIRO's commercial activities. The committee was headed by Dr Peter Robinson, Group General Manager, Technical, Metal Manufactures Ltd.

'The report encourages CSIRO to be more positive and active in promoting better use by industry of the results of CSIRO research.'

Dr Wild said SIROTECH, while not a result of the report, would embody all the functions of an internal Innovation Support Service proposed by the committee.

'CSIRO believes the company structure proposed for SIROTECH will be the most effective way to carry out an important part of its technology transfer responsibilities and to be seen to be taking a positive step.'

MAJORITY SUPPORT

Dr Wild said the majority of external commentators strongly favoured SIROTECH, while most Chiefs preferred the ISS approach.

'The most common reservation among the Chiefs is that SIROTECH will get between Divisions and industry and/or discourage Divisional staff from accepting responsibility for relations with industry.

'I believe this fear is unfounded. The main purpose of SIROTECH is to provide expertise CSIRO does not have. It will undertake tasks that are not currently being undertaken, or at best are being undertaken inadequately.

'Even where SIROTECH will be taking on existing functions, it is with the aim of boosting Division's activities.'

Rangelands program to be expanded

CSIRO is to expand its Rangelands Research program by appointing four new Research Scientists.

The new positions were announced by CSIRO's Chairman, Dr Paul Wild, who visited Deniliquin recently.

Dr Wild said two positions had been allocated to Deniliquin and two to Alice Springs to allow expansion of research in both the arid and semi-arid rangelands.

He said at a time when the organization was committed to maintaining an expanded research role with diminishing funds in real terms, the allocation of four new positions to a single research program indicated the Executive's high priority for that research.

While in Deniliquin, Dr Wild and the Executive visited CSIRO's research facilities in Charlotte Street and inspected the Falkiner Memorial Field Station.

Dr Wild also met representatives of local councils and the Deniliquin Chamber of Commerce to discuss the ramifications of the proposal to move the Deniliquin staff to Adelaide in 1988.

Dr Wild emphasized at the meeting that research efficiency was of paramount importance and that in the longer term Adelaide was a more appropriate base for a Rangelands Research program.

He said the impact of taking such a group out of a town the size of Deniliquin was appreciated yet unavoidable.

'CSIRO's research must be oriented to issues of national concern and this will be more efficiently done from Adelaide', he said.

Acting Chief of the Division of Wildlife and Rangelands Research, Dr Allan Wilson, said the new research positions would be used to strengthen the ecological research being conducted at both centres.

He said one of the Alice Springs positions would be used to investigate in greater detail the relationship between fire and the populations of native animals.

The other Alice Springs position will allow the factors affecting landscape stability to be studied in more detail.

At Deniliquin, Dr Wilson said one position would be used for a detailed examination of the opportunities for feral and native animal management in the semi-arid woodlands.

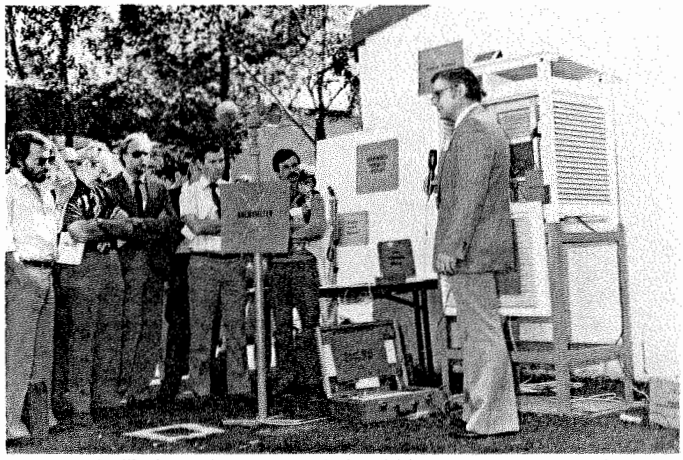
The other Deniliquin position, he said, was subject to some further consultation before being advertised.

Australia needs new telescope

The Parliamentary Standing Committee on Public Works heard evidence recently on the need for the new Australia Telescope. Dr Bob Frater, Chief of the Division of Radiophysics, told the Committee that the telescope would solve some of the most exciting problems in astrophysics. He said Australia's access to the southern skies would permit scientists to observe a range of unique and important objects.

Pictured at the hearing are, from left to right, the Director of the Institute of Physical Sciences, Dr Neville Fletcher, the Chairman, Dr Paul Wild, and the Chief of the Division of Radiophysics, Dr Bob Frater.

Computing the weather



Mr Brian O'Neill, electronic engineer with the Division of Tropical Crops and Pastures, explains the new automatic weather station to company representatives interested in purchasing the system.

CSIRO develops a new weather station

A new low-cost automatic weather station developed by CSIRO will soon be marketed to provide accurate on-site information for groups conducting environmental studies.

Developed by the Division of Tropical Crops and Pastures at the Cunningham Laboratory in Brisbane, the station will give comprehensive details about the climate of any locality.

The information could be used by soil conservation, irrigation and water supply authorities, mining companies and farmer groups to plan environmentally safe systems of land use.

COMPUTER-BASED

The weather station is computer-based, and will be manufactured and marketed by Environdata Australia Pty Ltd of Queensland for about $3500, while the portable computer will be $4000.

The leader of the team which developed the system, Mr Brian O'Neill, of the Division of Tropical Crops and Pastures, said that the system had been used successfully at six CSIRO research stations where measurements of grass and soil temperatures, maximum and minimum and wet and dry bulb temperatures, wind speed and direction, rainfall readings and radiation conditions were monitored.

'The system comprises two parts—a field station that collects daily weather information and a PC 65 portable computer that extracts and analyses the information', he said.

The field station has a microprocessor inside a standard Stevenson screen which continuously monitors a number of outside sensors and summarizes each day's information.

'Up to 96 days of information can be stored before the portable computer is required to extract this information', Mr O'Neill said.

'This storage capacity is a major plus for stations sited in remote areas', he added.

VERSATILE SYSTEM

'The PC 65 computer is versatile, and can also function as a general purpose computer when not required to service field stations.

'A future development will be the use of a telephone linkup from the weather station to a computer node for daily or emergency collection and processing of data', Mr O'Neill said.

'The system could also be used in soil conservation planning by placing a number of stations over a catchment area to study rainfall intensity and distribution.

'Automatic weather stations could complement the use of computers in scientific farm management by providing more information for planning pest and disease control programs, harvest forecasting and irrigation scheduling.

'Accurate measurement of the evaporation potential of soil water would improve the efficiency of use of our limited irrigation water supplies and help avoid environmental problems such as salinity', he said.

Accidental death of scientist

M.L. (George) Dudzinski, a Principal Research Scientist in the Division of Mathematics and Statistics and recently Division of Wildlife and Rangelands Research, died of injuries resulting from a skiing accident on August 12, 1983.

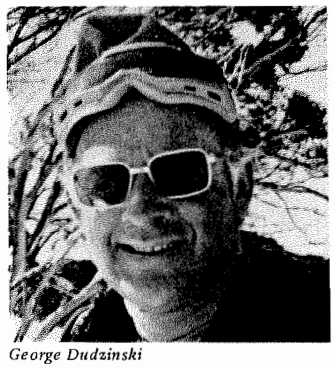
As a boy of 16, George enlisted in the Polish Army in 1939 and fought against invading Germans. After the occupation of Poland by Germany and the Soviet Union, he joined the Polish Carpathian Brigade and took part in the North African campaign, including the siege of Tobruk where the Brigade fought side-by-side with the Australian 9th Division. He was awarded the Polish Cross of Valour after the battle of Gazala. In 1943 he volunteered for the Polish Air Force fighting with the RAF and served as a pilot until the end of the war.

After the war he was awarded a scholarship to the University of London where in 1950 he gained a BSc(Econ), majoring in mathematics and statistics. He migrated to Australia in 1952 and after a short service in the South Australian Department of Statistics joined the CSIRO Section of Mathematical Statistics in Adelaide. While there he continued his studies and in 1954 he was awarded an honours degree in Economics by Adelaide University.

In 1955 he was transferred to Canberra where he joined the late George McIntyre in providing consulting services to Canberra-based Divisions.

SUBSTANTIAL CONTRIBUTIONS

Although George had no formal tertiary training in biology, during his 30 years in CSIRO he made substantial contributions to research on several biological subjects, both as consultant and as a research scientist, participating actively in all phases of investigations, including data collection. The technique of using aerial photography to acquire accurate quantitative data on grazing animal behaviour and application of principal components analysis for characterizing this behaviour in relation to environmental factors was developed by George and earnt him an international reputation.



George Dudzinski

Throughout his career, George had been interested in fauna research. He collaborated closely with several members of the Division of Wildlife and Rangelands Research, which he joined in 1979. In addition to playing a leading part in the Kakadu National Park Fauna Survey, he became a key member in the development of the Division's new research initiatives.

George's premature death unfortunately interrupted his latest work on the development of quantitative and ecologically sound methods of faunal surveys, which are greatly needed and which even before their completion add substantially to his scientific achievements.

As a result of his professional work, George was an author or co-author of some 70 scientific papers and a book written with Graham Arnold, 'Ethology of free-ranging domestic animals'.

George was an outstanding all-round sportsman, but skiing played a particularly important part in his life. He spent most of his holidays skiing in Australia, USA and Canada.

Many people in CSIRO, in the skiing fraternity and in the Polish community in Australia will miss George greatly. Our sympathy goes to his wife Anne, a former member of the Division of Entomology, his son Mark, a member of the Division of Forest Research, and to his two young daughters. —Jan Basinski

UP, UP AND AWAY WITH PAPER PLANES

Some of the 37 entries in the Inaugural Paper Plane Flying Contest at the National Measurement Laboratory are displayed above by their proud owners. The winners in the four-section contest were Graham Allen, third from the right, who won both the 'unpowered distance' (41.7 metres) and the 'powered time aloft' sections. Powered by one gross of rubber bands, it stayed aloft for 14 seconds. Frank Sharples, fourth from the right, won the 'unpowered time aloft' section with a time of 7.17 seconds, while Wayne Sinclair, fifth from the left, won the 'powered distance' section. Ross MacRae's entry, first on the left, though sophisticated, had a distressing tendency to take a fast nosedive. However, he shared the perpetual trophy for the most outstanding model with Graham Allen. The winner of each section won a bottle of champagne.

The entrants shown above are, from left to right, Ross MacRae, Achim Leistner, Debby Brown, Phillip Lennox, Wayne Sinclair, Mark Darlow, Frank Sharples, Graham Allen, Alex Bell and Norman Bass.

Soils data base for Thailand

Thai soil scientist, Mr Taweesak Vearaslip, left, demonstrates his soils data base on the Rainbow 100 microcomputer purchased by ADAB, to Mr Tim Chapman, Regional Director of ADAB's ACT Regional Office, at the Division of Water and Land Resources.

Thailand's first soils data base, one of the first in the South East Asian region including Australia, is now a healthy fledgling and growing fast, thanks to the efforts of Mr Taweesak Vearasilp.

Funded by the Australian Development Assistance Bureau (ADAB), Mr Vearasilp recently spent six months with the Division of Water and Land Resources in Canberra, adapting the approach used in the Division's new Papua New Guinea natural resources data base.

When the system is complete it will cover all of Thailand's 230 soil types, which are currently mapped into about 4000 areas.

ADAB purchased and delivered the Rainbow 100 microcomputer and printer, which constitute the initial hardware for the system, to the Division, which enabled Mr Vearasilp to have the data base operating smoothly before he returned to Thailand.

Further equipment will be needed as the data base is expanded to cover the whole country.

Mr Vearaslip said that possible future developments of the Thai system included a land resources data base along the lines of the Division's sytem for Papua New Guinea, with data on climate, vegetation, landform and agricultural potential as well as soils.

Counselling Service is used by many staff

Personal counselling has been well accepted in CSIRO, with 400 individuals talking with the counsellors and 350 others attending seminars.

Mr Ian Paton is the Canberra based leader of the personal counselling service, which began last year on a year's trial. The other part-time members are Ms Acey Choy in Sydney and Mr Curt Fisher in Melbourne.

'The kinds of problems brought to counsellors are many and varied, some arising from work situations, some from home or outside work', Mr Paton said.

Other problems of a more general nature affecting a sense of well-being, fulfilment and life satisfaction are also discussed', he said.

COUNSELLING SESSIONS

Individual sessions last from half an hour to an hour or more. Some people come for one session while many others work through a problem in two or more visits.

'Nearly 1500 sessions were given in the first year of operation', Mr Paton said.

Ms Choy said that contact ranged from in-depth counselling contracts with the goal of changing major ways in which an individual has been limiting his happiness and fulfilment, to off-the-record 'yarns' about dealing with difficulties with a particular family member or work mate.

People seeking counselling ranged through administration, research, technical and ancillary staff and sometimes families became involved in the sessions.

Mr Paton said counselling was a process of exploration with a person, talking about options and bringing realistic information to bear on assumptions.

'We try to increase a person's ability to learn how to make a decision, and to be able to evaluate emotional content with factual content and remove stumbling blocks.'

The counsellors found the most common problems relating to work were about conflict, promotion, stress, communication, decision-making, careers, re-deployment, retirement, lack of fulfilment, health, other people's problems and managerial difficulties.

Problems arising outside work were related to marital and family relationships, friendships and love relationships.

Generally, people were concerned about indecision, anxiety, assertiveness, loneliness, alienation and self-esteem.

The counsellors considered that the absolute confidentiality and the voluntary nature of personal counselling were significant factors in the wide acceptance of the service.

STRESS MANAGEMENT

The counsellors also run stress management courses.

'It became obvious early that there was a need to discuss stress situations and that we should run stress management seminars', Mr Paton said.

'From the first trial courses, we found we were tapping a large demand and the evaluations were very positive', he said.

'The course aims to assist participants to increase their personal awareness of current and potential stress and to learn several ways of controlling the harmful effects of stress', Mr Fisher said.

This included learning how to relax, and some participants have joked that it was the only time they have ever been 'paid to lie down on the job for CSIRO'.

The seminars run for about six hours, with no more than 20 people per group. Follow-up seminars are planned.

CONTACT THE COUNSELLORS

To discuss a private matter or to find out more about the stress management seminars, the counsellors can be contacted at their base Divisions:

Mr Ian Paton, Division of Entomology, Canberra (062) 46 5350.

Mr Curt Fisher, Division of Building Research, Melbourne (03) 556 2493.

Ms Acey Choy, Division of Food Research, Sydney (02) 887 8326.

From the Chairman-

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

During the last month, two legendary stalwarts of CSIRO retired from the Organization after long and distinguished service: Michael Tracey and Jack Coombe. Both were sent on their way at memorable farewell dinners.

Michael also gave a farewell talk at Plant Industry, a talk with all the literary polish that we had come to expect of him. His text was:

'Say not thou, "What is the cause that the former days were better than these?", for thou dost not enquire wisely concerning this.' Ecclesiastes 7:10.

He divides the history of CSIRO into three periods: the Classical period of the David Rivett era; the Romantic period of the Clunies Ross era; and then the 'sceptical Modern period in which utility and functionalism rather than excitement and aesthetics rapidly became dominant'.

How I remember the early 1950s—those were the days: a golden age, indeed. But how did people feel about CSIRO at the time? Recently Max Day sent me a copy of a memorandum written by the late Dr D.A. Gill, then Chief of the Division of Animal Health, on 21 January 1951, near the beginning of the Romantic period. I quote from it.

'There is a widespread feeling that things are not what they should be in CSIRO. Many people have mentioned their misgivings to me, including old and tried members of the staff, whose loyalty and good will are beyond question. They feel that we are getting off the track and are losing the high reputation that we had.

If these misgivings are justified it is very disturbing and the causes must be found before there can be any chance of retrieving the position.'

Such were feelings expressed at the actual time of the golden age. I have read similar commentary about the golden age of batsmanship (about 1900-1905) written at the time.

***

Jack Coombe joined the Organization in 1941. The following is an extract from a letter written on 16 January 1941 by Mr Jack Ulmer of Customs House, his former place of employment, to the Secretary of CSIR.

'I understand Master John Coombe has applied for a vacancy in your office. Jack is a country boy and looks the part, strong, healthy and willing, but the one thing about him that is definitely *not* country is his brain. The senior officers of this branch look upon him as a real phenomenon . . .'

I am not sure how our friends in the rural industries will react to that letter, but there is little doubt that Jack came to us with the highest recommendation.

The Executive recently had the pleasure of visiting the Rangelands Research Laboratory (Deniliquin) and the Centre for Irrigation Research (Griffith), meeting with staff and learning of their work and plans for the future. Jack Coombe, who had been much involved with these centres in bygone days, accompanied the Executive party, and on two social occasions we were privileged to hear some vintage Coombe, in reminiscent mood.

***

This year's budget made no allowance for extra staff (85) to be employed on the staff of ANAHL in accordance with a previously agreed program. Thirty-six of these staff members were essential to the commissioning and setting to work of the Laboratory, and the remainder were for building up the research function. Consequently I made a request to our Minister for a Ministerial Committee to consider the new Government's policy on the future role and operation of the Laboratory and the consequent provision of funds. I am pleased to say that the Minister agreed to my request and the committee of interested Ministers met and acted promptly.

The outcome was satisfactory and sensible. The Minister announced that the commissioning and setting to work of the Laboratory as a diagnostic facility would proceed without delay. He also announced the formation of an expert committee to consider the future research role of the Laboratory. This committee is to be chaired by Professor Frank Fenner and includes my colleague Keith Boardman. When the research role has been determined it will be possible to decide whether the Laboratory should remain in CSIRO or be administered within the Department of Primary Industry.

***

I have just attended the 3-day National Technology Conference which was the initiative of our Minister and it was opened with a full-length speech by the Prime Minister. The great significance of the conference was that for the first time it brought together people from government, industry, scientific institutions, trade unions and the community to discuss the many industrial and social issues arising from the introduction of new technology in the present 'post-industrial revolution'. It was an undoubted success and will be followed by others, the next in a year's time. The Minister performed impressively. He not only chaired the whole 3-day meeting in dynamic style, but, at question times, identified each questioner by their full name and affiliation—and there were 200 or so participants.

I ended my 20-minute talk on CSIRO's contribution on a personal note, as follows:

'The Minister and I have many things in common and I mention just two of them. The first is a strong conviction that nowadays the introduction of new technology needs positive government intervention; the second is a special affinity for Mozart piano concertos. In other respects we are different—complementary, I should say. I believe the Minister embraces the world as a massive comprehensive data bank on which he draws freely and imaginatively to tackle any situation. I, on the other hand, am dedicated to reducing the world to the absolute minimum number of principles which, when known, can be applied to tackle the particular. I believe that *together* we could conquer the world.'

The Minister agreed we could do a lot worse than having a Mozart-led revolution.

Paul Wild

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

Dr Herbie Angell, one of the three founding members of what became the Division of Plant Industry, celebrated his 90th birthday recently, and received a congratulatory telegram from the International Plant Pathology Conference being held in Melbourne at the time. Dr Angell joined CSIRO in 1927 and retired in 1958.

□ □

Mr Andrew Restuccia, who completed his fitting and turning apprenticeship last year with the Division of Mineral Physics, has been awarded the Arthur Frost Memorial Award, which is an annual CSIRO award recognizing overall merit and improvement during the full term of an apprenticeship. Andrew received a commemorative plaque and $350.

CAT

The CAT Column is open to all members of CSIRO who wish to comment on communication matters.

Wendy Parsons of the Division of Forest Research in Canberra, has written this month's column.

Job sharing by two people is not uncommon in times of high unemployment but perhaps a new angle is one person doing a job full-time while keeping a watching brief on another.

In CSIRO, this sort of thing happened some years ago when skilled communicators from the then Division of Land Resources Management were 'loaned' to other Divisions for consultancy on displays.

Now the subject has come up again, this time at CAT's Canberra Regional Group meeting where the idea was put forward that the combined communication expertise throughout the Organization was considerable but not evenly spread. So why not encourage a Division without particular communication skills—in, say, industry liaison—to seek the advice of another Division which has. Travel and expenses would be met by the Division seeking advice. Emphasis would be on ideas costing little or no money—and these ideas do exist. The importance of encouraging this kind of sharing will be taken to the next CAT meeting (in Melbourne, October) with the idea of a CAT proposal on the subject.

I have recently taken up an ongoing brief to act as a kind of communication consultant to the Centre for Irrigation Research at Griffith. The excellent work of John Adeney, a member of the research staff at the Centre, came to an end when it was found that he really was needed full-time on research. At the same time the Centre, which is heavily involved in collaborative work, still needed communication strategies.

For me, the experience is proving beneficial. I have the chance to see if the communication techniques we use here at Forest Research can be applied to other areas of research (they can, so far) and I find that I am able to stand back and look at the things we're doing more critically. I'm sure I'll change some of our strategies in one way or another because of this.

Meanwhile, our friends at Griffith are able to call for advice whenever they want it and if I can't help I'll tap the combined expertise of the CAT communicators network to find out who can.

This method of operating should not be difficult on an Organization-wide basis, but the encouragement to use it—Chiefs being the main people to convince—must be positive and must have the backing of management, from the Chairman down.

Dr Arch Dyer.

Dr Arch Dyer, pictured above, previously Assistant Chief of the Division of Atmospheric Physics (now Atmospheric Research), has retired on medical grounds. Arch joined CSIRO in 1954 and enjoyed a distinguished career in micrometeorology with special interests in turbulence and transfers of heat, mass and momentum in the boundary layer. He served as Foundation Chairman of the Royal Meteorological Society (Australian Branch) and Chairman, Victorian Branch of the Australian Institute of Physics.

□ □

Dr Bill Shepherd has retired from CSIRO after 18 years research involvement with textile fibres and fodder conservation and a further 18 years with atmospheric physics. He will continue for 12 months at the Division of Atmospheric Research as a half-time Research Fellow.

□ □

Mr Ralph Jones, the first manager of the Glenthorne Field Station, has been awarded the Roseworthy Old Collegians' Award of Merit for 1983. Mr Jones attended Roseworthy from 1931-34 and was the college's farm manager for nine years before joining CSIRO for 33 years.

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Dr Bob Ferraris, of the Division of Tropical Crops and Pastures, is visiting the Yemen Arab Republic as a consultant on the Irrigated Crops Development organized by the South Australian Government International Consultancy Group. During his visit he will be involved in determining irrigated cropping-livestock production systems and marketing evaluation.

□ □

'Mr Gateway', a Belmont Red Bull from the Narayen Research Station, featured both on television and in the newspapers during the Royal National Show in Brisbane. He took up residence outside the Gateway Hotel as a gesture of thanks from the hotel manager to all the country guests who stayed there. **Mr Mort Hudson**, a member of the CSIRO State Committee, introduced 'Mr Gateway' to Brisbane on the 'Andrew Carrol Tonight' show.

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Dr Jim Watson, who previously visited CSIRO in 1977, is returning to the Division of Groundwater Research for another sabbatical year. Dr Watson, from Utah State University, USA, is a specialist in the application of microcomputers and will be contributing to the analysis and simulation of groundwater behaviour.

□ □

Dr Robert Harris, of the Division of Mineral Physics, Lucas Heights, is visiting the United States to attend the ninth American Society of Mechanical Engineers Vibration Conference where he will present a paper on the Maximum Entropy Spectral Analyses (MESA) approach to signal analysis techniques. Dr Harris will then undertake a number of industrial visits to study the state of the art in signal analysis devices.

Dominic Doyle, from St Patrick's College, Ireland, arrived recently at the Division of Radiophysics to spend three months learning how to make a solar radiospectrograph.

□ □

Dr Jetse Kalma, from the Division of Water and Land Resources, returned recently from the International Satellite Land Surface Climate Project meeting in Innsbruck and the International Union for Geodesy and Geophysics Congress in Hamburg. He also visited research centres in the USA and Canada.

□ □

Dr John McIlroy, Division of Wildlife and Rangelands Research, went to New Zealand recently to spend ten months with the Department of Scientific and Industrial Research Ecology Division at Nelson as part of an exchange arrangement.

□ □

Dr John Willis, Assistant Chief of the Division of Chemical Physics and Leader of its Spectroscopy Section, was recently the first recipient of a Medal established by the Analytical Chemistry Division of the Royal Australian Chemical Institute.

The award was made in respect of contributions by Dr Willis since 1958 in the field of analytical atomic spectroscopy, following the introduction by **Sir Alan Walsh** of the atomic absorption spectroscope for the determination of metals.

Dr Willis was involved in developing AAS methods of chemical analysis in a wide variety of fields, assisting many Australian laboratories to set up and use the new methods, and developing improved techniques, such as the use of the nitrous oxide-acetylene flame to extend greatly the number of metals that could be determined by AAS.

The presentation was made by **Sir Geoffrey Badger** at the Seventh Australian Analytical Chemistry Symposium, which was held in Adelaide on 22-26 August.

Dr Harold Bolin, an American scientist with the Food Research Laboratory, is looking at how sulphur dioxide effects colouring in fruit products, especially dried fruit. During his twelve month visit he will also study browning of fruit in storage, and how it can be avoided.

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Dr Barry Inglis, of the Division of Applied Physics, delivered a series of lectures in China recently at the invitation of the Henan Provincial Metrology Society. He also visited national standards laboratories in Hong Kong, the Philippines, Thailand, Malaysia and Singapore as part of the Asia/Pacific Metrology Program.

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Colin Lendon, of the Division of Groundwater Research, recently went to Iran on behalf of UNESCO's Man and the Biosphere Program in the program's first contact with the country since the Islamic Revolution. Colin returned through Paris where he advised UNESCO on the country's rangeland problems.

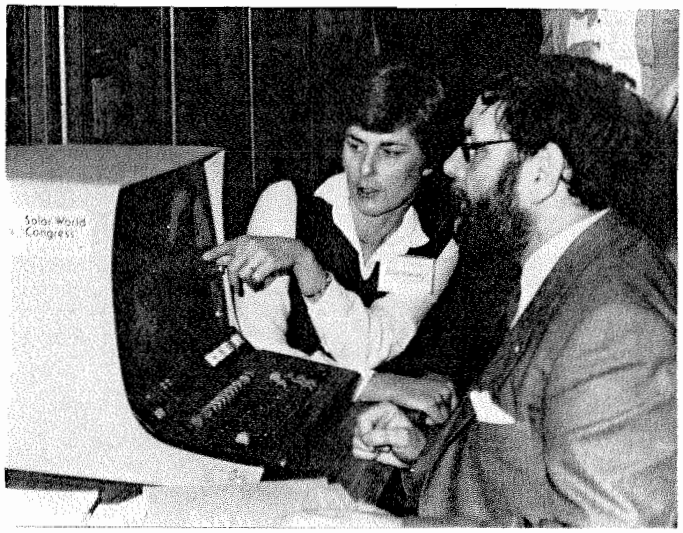
□ □

Dr Kevin Sheridan retired recently from the Division of Radiophysics after a long and distinguished career.

Kevin joined the Division in April 1945 and over the years he has made major contributions to solar radio astronomy, particularly in the development of instrumentation. One example was his involvement with the radiotelescopes at Dapto where he developed the swept-frequency radiospectrograph and the swept-frequency interferometer conceived by Paul Wild. Later he worked on many of the instrumentation aspects of the Culgoora Radioheliograph.

Kevin has also been very involved in the interpretation of solar observations and in 1973 he received the DSc degree from the University of Queensland for his contributions to solar radio astronomy.

Solar World Congress



The Minister for Science and Technology, Mr Barry Jones, is shown the CRRERIS computer based network operated by CILES in Melbourne. The network was on display at the congress and was operated by its manager, Ms Sue Harvey. A number of CSIRO scientists were among the 1000 delegates from around the world who attended the Solar World Congress.

'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 Editors, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editors: Jeannie Ferris and Penny Gibson.

CoResearch

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Safety and Health Report:

New safety unit within CSIRO

CSIRO will substantially strengthen its efforts in occupational safety and health, the Chairman, Dr Paul Wild, has announced.

This action follows the first review of CSIRO's occupational safety and health policies and procedures in the organization's 57-year history.

Dr Wild said the Executive had already agreed to establish an Occupational Safety and Health Unit within the Headquarters Personnel Branch, thereby fulfilling a key recommendation of the report.

The Unit will comprise an officer-in-charge, an occupational physician, an occupational hygienist, an engineer or ergonomist, and an administrative officer.

REPORT ACCEPTED

At the last Executive meeting 32 other recommendations were approved, eight were referred to the Occupational Safety and Health Policy Committee or deferred until the new Unit is in operation, and the remaining four were approved in principle or will have the wording modified.

The Occupational Safety and Health Management Review Committee, chaired by Professor David Craig of the Australian National University strongly criticized CSIRO's occupational safety and health activities and recommended several measures to give safety and health a higher profile in the organization, from policy to personal commitment, extending from the Executive.

The Committee said that accident appraisal procedures were not well developed and that few arrangements existed for the assessment of safety and health aspects of proposed new experimental work.

There was a gross lack of resources and expertise, and corporate goals, safety and health planning. The data essential for corporate performance appraisal were virtually non existent, it said.

Few divisional or site Safety Officers had training and expertise in modern health and safety practice and all were hampered by a conflict between their safety officer role and their duties as scientists or technicians, particularly because promotion was based on the latter.

Housekeeping arrangements were deficient, sometimes to an alarming degree, in some of the laboratories the Committee visited.

SITE SAFETY

The report recommended that a high priority of the Occupational Safety and Health Unit should be to advise the Executive on the requirements for full-time professional occupational safety and health services on a regional basis or at sites or in Divisions and Units.

It further recommended that supervisors and managers should be held accountable for the safety and health of their staff, and that their performance in this matter should be regularly assessed and taken into account in considering promotion.

The report said occupational accidents cost CSIRO $4.5 million in 1982, and recommended that means should be devised whereby Divisions and Units were made more accountable financially for their accident record.

After discussion with staff organizations, provisions which include that staff may be stood down without pay for refusal to comply with safety requirements should

continued on page 7

Ministerial visitors at ANAHL

The Minister for Science and Technology, Mr Barry Jones, and the Minister for Primary Industry, Mr John Kerin, left, share a joke during a recent visit to the Australian National Animal Health Laboratory at Geelong. The Director of the Laboratory, Mr Bill Snowdon is pictured at right. Seated is Mr Peter Bay from Rank Industries who was busy commissioning the intercom system.

Three new Fellows of Academy of Tech. Sciences

Three CSIRO scientists were recently elected as Fellows of the Australian Academy of Technological Sciences.

They were among 20 candidates who were elected to the Academy for their achievements in the technological sciences.

They are: the Chief of the Division of Entomology, Dr Max Whitten, the Assistant Chief of the Division of Applied Physics, Dr Bill Blevin, and the Assistant Chief of the Division of Food Research, Mr Lawrie Muller. Dr Whitten was previously Professor of Genetics at the University of Melbourne. He has applied genetic theory to population control with a particular interest in the control of pests.

Dr Blevin is the Chief Standards Scientist and occupies a key position in ensuring the improvement and maintenance of international standards of measurement in Australian industry.

Mr Muller has had a distinguished career in dairy technology, including the organization of major projects for the commercial development of cheese making systems.

From the Advisory Council

This column from CSIRO's Advisory Council has been contributed by Mr J.H.S. Heussler, Chairman of the Council's Rural Industries Standing Committee.

Australian science, particularly the CSIRO, has received more than its fair share of criticism over the last few months.

It is claimed that CSIRO does not put sufficient funds into the manufacturing sector and the 'sunshine industries', compared with its effort in the more traditional sectors such as rural and mining.

It is also claimed that CSIRO concentrates on research and neglects development.

That manufacturing, communications and the new technology industries need scientific support is obvious. That Australian industry needs a mechanism to encourage its development of research findings is unquestionable.

Nevertheless, additional support for these areas is likely to result in changes in priorities and the allocation of funds. Development work in particular is enormously expensive, and any major increase here must raise the question of industry contributions.

Unless the right research decisions are made, we will destroy what we have, without achieving the new objectives.

The solutions must be found by industry and Government, but the rural sector also has its problems which are the concern of the Rural Industries Standing Committee of the Advisory Council. The rural sector is fortunate to have its own development organizations in the form of State Departments of Agriculture/Primary Industries who provide regional research and extension. It is also supported by rural industry research funds, through which most rural industries put their money where their mouth is, and make substantial contributions to research and development.

Why then do we still get demand for more relevance? Why do we get complaints that much of CSIRO's work is not applicable?

I would like to make two comments:

Firstly, complete relevance at the level of research of many CSIRO programs will stifle initiative and run down our bank of scientific capital. We cannot forecast the outcome of research so some degree of scientific freedom is necessary within carefully established priorities. Freedom however confers a responsibility on scientists, and the Organization, to be aware of what is needed, and to strive to fill those needs—i.e. accountability. A thorough knowledge of industry and its problems is essential, and must be accompanied by an attitude of service to industry. I am sure most of CSIRO's scientists have the latter; I am equally sure that some have difficulty with the former.

Secondly, the means by which the research scientist can obtain an understanding of the real needs of industry are not always adequate. A large part of solving the problem is to define and understand it in the first place. The rural industry is diverse and geographically isolated, and there is no substitute for personal experience of its conditions.

It is to this end that the Rural Industries Standing Committee is trying, among other things, to promote communications and contact between CSIRO Divisions, State Departments and industry—not only at administration level but also at scientific level. If all research groups are involved in problem-definition, the solutions are more likely to fit the practical needs of industry. The right solution needs little extension.

One final comment on the need for a continuing commitment to rural research. Isn't it amazing how Australia's economy picks up when the rural sector improves, and vice-a-versa? It cannot only be explained by the contribution to GDP that the economists talk about.

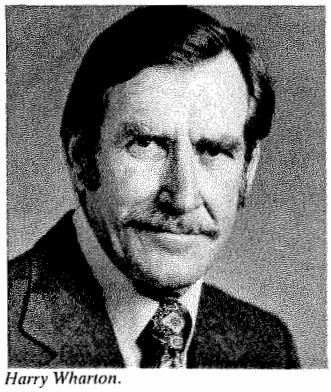
Like Australia II, it is what is 'down-under' which counts. Mining and farming must continue to support the superstructure of manufacturing, communications, etc. sectors, important though they may be in their own right.

The Rural Industries Standing Committee will stress the continuing need for rural research, and assist science and industry together to use our limited resources most productively.

Obituary:

Tick scientist dies

With shock and grief we record the tragic death of Dr Harry Wharton who was killed accidentally on his farm at Billinudgel, 160 km south of Brisbane, on September 18, 1983.



Harry Wharton.

Ronald Harry Wharton was born at Armidale, NSW, on April 14, 1923. He was educated at the New England and Sydney Universities, where he graduated with First Class Honours in Zoology (Entomology) in 1944. During the war he served as a RAAF Malaria Control Officer in New Guinea. In 1948, after a period of two and a half years as Teaching Fellow in Zoology at the University of Sydney, he joined the Colonial Service as Entomologist at the Institute for Medical Research, Malaya, where he made the first of his many contributions to science. He was first to detect insecticide resistance in disease-carrying mosquitoes and discovered the paths by which elephantiasis was spread to man from forest animals. In recognition of his contributions to the understanding of the role of mosquitoes in the transmission of malaria and filariasis parasites of man, monkeys and domestic animals, Dr Wharton was awarded the Chalmers Medal by the Royal Society of Tropical Medicine and Hygiene in England in 1967.

RESEARCH INVESTIGATIONS

In 1963, Dr Wharton joined the CSIRO Division of Entomology at the Veterinary Parasitology Laboratory, Yeerongpilly, Brisbane, to lead a research team investigating the cattle tick problem in northern Australia. He developed a broad program involving studies on the ecology, physiology, morphology and biochemistry of the tick and integrated new biological control approaches with established chemical control methods. Under his guidance and leadership, cattle tick research expanded greatly and the implication and importance of the new approaches were soon recognized internationally. The opening of the new CSIRO Long Pocket Laboratories at Indooroopilly in 1969 was a personal triumph for Dr Wharton, who had devoted a great deal of his time to the design and building of the new laboratories.

SIGNIFICANT CONTRIBUTION

Dr Wharton made original important observations on cattle tick biology and ecology. These included the demonstration that tick resistance in cattle is heritable, a finding that has considerable significance in animal breeding. He also developed a new approach to the assessment of tick populations in cattle. This has made it possible to assess host resistance to the tick, to define the effects of ticks on the host and the effect of acaricides on tick populations. Perhaps his major contribution to the practical alleviation of the cattle tick problem was to demonstrate the improved control that followed the use of resistant cattle and his public efforts to support the use of this approach. The major improvements in tick control that have occurred through much of northern Australia over the past 10 years has been due to cattleowners recognizing the tick-resistant qualities of Brahman and Brahman-Cross cattle. The scientific basis for their confidence in these cattle came largely through the efforts of Dr Wharton and his staff.

Dr Wharton was also closely associated with the difficult problems related to the ability of the cattle tick to develop resistance to acaricides. He provided a major stimulus to research workers, administrators and to chemical companies in the search for alternative chemicals and alternative approaches for tick control.He served on numerous committees and was an adviser to the Cattle Tick Control Commission Inquiry 'Cattle Tick in Australia' in 1972-73.

INTERNATIONAL EFFORT

During the period 1978-81, Dr Wharton was Officer-in-Charge of the Joint Australian-Indonesian Project for Animal Research and Development at Bogor in Java to establish a new animal husbandry research laboratory conducive to problem-solving research of the highest standard with the long-term objective of staffing it with Indonesian scientists trained to undertake first class research. He carried out this task with distinction. Dr Wharton also served as a consultant to the Queensland University and to agencies of the United Nations.

In 1982, Dr Wharton joined the new CSIRO Division of Tropical Animal Science as a Chief Research Scientist at the Long Pocket Laboratories in Brisbane. At the time of his death he was writing a book reviewing Australian research on ticks and tick-borne diseases of cattle.

Dr Wharton was elected a Fellow of the Australian Academy of Science in 1973 and a Fellow of the Australian Academy of Technological Sciences in 1982. For his service to scientific research he was awarded the OBE in the 1982 Honours.

Harry Wharton was a man full of scientific vision, understanding and vigour, but he will also be remembered for his personal raltionships with friends and colleagues. He had great rapport with everyone and his was a familiar face at staff functions, sporting matches and any sort of get-together. He believed in communicating with people at all levels, and indeed his social life was dedicated to this end.

Our deepest sympathy goes to his wife Helen, his son Geoffrey and his married daughter Robin and her family.

Letter to the Editor

Dear Editor,

Regarding the opening of mail in some Divisions, I would like it made clear that the incidents referred to in the July issue of *CoResearch* did not concern my personal mail.

Nor was there any intention of criticizing administrative staff in carrying out Divisional policy. My only personal concern in this matter is the inefficiency which can arise through old-fashioned policies, and the continual nuisance of having my professional mail opened and decisions about it made by unknown persons.

Joe Flood
Division of Building Research
Melbourne

Star Wars support

The Film and Video Centre's first film to gain a cinema release, 'The Living Soil', is again back in the headlines.

After picking up a Milli Award for Roger Seccombe's cinematography, the CSIRO nine-minute short showing a close up view of life in the soil has now been taken up by another distributor, the major Fox-Columbia group. They will distribute the film as the support for the national release of 'The Return of the Jedi' (the sequel, as everyone knows, to the phenomenally successful feature 'Star Wars' and 'The Empire Strikes Back'.

The distributor has purchased thirty-five 35-mm prints of our film so 'The Living Soil' should make quite a splash!

With the enormous potential audience waiting to see 'The Living Soil'/'Return of the Jedi' double the Film and Video Centre is thinking about getting into production on 'The Return of The Living Soil'!

Technology transfer

An innovative new program to foster high technology in industry has been announced.

The new initiatives will involve collaboration between the Division of Applied Physics in Sydney and industry, to allow staff from Australian companies to spend time within CSIRO, aiding the transfer of new technology to industry.

CSIRO has allocated $200 000 to the project, with additional contributions being made by industry.

This allocation does not include the significant contribution to be made by the salaries of existing staff.

Under the new program, employees in industry could take leave of absence from their employers and be paid by CSIRO to work in the laboratories of the Division of Applied Physics.

These individuals could then return to their companies with a thorough knowledge of the technology being transferred into industry.

From the Chairman-

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

In recent months, I have become deeply aware that when a myth or falsehood is repeated often enough, and especially when it gets printed and recycled in newspapers, it ultimately becomes accepted as a fact, so much so that to deny it is to demonstrate ignorance or naivety.

One such myth is that CSIRO work is dominated by esoteric research with no further object in view than publication in prestigious scientific journals; and that the Organization is out of touch with the needs of industry, with which it has virtually no contact. The question is how to challenge this myth and set the record straight—while admitting that there's always room for improvement. I would like to enlist the active help of everyone in the Organization who shares my concern to put the matter right.

Before addressing the recent National Technology Conference I wanted to know quantitatively where we stood with regard to the interactions and collaborative arrangements with industry. So I contacted all Divisions and asked Chiefs to enumerate all such arrangements. The results, by sector, were as follows:

. Rural Industries	137
. Mineral, Energy & Water Resources	171
. Manufacturing Industries	293
. Community Interests	197

The total comes to 798. I announced this at the Conference after which a number of delegates came and told me they were truly astonished. But at times you cannot win. A week or two later there appeared a disparaging article in the *Sydney Morning Herald* which lightly cast aside this new information with a reference to 'the much quoted figure of 798'.

Statistics alone do not tell the whole story and do not make the story come alive. So as a further contribution I list below some of the events that have occurred during the month that ends (as I write) today—all these things happened in October 1983:

. The launch of Fecundin, a vaccine developed in collaboration with Glaxo to increase the probability of twinning in sheep. (Division of Animal Production)

. The launch of a new type of pulse welder, developed in collaboration with Welding Industries of Australia Ltd, which is likely to make a deep impression on the market. (Division of Manufacturing Technology)

. Taking out provisional patents on a new automated welding system—we will soon advertise for collaborators in its development. (Division of Manufacturing Technology).

. Signing a $350 000 agreement with a major Australian company for the joint development of new smelting processes. (Division of Mineral Engineering)

. The final signing of an agreement between CRA, Nilsen and CSIRO to permit the formation of a new company to exploit the super-ceramic PSZ, developed by CSIRO. (Division of Materials Science)

. Advertising for industry collaborators to develop the capability to manufacture zirconia and related products in Australia for marketing worldwide. (Division of Mineral Chemistry and others)

. News that Koppers has begun marketing internationally a new timber treatment, developed with CSIRO, which has the superiority of creosote without the usual problems associated with using creosote-treated timber. (Division of Chemical and Wood Technology)

. Completing negotiations on a $150 000 agreement with a seed company on the development of technology for breeding hybrid sunflowers. (Division of Plant Industry)

. The launching of an industry program at the National Measurement Laboratory in Sydney to foster the transfer of new technologies in industry. (Division of Applied Physics)

. Signing a $120 000 agreement with Mount Isa Mines to develop improved fabric filtration systems. (Division of Textile Physics)

. Negotiating on the development of the jumping-gene technology for introducing new desirable characteristics into agricultural crops. (Division of Plant Industry)

. Announcement by CSIRO and an Australian-New Zealand consortium of a $1.5 million program to develop and market a slow-release capsule invented by CSIRO. (Division of Animal Production)

. The Executive Committee agreed to fund a primary screen for agrochemical activity (up to $300 000 over a 3-year period) to support commercialization of biologically active compounds. The screen will be operated by a non-CSIRO organization under contract to CSIRO. (Division of Applied Organic Chemistry and others)

. Confirmed that genetically engineered EGF (Epidermal Growth Factor) produced by Wellcome in collaboration with CSIRO was effective as a sheep defleecing agent. (Division of Animal Production)

I believe all staff of the Organization can do their bit in countless different ways towards letting the people of Australia, whether from the community at large, industry, government or indeed Parliament, know what you are doing and how the nation is benefitting. There is no need for exaggeration or oversell; but the spark of enthusiasm is always a help.

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This month has seen the tabling of an important internal report, commissioned by the Executive, on occupational health and safety. The review committee was chaired by Professor David Craig, part-time Member of the Executive, and the expert committee included senior CSIRO staff, two specialists from outside the Organization and two representatives of staff associations. The report showed that our safety and health standards leave much to be desired. The Executive in general, and I in particular, welcome this frank report and we intend to back it to the hilt and pursue the task of putting our house in order with urgency and vigour. I hope I can count on all staff to do the same with Chiefs and other senior staff providing the leadership.

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As I have said once before in this column I have always been unhappy about the fact that our laboratory craftsmen and a number of others are required to work longer hours than other staff. It seems totally unreasonable and does not make for a corporate spirit within a Division. I was therefore truly delighted to see the ruling of the Conciliation and Arbitration Commission to reduce hours of work from 40 to 38. This goes a long way towards closing the gap. I suppose I would cause a barrage of abuse if I suggested the gap could be completely closed if the rest of us worked a 38-hour week! There are many, of course, who, without counting the cost, work far more than that anyway.

Paul Wild

Secondary students in education experiment

A group of ACT secondary college science students gathered at the Questacon Science Centre in Canberra recently to mark the successful conclusion of an unusual science education experiment.

For eight weeks during the second school term, the 22 students spent up to 40 hours each working with researchers in CSIRO's Canberra laboratories learning more about specific areas of science which interest them.

Subjects covered included animal nutrition, the CSIRONET computer network, electron microscopy of insects and the extent of Australia's snowfields. The students returned to their colleges to lead a class discussion on the subject covered by the research program.

All seven ACT colleges took part in the scheme which was jointly organized by CSIRO and the ACT Schools Authority, with the cooperation of the ACT Branch of the Australian Science Teachers' Association.

USEFUL PROGRAM

The Director of CSIRO's Bureau of Scientific Services, Mr Sam Lattimore, said the teaching program had helped to optimize community use of the Organization's research work and scientific expertise.

'It also enabled the students to gain a greater insight into their chosen subjects, to learn how a research group works, the reasons for its research programs, and how professional scientists approach problem-solving research', he said.

New welding machine launched

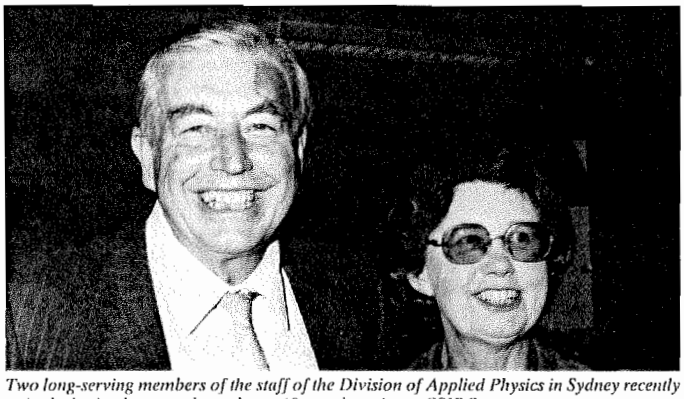
The Minister for Industry and Commerce, Senator John Button, second from left, learns about the new Synchro-Pulse CDTS welding machine, following its launch in Melbourne late last month. The machines are manufactured and marketed by Welding Industries of Australia, following successful collaboration at the Division of Manufacturing Technology, Melbourne.

The development of the machine followed a paper given in 1979 by the Assistant Chief of the Division, Dr Graeme Ogilvie, on his research into pulsed arc welding.

The advantages of the new system include enhanced productivity, all position spray welding, controlled heat input reducing distortion and greatly reduced spatter, all with one simple operator adjustment.

Pictured with Senator Button are, from left, Dr Graeme Ogilvie, Mr Ken Brougham, a Director of WIA, Peter Laughton, a Director of Siddons Industries, of which WIA is a part, Dr Bill Whitton, the Director of the Institute of Industrial Technology, and Mr John Siddons, Managing Director of Siddons Industries.

Physics farewell



Two long-serving members of the staff of the Division of Applied Physics in Sydney recently retired, sharing between them almost 60 years' service to CSIRO.

Pictured above is Mr Alan Driver with his wife Mildred. Alan joined the Division in 1956 and carried out a variety of duties, including audio visual, patents and licensing.

Below is Jack McCue who joined CSIRO as a sheet metal worker temporarily in 1949 and stayed for 34 years. Over that period, he has assisted with a wide range of research programs including most recently the quantized hall resistance program with Dr Brian Ricketts. Jack has been an enthusiastic supporter of the Benevolent Fund and Community Aid Abroad, and was a member of the Safety Committee and a first aid officer.

Just over four years ago, way back in June 1979, **Lydia Dogger** joined the Division of Mineralogy's North Ryde Laboratory as a '17-weeker', on the Special Youth Employment Training Program.

Then Divisional funds were used to offer her extensions, first of 3 months, then 6 months, finally yearly. Lydia was a quietly efficient Technical Assistant in the group working on mercury pathfinder techniques. The group was first led by **Dr Bill Ryall**, who has since left the Division, then by **Dr John Wilmshurst**.

Lydia will not only leave the Division, she will also be leaving Berowra Heights, where she's lived with her parents, about five horses, several dogs, cats and goats. . .

She's heading up north with the horses to Wauchope, NSW, to run Bellangri Horse Trails together with a few friends. So, perhaps there's an idea for your summer holidays. Certainly, her friends left behind at North Ryde will want to drop in and say hello.

SIRET craft day

SIRET, the Canberra-based club for people retired from CSIRO, is now a year old, and thriving. Twelve of the 248 members displayed their arts and crafts at the most recent meeting, with exhibits ranging from a hand-crafted rocking chair to carefully executed needlework. Pottery and silver jewellery lined up beside a bark picture and macrame. Green fingers were represented by a bonsai tree of indeterminate age and delicate flowering cacti of many shapes and colours.

Lady Frankel, well known Canberra potter, addressed the meeting, commenting on each craft.

SIRET members pictured with examples of their crafts are, front row, left to right: Agnes McHugh, Virginia Ballard, Joan Simpson, Nell Bryant and Joan Thompson. Back row: Hans Dimpel, Tom Webb, Jo Mackay, Nelson Simpson, Steve Wilson, Margaret and Alan Pierce and Ron Rochford.

Professor Don Smith from the Carleton University in Canada is spending his sabbatical at the Division of Wildlife and Rangelands Research in Canberra. He joins another Canadian ecologist, **Professor Rudy Boonstra** from the University of British Columbia, to work in the house mouse group of **Dr Trevor Redhead**.

Dr Lorraine Smith, an editor and Don's wife, will visit the CSIRO Editorial section in Melbourne and while at Gunghalin will report on CSIRONET.

□ □

Joining the obscure addresses department of CSIRO is the Visitors Centre at the Parkes radio telescope. **Ben Longden** reports that a letter addressed simply 'Parks Observatory, Forbs, NSW' eventually found its way to the centre. However, to add to the challenge for Australia Post, the envelope was covered with six two cent stamps and three five cent stamps which almost obscured the address.

□ □

It seems private enterprise has become really keen to obtain CSIRO's business. **Tricia McGillie**, Mineral Chemistry's Word Processing Supervisor, who was invited to a demonstration of a new word processor, was collected in a chauffer-driven Rolls Royce. The return trip was unfortunately not so exciting; she was directed to the nearest tram stop.

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Dr Yasuhiro Kono, of the Faculty of Agriculture of the Nagoya University, Japan, is working on root growth and tillage of wheat at the Division of Plant Industry until mid-December.

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Dr Tai Tzyh-yung, of the Guangdong Entomological Institute in the People's Republic of China, is spending eight weeks in the termite group of the Division of Entomology.

□ □

The Chief of the Division of Mineral Physics, **Dr Ken McCracken**, has a new scientific assistant, **Ms Christine Astley Boden**, who was formerly the Information Officer at the Minerals Research Laboratory. Christine replaces **Malcolm Robertson** who has returned to Canberra and the Officer of the Executive after a year's secondment to Dr McCracken's office.

Keith Chapman, a marketing executive from John Lysaghts (Australia) Ltd, has also been appointed to the Division of Mineral Physics as commercial manager.

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Colin Smith, the Archivist, is anxiously asking Divisions : 'Any old shelves?' Colin expects the Archives may confront the problem next year of having a large amount of space and not enough shelves. Anyone with old shelving to dispose of or map cabinets they no longer need, should contact the Archivist on (062) 48 4677.

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Dr J.K. Raison of the Division of Food Research has been awarded a grant from the Australian Academy of Science to visit Japan as part of its exchange program with the Japan Society for the promotion of science.

□ □

CSIRO has another local government 'heavy'—this time it's **Dr Ted Radoslovich** of the Division of Soils in South Australia. Ted has been elected Deputy Mayor of the City of Mitcham, a suburban council covering the south-east area of Adelaide, and including the Flinders University, the Waite Institute and three CSIRO Divisions, including his own.

Ted has served for the past two years as an alderman prior to his election as Deputy Mayor at the start of the new council.

Space patron

Dr Ken McCracken.

Dr Ken McCracken, Chief of the Division of Mineral Physics, has accepted an invitation to become patron of the Space Association.

This invitation was in recognition of his long involvement in various space programs, particularly in earth resource applications.

The Space Association is an Australian public space-interest organization that promotes the advancement and expansion of space exploration, technology, and applications.

The Association has actively supported space technology programs in the belief that economic and other benefits will flow from a commitment to research and new technology—such as the development of high-technology industries in Australia, the expansion of research, and improved utilization of resources.

These are objectives shared by Dr McCracken, who will be in regular contact with the Association and assisting them work towards their goals. He has said that 'the role of science, and particularly of the technological sciences, is poorly understood im Australia, and societies such as the Space Association will play an important role in changing that'.

Women's report due soon

CSIRO's Consultative Council is to hold a special meeting in Canberra next month to discuss the final report of the Council's Sub-committee on the Employment of Women in the Organization.

The report was received at the Council's last meeting, held in October, but was held over for discussion.

The Chairman of the Sub-committee, Dr Judith Koch, said preparation of the report had involved extensive collection of statistical data which had at times been difficult, time consuming and labour intensive.

Members of the Sub-committee will attend the special meeting on December 6, to discuss the contents of the report and make suggestions as to how it is to be made available to CSIRO and other interested parties.

A senior researcher in the Division of Energy Technology, Mr Wal Read, has been elected President of the International Solar Energy Society. Mr Read's election took place at the recent World Solar Conference held in Perth, Western Australia.

Wal has been with CSIRO for 30 years, most recently as a principal research scientist with the Division of Energy Technology.

He has spent some time as leader of the solar energy utilization group whose research has covered solar water heating for domestic commercial industrial applications, solar collector and system testing, solar air heating, solar drying and dehydration and solar distillation. Wal will be President at the next world congress to be held in Canada in 1985.

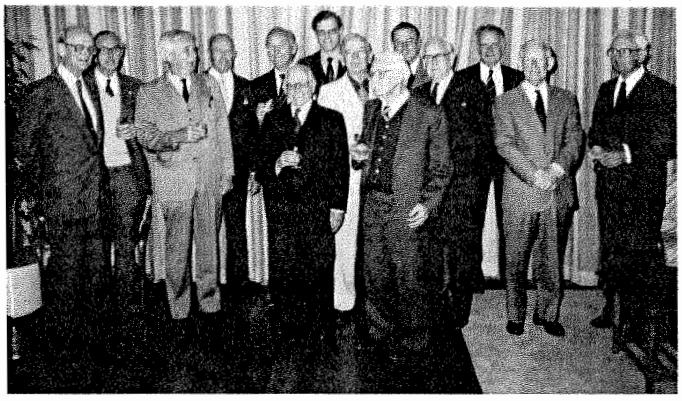
□ □

Dr Hari Sinha and **Mr David Jenkins** of CSIRO Division of Mineral Chemistry have been honoured with the Royal Australian Chemical Institute, Industrial Chemistry Division, award for the best paper on Process Chemistry presented at CHEMECA '83, which was held in Brisbane during September, 1983.

Remembering our men in D.C.

Past and present members of CSIR/CSIRO and their wives gathered in Canberra in early October to attend a dinner to commemorate the Australian Scientific Liaison Office in Washington, DC.

The Office was opened in June 1941 and was closed in December 1981. Over those 40 years, 23 members of staff served in Washington. Dr George Munro, the first officer to be appointed to Washington, was present. He is now 84 years of age. Another octogenarian, Mr Jack Cummins, travelled to Canberra for the dinner. Mr Cummins was appointed to CSIR in August 1926. It was a night of both serious and light-hearted reminiscences.



The 13 who attended are pictured above with the Chairman, Dr Paul Wild, from left to right, Dr Dick Brock, Mr Maston Beard, Mr Jim Whittem, Mr Neville Whiffen, Mr Clyde Garrow, Mr William Hartley, Dr Peter Muecke, Mr Arthur Higgs, Dr George Munro, Dr Paul Wild, Mr Jack Cummins, Dr Taffy Bowen, Dr Max Day and Mr Victor Burgmann.

Jack Coombe dinner

There was a gathering of CSIRO Chairmen at Dr Jack Coombe's farewell dinner. Jack, centre, is flanked by Mr Victor Burgmann, left, and Dr Jerry Price. The present Chairman, Dr Paul Wild, is at right, with Executive Assistant, Mr Gratten Wilson, at far left.

CSIRO man to chair aid body

At their annual council meeting in Canberra in September, the Australian Council for Overseas Aid (ACFOA) elected as its Chairman for the next two years John Birch, Scientific Assistant to the Chief at the Division of Applied Physics.

ACFOA is the coordinating body for over 50 non-government Australian based organizations working in the field of overseas aid and development. As well as representing the views of the voluntary overseas aid sector to the Australian Government on issues relating to Australia's relationship with developing countries, ACFOA also conducts an active research and community education program.

John Birch was also elected as one of the three non-government organization (NGO) members on the ADAB/NGO Committee for Development Co-operation. This Committee is responsible for allocating about $5 million from the Australian Government aid funds to voluntary organizations through the Project Subsidy Scheme.

John Birch, who is currently National Chairman of Community Aid Abroad (CAA), was in 1971 the foundation secretary of the CAA group at the National Measurement Laboratory in Sydney. This group has raised $20 000 over the last 13 years which it has used to support 30 self help village projects in Asia, Africa, the Pacific and Australian Aboriginal communities.

□ □

The Imperial College of Science and Technology in London is attempting to contact any of its own Alumni who might be members of CSIRO's research staff.

In a letter to the Secretary, Personnel, the Alumnus Officer, Mr W.S. Robertson, said he believed closer contact would be mutually beneficial and asked that staff who had studied at the College contact them with names and addresses.

Staff wishing to contact Mr Robertson should write to the College in London, SW7 2AZ.

□ □

Visitors to the Parkes Radiotelescope Visitors Centre can now purchase T shirts with the message 'I listened to the stars'. The design, showing the telescope at night, won third prize in a national competition for silk screening, and is available on a white Bonds T shirt in sizes six to 30 for $6.50.

Applications have been called for the David Rivett Medal award for 1984.

The award for next year is to be made for outstanding research in the field of physical sciences carried out over the past 10 years and is based on published work.

Applicants wishing to be considered for the award should be on the staff of CSIRO and be aged less than 40 on January 1, 1984.

Individuals interested in applying for the award can obtain more details from the General Secretary, CSIRO Officers Association, 9 Queens Road, Melbourne, before February 18, 1984.

□ □

Dr John Russell, Assistant Chief of CSIRO's Division of Tropical Crops and Pastures in Brisbane, has been awarded a Fellowship by the Australian Institute of Agricultural Science in Melbourne. The Award was made for Dr Russell's distinguished contribution to Australian agriculture. He was one of 13 Fellowships announced by the Federal President, **Dr J. Davidson**, following a recent meeting of the Federal Council of the Institute.

John Seymour, who until recently worked as a writer on *Ecos* magazine, is now working at the Australian National University on the compilation of an Australian dictionary. John has been appointed to the dictionary's team to work out scientific problems such as fauna and flora, medical terms such as 'boomerang leg' and other such scientific matters.

It's hoped to have the dictionary published for the 1988 bicentenary.

□ □

Ian Wood and **Paul Haydock**, Division of Tropical Crops and Pastures, recently returned from a month in Fiji, where they were part of a panel planning a soil and crop evaluation project.

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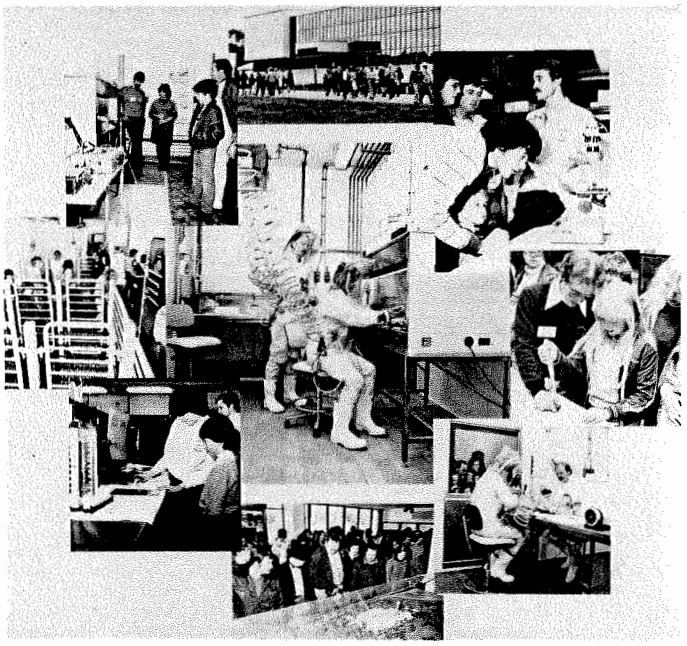
Ray Isbell, Division of Soils, has recently returned from Bulgaria, where he attended a meeting aimed at establishing an international soil classification system which will facilitate the exchange of soils information and experience on a world-wide basis.

Wrapping it all up

Pictured at the opening of the new Polymer Display at the CSIRO Highett Education Centre are from left to right: Dr Mathew Cuthbertson of the Division of Applied Organic Chemistry, Don Hyatt, teacher at the Centre, Dr David Solomon, Chief of the Division of Applied Organic Chemistry, and Dr Don Gibson, Chief of the Division of Energy Technology. They are examining a polymer wrapping used to seal chocolate bars.

Thousands see ANAHL



More than 20 000 people from all over Victoria and interstate visited the recent Open Weekend at the Australian National Animal Health Laboratory (ANAHL).

Mr Bill Snowdon, Officer-in-Charge of the Laboratory, said he was delighted with the public response to the Open Weekend.

Visitors were able to tour all five floors of the Laboratory inspecting not only the scientific laboratory areas, but the plant rooms, machine halls, animal accommodation and control systems.

There were demonstrations, displays and models of the laboratory and the special security measures which will keep disease agents inside the Laboratory. Films were also shown of some of the diseases the Laboratory was built to work on and of its construction.

One of the most popular displays featured the special 'spacesuits' which will be worn by staff working on diseases which can affect people as well as animals.

The montage photograph shows aspects of the open days.

Arthur Gaskin retires

Mr Arthur Gaskin retired in October after a long career with CSIRO, the last 21 years as foundation Chief of the Division of Applied Mineralogy (1962-70) and of the Division of Mineralogy (1970-83).

During this period, he developed and guided the substantial expansion of research in CSIRO in the fields of mineralogy and geochemistry.

The development of these Divisions was on a central theme of interrelated research on fundamental concepts in metallogenesis and on new geochemical methods for mineral exploration. Closely associated from the beginning with the minerals industry, this policy very much reflected his unusual breadth of experience and perspective.

Mr Arthur Gaskin, pictured at his retirement function in Perth.

EARLY RESEARCH

After majoring in both geology and chemistry at the University of Melbourne, Arthur Gaskin worked on urgent wartime problems of ceramic and cement technology at the Division of Industrial Chemistry, which he joined in 1942. Then followed eight years as lecturer in geology at the University of Melbourne, with diverse duties including lecturing in structural geology, as well as providing an innovative course in the then new topic of geochemistry. During this period he introduced modern mineralogical methods into Australian University research, while maintaining a part-time association with the Division of Industrial Chemistry. For three years he also acted as seismologist, operating the Victorian Seismological station.

In 1953 Arthur was appointed Officer-in-Charge of the CSIRO Cement and Ceramics Section, and began his return to CSIRO with a year at Cambridge on a Nuffield Fellowship. On returning he commenced broadening the scope of the Section while at the same time maintaining its highly valued technological assistance to industry. His development of a reduction process for ilmenite, which was taken up commercially, marked one aspect of a more mineralogical trend for this Section and in 1962 the group, together with the Mineragraphic Investigations Section, became the Division of Applied Mineralogy, with Arthur Gaskin as first Chief.

LABORATORY ESTABLISHED

A new laboratory of this Division was established in Perth, and under Arthur's guidance became a research centre with a unique and highly successful combination of mineralogists and physical chemists.

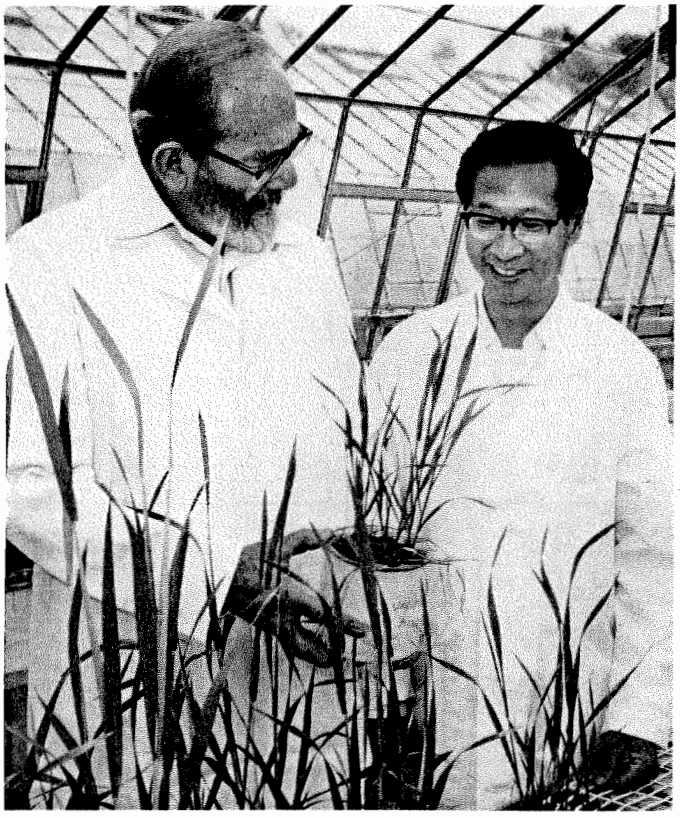
Following the creation of the Minerals Research Laboratories in 1970, Perth became Arthur's headquarters for a new CSIRO Division of Mineralogy, with a second main laboratory at North Ryde, and continued responsibility for the CSIRO component of the Baas Becking Laboratory at Canberra.

INDUSTRY RELATIONSHIP

Arthur travelled extensively, fostered a close relationship with the minerals industry and developed an outstanding personal appreciation of the special features of mineral deposits and their geological settings. His integration of chemistry and geology fostered research in the Division. Of his many scientific activities, the recognition of the fundamental structure of opal, followed by its first synthesis, attracted special interest.

Greatly appreciated by the Division was his cultivated and well shared oenological interest. His retirement in October gives Arthur Gaskin the opportunity to further develop his long interest in music, and time to pursue his skills in craftsmanship.

Kuang: I love you, Canberra



Dr Ken McLachlan of the Division of Plant Industry in Canberra, with Mr Kuang Yan-hua, who has been working in the Division on a Chinese Home Government Scheme for the past 10 months. He is a senior lecturer at the Biophysics Research Laboratory, South China Agricultural College, Guangzhou, and has been working with Ken on the use of isotope techniques related to phosphorus uptake.

I am one of the Chinese Visting Scholars studying in Canberra. I have now been working at the Division of Plant Industry, CSIRO, for 10 months.

I have enjoyed great help and support from the Australian Government and from the CSIRO. There is now only a short time remaining to stay and study in Australia.

On such an occasion I have much to say, but I don't know how and where to begin. Let me begin with a popular Chinese saying which goes like this: 'For friends it is difficult to get together quite often, but it is even more difficult to say good-bye to each other'.

The staff of the Division of Plant Industry, CSIRO, the Chief of Division, Dr Peacock, my supervisor, Dr Ken McLachlan, and many other Australian friends have been most helpful in my studies and socially. I want to express my deep appreciation and heartfelt thanks to them.

I have been very happy in Canberra. My life in Canberra has been very instructive and I feel I have progressed in my studies and in my spoken English. I have a greater understanding of Australia and her agriculture science, and in particular of her plant nutrition. Soon I will go back to China and I will feel very sorry and even a little upset. I'm sorry because I have to say good-bye to all of my Australian friends with whom I have been working for nearly a year. I'm sorry because I have to bid farewell to the friendly country of Australia. The country I have been so fortunate to visit in my life.

When I return to China I will make every effort to promote the friendship between China and Australia and will work hard to pass on the benefit of my Australian experience to my Chinese colleagues.

I love you, CANBERRA!

—Kuang Yan-hua

Forest rot

The 6th International Meeting of the IUFRO (International Union of Forestry Research Organisations) Working Party on Root and Butt Rots of Forest Trees was held in Melbourne, Victoria and Gympie, Queensland, August 25-31, 1983.

The meeting, hosted by the Division of Forest Research, also received assistance from the Victorian and Queensland Forestry Services, and was organized by the Co-chairman of the Working Party, Dr Glen Kile of the Division's Tasmanian Regional Group.

Thirty-two forest pathologists from 15 countries presented 48 papers on all aspects of the identification, epidemiology and control of woody root diseases such as *Armillaria* species, *Heterobasidion annosum*, *Phellinus weirii* and *Phellinus noxius*. The meeting was the first international meeting of forest disease specialists ever held in Australia.

Safety and health report:

continued from page 1

be included in the Terms and Conditions of Service.

The report recommended that pre-employment medical examinations separate from those for superannuation purposes should be introduced for the purpose of matching the physical capacities of staff with the work proposed for them, for collecting baseline bio-medical data, and for health education and counselling.

All members of staff whose work involves them in exposure to chemical agents should be required to keep a standardized written record of all such exposures, authenticated by their supervisor.

All accidents and other incidents, including 'near misses', should be investigated and the final outcome reported to the new Occupational Safety and Health Unit.

The Committee found that replacement of the present manual reporting and recording system of accidents with a computer-based occupational safety and health data recording, retrieval and analysis system was essential.

BUILDINGS CHECKED

All proposals for building modifications should be assessed by the new Unit, and a clearance given before any work can proceed.

Divisions and Units should identify building and engineering services maintenance requirements with safety and health implications in a status report forwarded annually to the Institute Director concerned.

The Committee also recommended that all establishments should have a room set aside in which staff can eat meals, and that Chiefs and Officers-in-Charge should see that all obsolete equipment and other inessential material is removed from laboratories and corridors, and that safety showers and other safety related areas are kept completely clear.

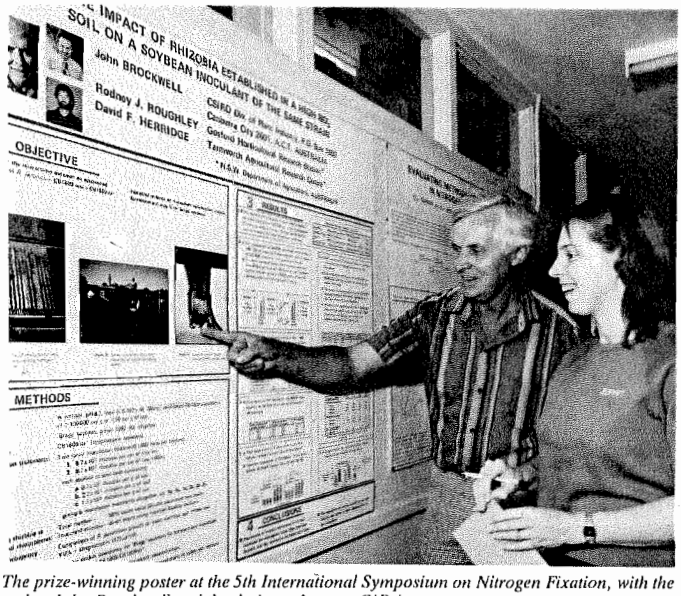
All proposals for new experimental work or novel equipment should be subject to an occupational safety and health assessment by the local safety committee in consultation with the group leader concerned, with the outcome forwarded to the Chief or Officer-in-Charge for approval or otherwise.

Safety Officers should be required to give all new appointees basic instruction in safety practices, all staff should be given training in fire fighting, and evacuation drills should be conducted regularly, and at least once a year.

The members of the Review Committee, which was commissioned following the Government inquiry into the death of Dr Bergamasco, were: Professor D. Craig, Professor of Chemistry at the Australian National University (Chairman); Dr P. Alfredson, Chief of the Division of Energy Chemistry; Mr N. Betts, Director of the Physical Working Environment Section of the Department of Employment and Industrial Relations; Mr R. Bond, Vice-President of the CSIRO Officers Association; Mr B. Cain, President of the CSIRO Technical Association; Dr K. Ferguson, Director of the Institute of Animal and Food Sciences and Chairman of the CSIRO Occupational Safety and Health Policy Committee; Dr A. McMichael, Senior Principal Research Scientist at the Division of Human Nutrition; and Mr C. Peterson, Associate Research Manager of ICI Australian Operations Pty Ltd and Federal President of the National Safety Council of Australia.

The Committee visited nine Divisions and heard submissions from 24 individuals and organizations and consulted twelve other people and groups.

Nitrogen fixation



The prize-winning poster at the 5th International Symposium on Nitrogen Fixation, with the author John Brockwell and the designer Leanne O'Brien.

'Putting Nitrogen Fixation to Work' was the theme of the 5th International Symposium on Nitrogen Fixation, held in The Netherlands recently, and attended by 550 scientists.

The same theme had been used in 1980 for the 4th Symposium in Canberra.

Among the 40 Australian scientists who attended were five CSIRO representatives: Cyril Appleby, Fraser Bergersen, John Brockwell, Bill Dudman and Margaret Roper from the Division of Plant Industry.

All the disciplines that make up nitrogen fixation research—chemistry, biochemistry, physiology, genetics and ecology—were represented by lectures, papers and poster presentations to the Symposium.

POSTER PRIZE

The 420 posters were a highlight of the congress and stimulated animated exchanges during the poster discussion sessions held in the evenings. John Brockwell's poster, which was designed and prepared by Leanne O'Brien of the Illustration and Photography Services section in the Division of Plant Industry, received the prize for the best poster presentation.

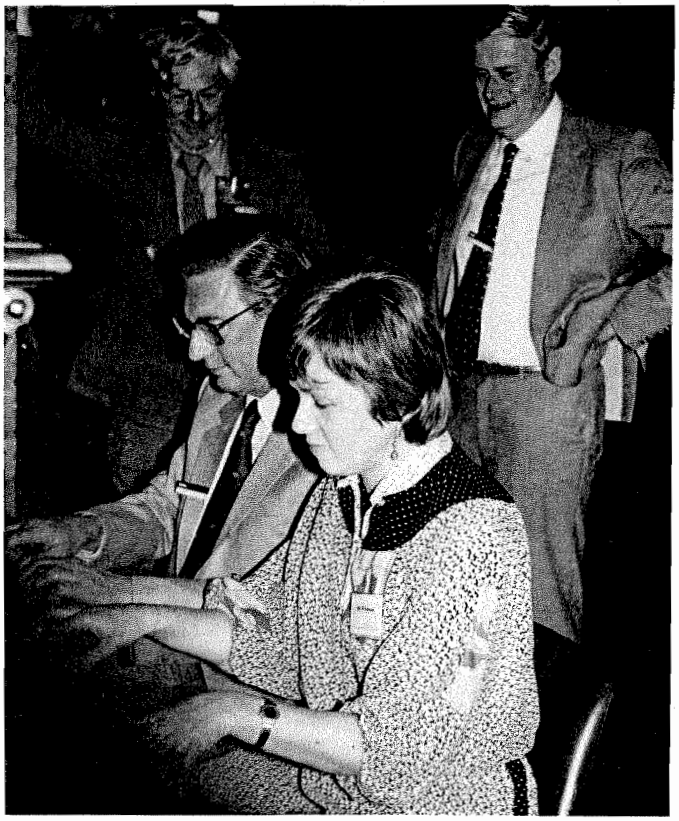
In a parallel meeting, a group of policy makers, farmers and industrialists assembled to discuss the policy implications of ongoing and future research on biological nitrogen fixation.

It was not all hard work, however, because the renowned Dutch hospitality was enjoyed on several occasions. The Ministry of Agriculture and Fisheries gave a reception, including an organ recital, in the ancient and beautiful Pieters Church in nearby Leiden.

A 'Dutch evening' featuring national dishes, liquors, music and handicrafts was also held.

Midweek conference sessions were broken by an excursion day with easily the most popular excursion being the cycle tour. Visiting scientists joined what seemed to be half the Dutch population and pedalled 30 km through village, town and countryside. Despite the inclement weather, participants returned to Leeuwenhurst glowing with health and, one suspects, liquid refreshment.

Anyone for duets?



The Chairman of CSIRO, Dr Paul Wild, and the Communication Coordinator at the Division of Forest Research, Miss Wendy Parsons, indulging in a musical soiree during the recent Executive visit to Griffith, NSW. Sharing in the experience is the Chief of the Division of Environmental Mechanics, Dr John Philip, left, and a Member of the Executive, Dr Keith Boardman. Miss Parsons was at Griffith in her capacity as a communication adviser to the Centre for Irrigation Research.

P.R. success at Coal Tech

The Division of Fossil Fuels and Mineral Physics recently mounted a display at an exhibition run in conjunction with the Coal Tech Australia '83 Conference.

The stand was manned in shifts by research personnel and attracted a great deal of interest and favourable comment from the Conference participants.

A small group of Fossil Fuels staff worked long hours to produce a working scale model of the flash pyrolysis rig. This process, for converting coal to oil, involves flash-burning coal in a bed of sand fluidized by an upward stream of gas. The model's specially blown glass vessels, produced by the North Ryde glassblower Brian Carrathurs, contained a mixture of polystyrene particles and char. This allowed the fluidizing motion produced by the upward stream of nitrogen to be clearly seen. The model attracted many visitors to the stand who were interested in this CSIRO-developed process.

The two SIROASH gauges for measuring ash in coal, which were a result of work done initially at the AAEC and then continued in Mineral Physics, were displayed as a commercially produced Technamation unit. The unit used polarizing film and backlighting to give an interesting impression of motion. Two stands away, the commercialized version of one of the SIROASH gauges was displayed by Coalscan Pty Ltd. This was certainly a good example of CSIRO's successful transfer of research results to industry.

Another attraction was the video film 'The Coal Question', which gave an overview of CSIRO's coal research in the Institute of Energy and Earth Resources. The film was produced by the CSIRO Film and Video Unit, and Alice Bugge of the Unit produced a special shortened version that was suitable for repeated showing. Many visitors were delighted to sit down with a cup of coffee to watch the film, and they appreciated its broad coverage of coal research.

The display boards themselves were a tribute to Brian Gosnell, from the CSIRO Design Group, who produced a brilliant concept that neatly incorporated the vast amount of information that the Divisions wanted to display. The North Ryde workshop staff, photographers and drawing office staff produced the boards to this design concept, and spent a great deal of time and effort in turning out an excellent set of display boards. In fact, one scientist commented that he had been proud to man the CSIRO stand, as it looked so professional and ranked as one of the best in the exhibition.

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CAT

The CAT Column is open to all members of CSIRO who wish to comment on communication matters.

Bob Rummery of CSIRO's Division of Groundwater Research in Perth has contributed this month's CAT column.

The perceptions that people outside CSIRO have of the Organization vary markedly.

Some people in business and industry have little appreciation of the breadth and scope of CSIRO and whether it might be doing work of relevance to their particular business or industry.

In a move aimed at improving this situation, the Western Australian State Committee for CSIRO, in conjunction with the Division of Groundwater Research's Communication Group and CSIRO Divisions in WA, is about to implement a Special Visitor Program. The objective of the Program is to make community leaders aware of CSIRO and its importance to Australia.

MONTHLY VISITORS

Once a month, up to twelve people drawn from government, business, industry, semi-government and government authorities will be invited to come to CSIRO's Floreat Park Laboratories. They will be given lunch, a brief introduction to CSIRO and will then visit up to four selected laboratories to see and hear about some of the current research. The tours of the laboratories will be in groups of four, each of the groups to be conducted by the Chief of the Division of Groundwater Research, the Acting Chief, Division of Mineralogy and the Chairman of the Laboratory for Rural Research.

The emphasis is on making each of the visitors feel that he or she has been selected for a personalized tour of CSIRO accompanied by senior CSIRO officers.

COMMUNICATION EXERCISE

In support of the State Committee initative, the Communications Group of the Division of Groundwater Research has designed and prepared a number of items for the program. A 10-minute audiovisual has been prepared which presents an impression of the diversity of CSIRO's Australia-wide research. This uses photography from a variety of CSIRO sources, and briefly sketches the Organization's history, evolution and response to Australia's needs in the 1980s.

A number of posters have been designed to support the AV and to provide a backdrop and talking point for when the visitors first arrive. One presents a cross section of CSIRO and another a glimpse of some of the research currently being done in Western Australia. The Communications Group is also working up three posters to present, albeit briefly, some of the designated high priority areas for expansion. Our view is that the visitors would have as much interest in what priorities CSIRO has for its research as in learning about current activities.

FOLLOW-UP CONTACT

Before the visitors leave, each is given a presentation folder containing a series of sheets with a brief statement and a representative photograph of each of the activities they have seen. Also included is a sheet listing the names and phone numbers of the CSIRO staff who conducted them on their visit. The intention here is to leave the way open for possible future contact. Each of the visitors will also receive a selection of CSIRO publications appropriate to his or her professional interest for up to 12 months after their visit.

In late September a dress rehearsal was held with the State Committee members taking the role of the visitors. It was a very useful exercise and showed up a number of areas that hadn't worked quite as planned. After a debriefing session, these areas were identified and put right. The first lot of 'genuine' visitors are due on November 28. We expect the system will need fine tuning from time to time but we are confident it will work well.

This approach could work elsewhere in CSIRO, possibly with minor modifications to suit different localities. We would be happy to provide any further information or details.

Copies of the AV will be available in Canberra and at the Film and Video Centre in Melbourne.

Industrial aid to Asia

Australia has recently been host to many Asian countries taking part in an advanced Training-Demonstration Course in On-stream Analysis and Control of Mineral Concentrators.

The one month spent in Australia is the first part of a four-month course organized under the International Atomic Energy Agency's Regional Cooperative Agreement (RCA) Industrial Project on behalf of the United Nations' Development Program (UNDP). This RCA Industrial Project is a broad program which aims to introduce advanced nucleonic systems into the industries of Asian and Pacific countries. Australia's contribution is to the mineral industry.

COOPERATIVE PROJECT

The mineral industry course is part of a four year project which is sponsored by the UNDP in cooperation with the Governments of Australia and the Philippines. The aim is to train Asian mineral industry personnel in the high technology areas of on-stream analysis and control of mineral concentrators. The project has been organized by the CSIRO Division of Mineral Physics, with John Watt as Project Coordinator, under contract to the Australian Development Assistance Bureau (ADAB). It is mainly financed by a $655 000 grant from ADAB and about $130 000 from UNDP.

The course participants are mainly metallurgists and chemical engineers working in the minerals industry. They come from Malaysia, Thailand, Philippines, Korea, India and Pakistan. Their first two weeks were spent at the Australian School of Nuclear Technology (ASNT) at Lucas Heights studying the application of nuclear techniques to mineral processing. Five Australians from our mineral industry also attended the ASNT part of the course.

In the third week of the course, the participants visited the Australian Mineral Development Laboratories (AMDEL), Cobar Mines, and then the CSIRO Division of Mineral Physics at North Ryde. Their fourth and last week of the Australian section of the course was spent at the Julius Kruttschnitt Mineral Research Centre (JKMRC) of the University of Queensland, studying control of mineral concentrators.

Course participants will then spend twelve weeks in the Philippines: one week at the Philippines Atomic Energy Commission and the rest at the Philex Mining Corporation's Banget mineral concentrator, where they will receive intensive on-the-job-training from JKMRC staff. Control of the plant will be based on information from an on-stream analysis system made and installed by AMDEL.

Equipment used in one of the training course experiments at Lucas Heights is viewed by John Watt (Mineral Physics), Mr S.P. Kasemsanta (UNDP), and Ken McCracken (Mineral Physics).

Electronics seminar

Thirty-four electronics staff from 14 Victorian Division recently participated in a half-day electronics seminar conducted by staff of the Division of Manufacturing Technology, Fitzroy.

The seminar was organized by the Victorian Technical and Trades Staff Development Advisory Committee (VICTAT).

Participants were treated to insights into work on robotics, VLSI, high current DC switching, and data acquisition. Speakers included the Chief of the Division, Mr Bob Brown, Head of the Integrated Engineering Manufacturing Group, Dr Warren Gellie, and electronics laboratory staff, Tony Schubert and Paul Zemencheff.

It is intended to conduct similar events at other Victorian Divisions. The next seminar is scheduled at the Division of Mineral Physics and Mineral Chemistry, Port Melbourne, March 1984.

VICTAT has sponsored the formation of several other special interest groups, including photographers and workshop supervisors, and sees great merit in fostering interaction, exchange of ideas, expertise and special equipment between Divisions.

VICTAT is the Victorian Regional Committee of the Staff Training and Development Unit. It seeks to maintain two-way communication with each Division or Unit within its region by way of a Divisional Liaison Officer and to respond by providing training programs and opportunities especially in the area of technical skills.

'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 Editors, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editors: Jeannie Ferris and Penny Gibson.

CoResearch

CSIRO's staff newspaper December/January'84 **267**

Changes recommended

EQUAL OPPORTUNITY FOR CSIRO WOMEN

Wide-ranging recommendations for changes in the employment status of women have been made to CSIRO's Executive following a study carried out by a sub-committee of CSIRO's Consultative Council.

Among the 49 recommendations which will go to the Executive's February meeting are five policy changes which would see the appointment of an equal employment opportunity coordinator at a senior level in the Personnel Branch and equal employment opportunity contact persons in each Division of the Organization.

The report to the Consultative Council followed an investigation of the role of women within CSIRO, and general attitudes towards the employment of women in CSIRO. The terms of reference included a provision that the sub-committee recommend solutions to any problems uncovered as a result of the study.

All women and a sample group of men were surveyed as part of the investigation and the results of the questionnaire were analysed by Dr Cecily Neil, a research sociologist at the Division of Building Research in Melbourne.

In the course of the investigations, the sub-committee found instances in which women graduates were advised by staff in their university departments that CSIRO was reluctant to employ women and in one case learned of a woman who was told after her interview that she had been unsuccessful purely because of her gender.

The sub-committee also learned that this opinion was held by at least one university appointments board and by senior staff of the Women's Affairs Branch of the Public Service Board.

The Chairman of the sub-committee, Dr Judith Koch, said the committee was grateful for the assistance and high level of cooperation it had received from many people.

Recommendations to the Executive are:

1. The Executive as a matter of first priority declare CSIRO to be an equal employment opportunity (EEO) employer.
2. The Executive's decisions on the sub-committe's report to be publicized widely throughout the Organization and, in particular, decisions arising be directly conveyed to all women.
3. The Executive designate an EEO coordinator at a senior level in Personnel Branch to be responsible for development and monitoring of personnel practices and policies following EEO principles.
4. CSIRO appoint an EEO officer directly responsible to the EEO coordinator to establish EEO programs.
5. CSIRO designate EEO contact persons in each Division to counsel and inform staff.

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Government grant

WORK SKILLS FOR THE UNEMPLOYED

CSIRO will employ and train 150 people with a $2.5 million grant from the Commonwealth Community Employment Program (CEP).

The jobs, for 120 technicians and 30 animal attendants and farm assistants, will be provided in nearly every CSIRO Division and in about 70 urban and rural locations around Australia. Training began in early December.

Over half the places will be reserved for women (76), Aboriginals (10), migrants with English language difficulties (4) and physically handicapped people (4).

Skills learnt will be readily transferable to other work areas. The knowledge and experience gained in the 12 month training period should greatly assist the trainees to find other jobs.

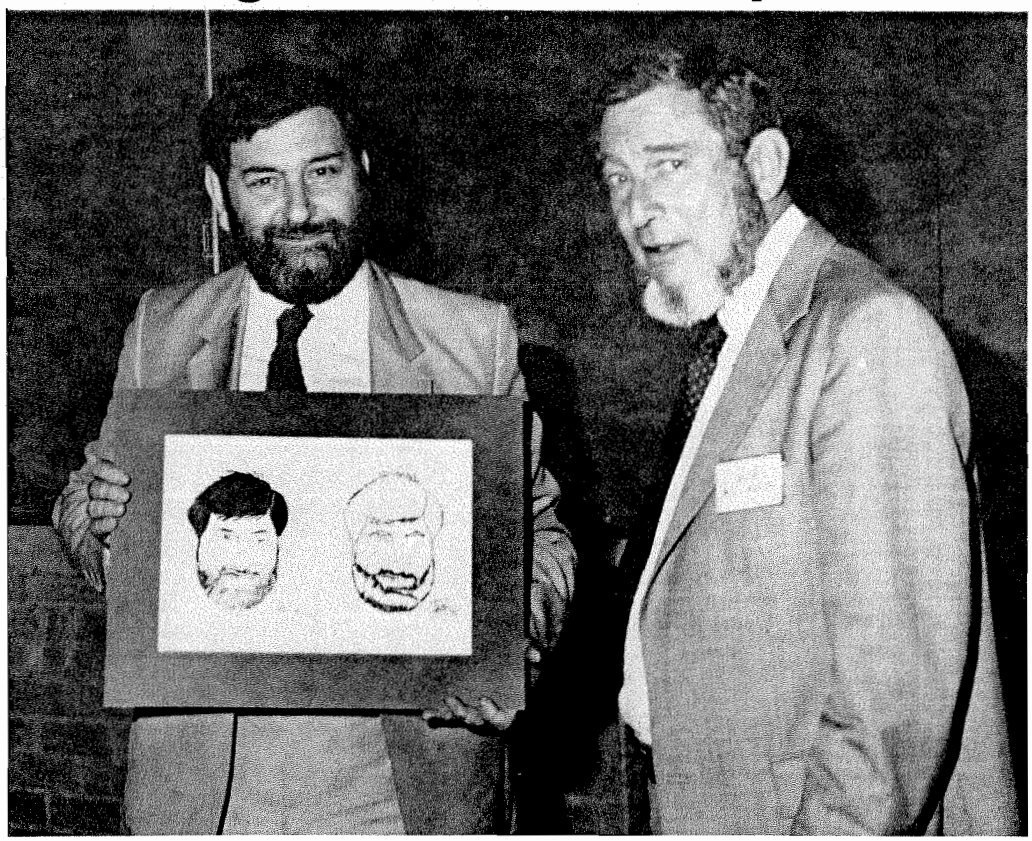
The duties of the trainees will vary between laboratories and locations, but the major skills to be acquired will be:

- use of laboratory equipment, knowledge of analytical and sampling techniques and preparation of materials;
- training in applications of microcomputers, with broad experience of scientific electronic equipment;
- care and maintenance of animals and animal husbandry; and
- farm management techniques.

A total of 49 positions will be filled in NSW, 43 in Victoria, 18 in Queensland, 10 each in South Australia and Western Australia, 3 in Tasmania, 13 in the ACT and 4 in the Northern Territory.

A total of $300 million has been made available by the Federal Government for the Community Employment Program, for projects developed by Federal Departments, State and Local Governments and community organizations.

Picturing himself on computer



The Minister for Science and Technology, Mr Barry Jones, came face-to-face with himself opening the new VAX 750 computer at the Division of Water and Land Resources.

A caricature of the familiar face by 'Canberra Times' cartoonist, Geoff Pryor, beamed from the screen after Mr Jones commissioned the new system, which will be used in the survey and assessment of Australia's water and land resources.

Mr Jones said the Government recognized the importance of what the Division was doing. A more complete understanding of Australia's water resources and the measures of land use to be adopted now and into the 1990s was needed, he said.

Mr Jones is pictured above receiving the original artwork from the Chief of the Division, Dr Richard Millington.

Strategic Research Review

CSIRO's Executive has established a committee to examine and report on CSIRO's strategic research planning procedures and practices, and to report on ways in which the planning of CSIRO's broad research priorities might be improved.

The Committee, chaired by Dr Keith Boardman, is calling for submissions from the staff of CSIRO on these subjects. The terms of reference and the full membership of the committee are set out in information circular No. 83/51. If you wish to make a contribution, please address it to Mr T.J. Healy, Secretary of the Review of CSIRO's Strategic Planning Activities, CSIRO Headquarters. Submissions should reach him by 10 February 1984.

Wool research reviewed

Two Advisory Committees visit the Division of Textile Physics annually to carry out a review of its wool research activities.

They are the Wool Textile Research Advisory Committee (WTRAC) chaired by Mr David Fletcher Jones (Fletcher Jones and Staff Pty Ltd) and the Wool Distribution Research Advisory Committee (WDRAC) chaired by Mr John Silcock (a prominent woolgrower and Deputy Chairman of the Australian Wool Corporation). These Committees report to the Australian Wool Corporation Board which has a statutory duty to advise the Minister for Primary Industry on the disbursement of the Wool Research Trust Fund.

Their 1983 visit took place in November and was the last one for which the Chief, Dr Bob Haly, was host as he retires in the first half of 1984. The two committees were given demonstrations and explanations of current research programs during the morning and were then entertained to an excellent buffet lunch prepared by the two canteen staff, Mesdames Pat Chisholm and Stephanie Clarkson.

At the conclusion of lunch a special tribute was paid to the work of the retiring Chief by Mr Silcock and supported by Mr Fletcher Jones on behalf of their respective committees.

Eastern trek of minds and equipment

John Beresford and Gerald Watson (Division of Groundwater Research) Perth, checking their navigation charts before setting off from Floreat Park to cross the mighty Nullabor.

They are heading for Bateman's Bay in New South Wales where they will be joined by Dr Eric Greenwood (Groundwater Research), Louis Klein (Animal Production) and others from Plant Industry, Forest Research, and ANU.

The purpose of this meeting of minds and equipment (see trailer in the photo) is to compare several methods of measuring evapotranspiration from plant communities. The trailer contains components of the 'ventilated chamber' technique which Dr Greenwood's team has been using in WA's jarrah forest, pine plantations and farm lands. It's all part of the Division of Groundwater Research's work to combat the growing problems of man-induced salinity.

Photo by Bill Van Aken.

Retirement for CSIRO Chief

Dr Gordon Crewther, Chief of the Division of Protein Chemistry for the last eight years, retired in November after 40 years service with CSIR/CSIRO.

A few days before his retirement, about 160 of his past and present colleagues and their wives attended a dinner to honour Gordon and his wife, Dorothy.

A tribute was paid to Gordon's contributions in the field of protein chemistry and to the confident direction which he gave to the Division during his period as Chief.

Gordon Crewther was born in 1918. On completion of his secondary education at Kyneton High School in 1934, he studied Science at the University of Melbourne where he graduated BSc (Biochemistry) with 1st Class Honours in 1940. Further study at the University of Melbourne led to the award of the MSc degree (with 1st Class Honours), the title of his thesis being 'The Nature of Enzyme Action'.

After a short period with the Victorian Department of Agriculture in 1943, he joined the Council for Scientific and Industrial Research (now CSIRO), initially with the Division of Industrial Chemistry in Melbourne, and then in 1950 he began his long association with the Division of Protein Chemistry (originally known as the Biochemistry Section) at Parkville.

His prime research interest has been in the field of protein biochemistry, particularly related to the structure of wool keratins. The University of Melbourne recognized his significant contributions by the award in 1956 of the Grimwade Prize, and in 1969 of the DSc degree (thesis title: 'Physical and Chemical Studies on the Structure of Wool'). In 1974, he was elected a Fellow of the Royal Australian Chemical Institute. In 1963, he was appointed Assistant Chief of the Division and in 1973 became Chief of the Division, the position he retained until his retirement in November 1983, exactly 40 years after joining CSIR.

All of his colleagues, past and present, wish both he and Dorothy a long and happy retirement.

Quarantine procedures for CSIRO researchers

CSIRO has, for many years now, had its own accredited Quarantine Officer appointed by the Department of Health, and if you are a CSIRO officer, importing experimental biological material can be easier than you think.

Please do not try to go around the quarantine system, as the regulations endeavour to keep Australia free of dangerous pests and diseases.

We have so far avoided foot-and-mouth disease, rabies, oriental fruitfly, screwworm, colorado beetle, and a host of other menaces. Hundreds of plant species would welcome the opportunity to exploit our expanses of susceptible environment.

Many pests and diseases have reached our shores accidently, inadvertently, or through the naivety of our early settlers and gardeners. Rabbits, cane-toads, lantana, skeleton weed, serrated tussock, African boneseed, and many others which we could well have done without were introduced in this way. Occasionally an unwanted species, such as parthenium weed, penetrates the dragnet of our Customs and Quarantine screen of modern times, and we have had some 'too close for comfort' scares recently, but generally the quarantine system in Australia works well, and is the envy of most countries.

QUARANTINE SCREENING

As the Plant Introduction and Quarantine Officer for CSIRO, located in Canberra, I ask all of you who contemplate importing biological materials from overseas for your CSIRO work, to send them to me for quarantine screening on your behalf. Unless you have a special official arrangement with the Chief Quarantine Officer (Plants) or the Chief Quarantine Officer (Animals) in your State, you will break Commonwealth laws.

Two procedures, if simply followed, will ensure that the materials arrive at your laboratory without having to go on a State queue and with most of the paper work done at your own CSIRO quarantine office.

Parcels from overseas containing material subject to quarantine regulations must be directed through me, acting as your agent:

Mr Roy Pullen,
Plant Introduction/Quarantine Officer,
CSIRO Division of Plant Industry,
GPO Box 1600,
Canberra, ACT 2601.
Phone: (062) 46 5483

If you are arriving from abroad with quarantine items in your luggage or in your pockets, declare them openly on your customs declaration form and ask the quaran-

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Chem. Physics celebrates

Dr Lloyd Rees, right, chats to Lady Wark over a glass of champagne, while Sir Ian Wark talks to Mrs Marion Rees.

Past and present members of the Division of Chemical Physics gathered to celebrate the Division's Anniversary at a convivial champagne party held in courtyard one of the David Rivett Laboratory at Clayton last month. They were joined by old friends, foreign scientists presently visiting the Division, and a number of distinguished and honoured guests. The party was attended by wives and by Chiefs from other Divisions on the Clayton site.

The Division of Chemical Physics was entirely the brainchild of Sir Ian Wark and the swift development of the Division is due not only to Sir Ian Wark but also to the energies and dedication of Dr Lloyd Rees, the foundation Chief.

In blazing sunshine the present Chief, Dr Lewis T. Chadderton, briefly addressed the gathering and introduced Dr A.L.G. Rees who, for the benefit of guests, traced the development of the Division and its achievements from November 11, 1958 to the present. To a rousing cheer, he then officially cut the 25th birthday cake, one hundred helium balloons were set free, and informal celebrations began.

Amongst the distinguished guests were Sir Ian and Lady Wark, Sir Alan and Lady Walsh, and, of course, Dr and Mrs Rees. Many telegrams of congratulations and good wishes were received, including one from members of the Division at Lucas Heights, and one from the Director of the Institute of Physical Sciences.

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

Reg Lawrence of CSIRO's Printing Unit retired recently after 24 years of service.

Reg has been responsible for the printing of many publications and journals in letterpress and since 1975 has been in charge of the distribution and mailing section.

In this position Reg has become very well known and respected by many members of the Organization.

Mr Alec Zarins retired from the Division of Energy Chemistry on 18 November after 24 years service with both the AAEC and CSIRO at Lucas Heights.

On the same day, he was also awarded the Journalism Prize (Diploma and $500) of the Free World Latvian Federation for his contributions to Latvian journalism around the world.

Betty Lee, of the Division of Entomology, well known in recent years for her battle strategies in the mighty mite's 'war of the roses' campaign in the Federal Parliamentary rose garden, recently retired from CSIRO to live on the New South Wales south coast.

Betty's work on biological control of roses and orchids ensured that the blooms in the rose garden were large and lush, with fewer sprays.

Dr Salvador A. Cruz, pictured above, who was a guest scientist at the Division of Chemical Physics for five weeks. Dr Cruz is from the Instituto de Fisica, Universidad Nacional Autonoma de Mexico, Mexico City. His research interests include atomic collision phenomena in solids, 'ab initio' calculations for the construction of planar potentials, and the quantum three-body problem.

John Connell, an experimental officer in the Division of Textile Physics in Sydney, has recently been awarded his PhD from the University of New South Wales with his thesis entitled 'Reflectance Infrared Studies of Wool'.

Jack Bourne retires

Mr Jack Bourne retired in December after more than 44 years service with CSIRO and its predecessor,CSIR, and some 100 friends, former colleagues, and officers from various laboratories and offices attended his farewell dinner.

Jack commenced with CSIR in 1939 as a junior clerk in Accounts in Head Office which was then located in East Melbourne.

After war service, Jack returned to Head Office, and later occupied administrative positions at the Division of Forest Products, and the Central Experimental Workshops, Maribyrnong (later to become the Division of Energy Technology).

Jack was appointed Personnel Officer in the Regional Administrative Office, Melbourne, following the establishment of that office in 1963.

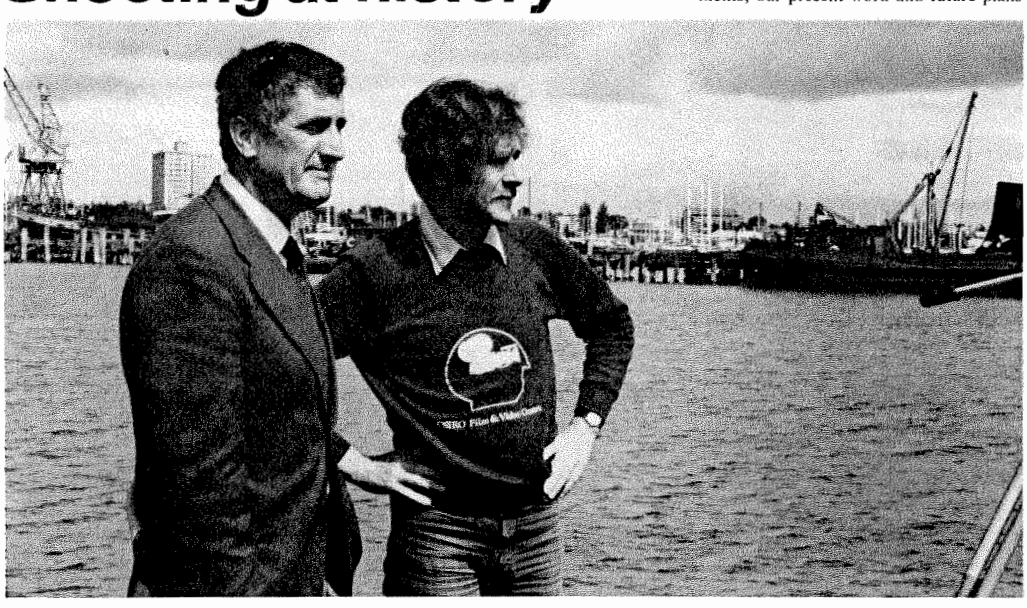
Subsequently, he spent more than 12 months as Acting Regional Administrative Officer, Brisbane. In 1971, Jack visited CSIRO locations throughout Australia explaining to staff the operation of the new superannuation scheme.

He resumed duty as Regional Personnel Officer, Melbourne, in 1972, and continued in that position until his retirement.

Jack was involved in a number of other activities including Treasurer and later Director of the CSIRO Co-operative Credit Society, and a member of the CSIRO Benevolent Fund Southern Region from its formation in 1968 until his retirement.

Probably Jack will be remembered most by the children who attended the Christmas Party each year and confided in him their secret wishes. Jack has played the part of Father Christmas at the RAO/CILES Christmas Party for many years.

Shooting at history



John Whalan, Head of New Zealand's DSIR Audio-visual Unit, recently visited Australia to check up on specialized film and video production. John spent three days with CSIRO's Film & Video Centre in Melbourne and managed to fit in a quick location shoot at historic Williamstown with Roger Seccombe.

From the Chairman-

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

The first requirement and priority of this great Organization has to do with the excellence and relevance of its science and technology; the second, inseparable from the first, must surely be communication: communication of its results to industry and community users; communication with politicians and other policy makers; communication with the public at large.

Communication can and should take place at all levels in the Organization. It may take many forms: the written word, the spoken word, the visual picture; face to face, in journals or newspapers, or broadcast. We have to give tireless attention to all aspects of communication; it can always be improved.

To my mind one major deficiency (not the only one) in our communication arrangements is that it is exceedingly difficult for a person in any given industry or profession to find out about the total scope of our work in their field of interest. We are now doing something about that deficiency. The idea is to produce a series of booklets each covering an industry or user-oriented field of endeavour. We are thinking of calling the series the CSIRO 'Research for Australia' series. It would be aimed first for the user, and second for the policy maker, policy analyst and, if possible, the public – if it proves feasible to sell them on the bookstalls, so much the better. The series will consist of about 20 volumes which may vary greatly in size according to the amount of work we do on each subject. Suggested titles for the twenty volumes are as follows (in random order): Manufacturing Industry, Public Health, Information Technology, Biotechnology, Water, Advanced Materials, Agriculture, Weather and Climate, Radio Astronomy, Mining and Mineral Processing, Forestry, Fisheries, Conservation and the Environment, Energy, Building and Construction, Land Management, Oceanography, Wool, Processing and Marketing, Weeds and Pests, and Food.

Each should cover our past achievements, our present work and future plans and policies, as well as the economic and social impact of the work. Each should be attractive and interesting as well as informative and will indicate to the reader exactly what work is in progress and whom to contact for further information. They will be updated every so often.

We have gone as far as appointing an editorial board: Sam Lattimore, Jim Lumbers (editor), and me. The initial writing will be done in Divisions under the direction of a panel of specialists headed by a senior scientist (e.g. a Chief or Director). We shall produce a number during 1984 and aim at doing the lot by July 1985. I have already rung around a number of the Divisions and have received enthusiastic support for the project. I hope you all agree it's a good thing and I ask for your full cooperation when the time comes.

***

When I first took over as Chairman, Keith Boardman and I did the rounds of the capital cities in barnstorming fashion and came face to face with a large part of the total staff in less than a fortnight. I am now planning to do the same early in 1984, accompanied part of the time by Keith and part by Geoff Taylor. I want to talk about what has been achieved in these five years and pose major questions for the future. There will be an opportunity for all members of staff to pose any kind of questions they like.

***

The news has just come to hand that the Government has given approval to voluntary retirement of CSIRO staff at age 55. I believe this increased flexibility in retirement policy will be welcomed by everybody.

***

The year 1983 has been a memorable year in the history of the Organization: a year of considerable achievement in a changing world, a year in which we have come in for more than our fair share of criticism and controversy, but to some extent that has added spice to the proceedings. I am confident that issue by issue, one by one, each will be resolved in the end. I would like to thank so many of you for your support and loyalty to the Organization in many different ways during this challenging year.

***

It is a platitude to say that we can always do better; but I want to say it as an excuse to tell a true story, remembered from my youth – my first cricketing story for some time!

Hedley Verity was a slow left-arm bowler who had many a do-or-die duel with Bradman in the Anglo-Australian Tests of the 1930s. At the end of one long, hot day, playing for Yorkshire, he walked up the pavilion steps, weary but triumphant with figures of 7 for 28 against his name. He sat himself down beside the old master of left-arm spin, the legendary Wilfred Rhodes. 'Well, how did I go?', asked Verity, aglow with success. 'Huh', answered Wilfred, '7 for 28: 'twere a proper disgrace; 'tshould have been 7 for 24 ....'

Paul Wild

CAT

The CAT Column is open to all members of CSIRO who wish to comment on communication matters.

Shaun Coffey of CSIRO's Science Communication Unit in Canberra has contributed this month's CAT column.

A recent survey, initiated at the request of CAT, has examined the contention that when resources are scarce, information positions in CSIRO are shed to keep research positions alive.

Much to the surprise of many people, the survey found that there has been an overall increase in the number of information positions in the last five years. Some Divisions reported marked declines, but these were matched by increases in others. Generally, these changes related to policy changes related to the appointment of a new Chief, a change in research priorities or to budgetary considerations.

Apart from this main purpose, the survey found three other interesting facts.

1. The range of communication activities conducted, and the relative priority accorded each activity, varied markedly between Divisions.
2. Similarly, a wide range of personnel are involved in these communication activities.
3. Some 10 Divisions have no full-time communicator position.

The three factors reflect the disparity of Divisional needs in information services.

The report contains detailed descriptions of the types of duties being performed by communicators but notes that there were many jobs that Divisional staff considered *ought* to be done, but mostly are not because more urgent, less important tasks could demand immediate attention. The full range of duties performed makes interesting reading.

The report also notes that in Divisions where responsibility for communication was shared within a team, information programs appear to run smoothly. Isolated communicators appeared not to be so effective. Examples of Divisional approaches to communication are included to show how information, editing and liaison are integrated activities.

The full report, 'INFO people: a survey of Divisional and Unit information staff and their duties', is currently being printed. You can obtain a copy from Shaun Coffey of the Science Communication Unit (telephone 062 48 4477).

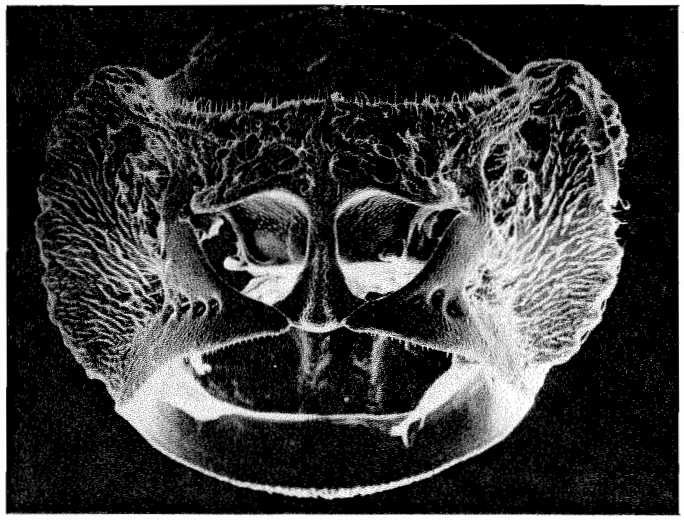
Mentors for gifted children

CSIRO scientists are being invited to join a gifted children's mentor scheme being operated by the Victorian Department of Education.

The Scheme aims to improve the quality of education available to able and highly motivated children by providing an opportunity for them to communicate with experts in their respective areas of expertise. The mentor provides the student with advice about how to develop his or her skills in a particular topic.

CSIRO staff in Melbourne interested in making a contribution by offering time and expertise can make contact through Mr Shaun Coffey of CSIRO's Science Communication Unit in Canberra. Scientists outside Melbourne who are interested in participating by correspondence could also get details of the scheme through Mr Coffey. His Canberra telephone number is (062) 48 4477.

Photography prize



International recognition has come to CSIRO technician Elizabeth Lockie from the Division of Entomology for this scanning electron micrograph of a beetle's prothorax magnified 160 times. Elizabeth's entry was placed third in an international competition in photo-micrography. A total of 2600 entries were received in the competition.

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6. All documentation and communications originating within the Organization be prepared in non-sexist, non-discriminatory terms.
7. All instructions to delegates responsible for implementing conditions of employment be reviewed to ensure that they are non-discriminatory in both substance and practice.
8. All vacancies be advertised on the basis of defined criteria which will preclude decisions regarding recruitment and promotion being determined on the basis of sex.
9. All recommendations for employment be argued on a non-discriminatory basis.
10. Occupancy of CSIRO houses and rental policy be determined on a non-discriminatory basis.
11. The Executive ensure that a woman's entitlement to maternity leave does not lead to bias in any aspect of her employment irrespective of tenure or source of funds.
12. The Executive actively attempt to identify and appoint women to policy and review committees.
13. All advertisements for positions feature a statement that CSIRO is an EEO employer and invite persons of both sexes to apply.
14. CSIRO actively provide clear and accurate information to undergraduates and school leavers, including those from single-sex schools, encouraging applications from the widest range of people.
15. Every endeavour be made to include a woman on the selection committee when the field of applicants for a position includes women.
16. A standard 'personal details' form be completed by interviewees so that details are recorded in a non-discriminatory format.
17. Particular care be taken in formulating selection criteria to ensure appointments to positions involving contact with persons or organizations outside CSIRO are made on a non-discriminatory basis.
18. Particular care be taken in formulating selection criteria to ensure appointment to positions involving field work are made on a non-discriminatory basis.
19. A training course in selection principles and techniques be introduced, with an emphasis on equal opportunity.
20. All staff likely to sit on selection committees be required to attend this training course.
21. Selection panels should be directed not to preferentially recommend appointment of women to the less desirable, repetitive and 'dead-end' postions.
22. The Executive introduce a provision for paid retraining for a period not exceeding six months if this is necessary to enable a female former employee who is a suitable applicant for a position and who has been out of the work force for at least five years to return to CSIRO's employment.
23. CSIRO take positive action to ensure an increase in the representation of women in the trades area. Ten per cent of apprenticeships should be offered to women in each intake and successful female apprentices should be given active assistance in seeking trades positions in CSIRO.
24. As a short-term measure, CSIRO preferentially appoint a female applicant to a technical or professional engineering position if in all other respects, except experience, she is equal to the best male applicant.
25. An EEO sub-committee be established within Consultative Council to investigate and report to Council on:
    - the impact of EEO and anti-discrimination legislation on CSIRO's personnel practices,
    - an affirmative plan,
    - dissemination of EEO policy,
    - evaluation of EEO statistical data,
    - EEO training programs,
    - part-time work,
    - job sharing, and
    - child-minding facilities.
26. The absence of specifically designated female personal and hygiene facilities not be used as a reason to prevent the participation of women in any area of CSIRO activity (e.g. field trips, camping parties, work on field stations or smaller sites).
27. A joint working party comprising representatives of CSIRO and staff associations be established to review the existing keyboard/secretarial structure in the Organization.
28. Appeal committees include a female member in all cases where the appellant or provisional promotee is a woman.
29. The numbers of staff held at promotion barriers be monitored. Where the number of women held at promotion barriers is disproportionately high, an evaluation of these officers' career opportunities be undertaken with the aim of determining whether there is any possibility of promotion over the barrier concerned.
30. A deliberate system of lateral transfers be implemented so that women are able to receive adequate training in all aspects of administration and thereby to compete seriously for senior divisional positions, an area where women are significantly underrepresented.
31. Action be taken to identify promotional barriers, specialized career paths or limited career paths which predominantly affect women.
32. Action be taken to ensure that women receive adequate information on their rights for promotion, to appeal and to receive post-appeal counselling.
33. All existing management and supervisory training programs be revised to include a specific session on EEO.
34. An EEO training program be developed.
35. The EEO training program be conducted in each region on a non-residential basis requiring attendance of all supervisors and inviting attendance of all women.
36. Introductory seminars of short duration for the most senior management staff of the Organization be developed and conducted by a person experienced in EEO to present EEO concepts, responsibilities and advantages to management.
37. Staff counselling skills programs be reviewed to ensure that participants are made aware of the existence of gender-linked differences in attitudes and female and male stereotypes of roles, and are equipped to take these factors into account in their counselling activities.
38. Existing management courses be conducted periodically on a non-residential basis and positive action be taken to ensure increased participation by women in these courses.
39. Career development workshops be conducted for women.
40. CSIRO improve its statistical and data collection practices on staff appointments.
41. CSIRO improve its statistical and data collection practices on promotion.
42. CSIRO improve its statistical and data collection practices.
43. Women be interviewed at conclusion of employment with CSIRO to gather details of the degree to which their career expectations were met.
44. The Staff Training and Development Unit should report annually to Consultative Council on the attendance of women at training courses.
45. The EEO officer and the EEO coordinator report annually to Consultative Council and prepare an annual report for inclusion in the CSIRO Annual Report.
46. The EEO officer be responsible for assessing and reporting upon the extent to which EEO principles are followed in the exercising of personnel delegations throughout the Organization.
47. It be the responsibility of the EEO contact persons (Recommendation 5) to provide initial contact points for women on EEO matters and that EEO contact persons be provided with direct access to the EEO officer.
48. EEO contact persons be placed on the distribution list for Information, Staff, Policy and any other CSIRO circulars and similar documents.
49. The EEO contact persons attend regular regional seminars for training and ongoing discussion of EEO policies and issues.

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tine officer at the barrier to forward them to me for processing on your behalf.

The commonest items dealt with are seeds, live plants, cultures, soils, sera, cell extracts and insects, but the actual list for any year is enormously varied.

The service is for all CSIRO Divisions.

READILY AVAILABLE

Procedures for importing plant materials have always been handled by the quarantine section for the Divisions of Plant Industry, Forest Research, Tropical Crops and Pastures, Horticultural Research, Water and Land Resources, Protein Chemistry, Food Research, and the Baas Becking Geobiological Laboratory. However, as staff come and go, it has become obvious that some people are unaware of this quarantine service.

If you are contemplating an overseas trip and the eventual mailing home of biological material, I suggest you send me a memo outlining the details as soon as possible. If you put something in your luggage at the last moment, don't hesitate to declare it as you come back into Australia. Our CSIRO office is known to all quarantine officers at the airports, and they will appreciate it if you can pack it neatly for forwarding to me.

CSIRO is a respected scientific organization whose officers are considered responsible.

The Canberra section comprises four people at the Black Mountain site. Sue Tibbitts and Lorly Allen cope with a host of various chores which include cleaning out weed seeds, fumigating consignments, documenting, and submitting requests for permission on your behalf. Ru Baye runs the two quarantine glasshouses for those species of plants which require a generation in quarantine before release.

Quarantine facilities for growing plants also exist at Samford and Townsville for the Division of Tropical Crops and Pastures, and at Merbein for the Division of Horticultural Research.

We can arrange for use of restricted materials under laboratory confinement, make intercessions on your behalf for those tricky items that set the public servants muttering, and advise you on procedures for any long term imports you may have in mind. We don't operate outside the system but work within it. CSIRO's privileged advantage in being able to employ a section to specially implement quarantine procedures could be disastrously offset by just one officer not obeying the rules of quarantine as administered by the Commonwealth Department of Health.

Don't let an illegal import knowingly perpetrated by yourself be the one to spoil CSIRO's reputation. As I mentioned at the beginning of this article, importing biological material is easier than you think.

So why should I ever have to pick up a copy of a letter which recently came my way, written by a CSIRO colleague to another, which says, 'I am enclosing a few seeds of .... I hope Customs don't find them!' After all, I am empowered to investigate and prosecute!

This article has been contributed by Roy Pullen.

'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 Editors, Box 225, Dickson, ACT 2602. Tel. 48 4640. Editors: Jeannie Ferris and Penny Gibson.