

## ANTIQUE MOTORS ON CAMPUS

Almost one hundred veteran, vintage and classic cars and motor cycles visited Wollongong over the Easter weekend to take part in the Ninth Annual Rally held on behalf of the Council of Country Antique Motor Clubs. The University lent part of its grounds and facilities as Rally headquarters, a gesture greatly appreciated by members who have reported that visitors from as far away as Brisbane commented on the beauty of the setting.

Lord Mayor Frank Arkell, who is Patron of Illawarra Vintage, attended the Saturday morning start of the two scenic tour routes undertaken by rallyists and was a guest at the Presentation Dinner held at the City Hall and at a Champagne Breakfast held at the Club's premises at Mt. Kembla.

Caltex Oil sponsored the event, with support from local business houses. Children of rallyists were entertained by free rides on a vintage fire engine and a rubber-tired train; quite a few adults enjoyed these too.

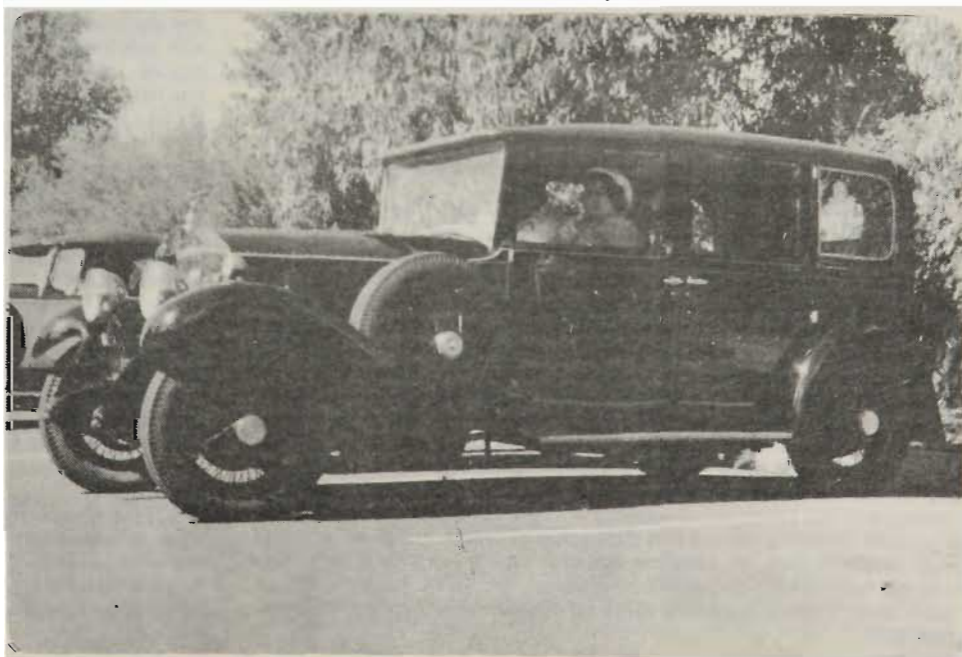
The vehicles were on display to the public on both afternoons and \$900 was donated to the Illawarra Society for Crippled Children and the Illawarra Junior Surf Life Saving Association as a result of the event.



Above: Young visitors to the Rally held by the Antique Motor Clubs enjoyed a ride on this vintage Fire Engine. Below: A vintage Rolls Royce lends "a touch of class" to the Campus.



Members of the Development and Planning Office hope you like the new masthead of CAMPUS NEWS, which incorporates the University's "wave" logo. They are very grateful for the alternative suggestions submitted, and would appreciate comments, favourable or critical, of the masthead selected. This should be regarded as being "on trial". It can be modified or completely changed should public opinion so demand. Suggestions should be addressed to The Editor, Campus News, Development and Planning Office.



# BIOLOGY DEPARTMENT IS DISTINCTIVE AND VERSATILE

When Duncan Brown took up his appointment as foundation Professor of Biology at the then Wollongong University College in November 1974, Biology had been taught there for some 12 years, under Dr. Jim Campbell, but only at first year level.

On New Year's Day 1975 the University College became the autonomous University of Wollongong. In February Professor Brown and Dr. Jim Campbell were joined by Dr. Tony Hulbert and Dr. Ross Lilley; a second year was added to the course and plans laid for a third year. A full-scale Biology Department was on its way and Professor Brown had very definite ideas on how its curricula should develop.

A full scale Biology Department now exists, with a busy programme both in teaching and research. Academic staff now number 7 and there are about 210 students enrolled.

This has been achieved in spite of disappointments which have resulted from severe cuts in government funding and have necessitated considerable modification of original plans.

"When I came here I had definite ideas on how the curricula would develop, based on projected ultimate size of the Department," said Professor Brown. "Cuts in funding have meant that the Department will not be as large as originally estimated, so drastic alterations have had to be made to the initial plan. We are a small Department and we must make sure that we can legitimately claim to teach something called "Biology".

"Accommodation is a problem. The Science II building, where we expected to be accommodated, has been axed twice in the past and now looks like being axed again. We are getting seriously short of space.

"However, we have to some extent turned our difficulties into advantages. As a small Biology Department we cannot replicate the types of courses offered by larger Universities. We have therefore had to be very selective in the components of courses and in the sorts of special interests of staff appointees. The department is quite distinctive as a result.

"We give a general course in first year, and in second and third years we concentrate on specific types of biological procedures as they occur in sub-cellular processes, through physiological processes up to events which take place in complex eco-systems.

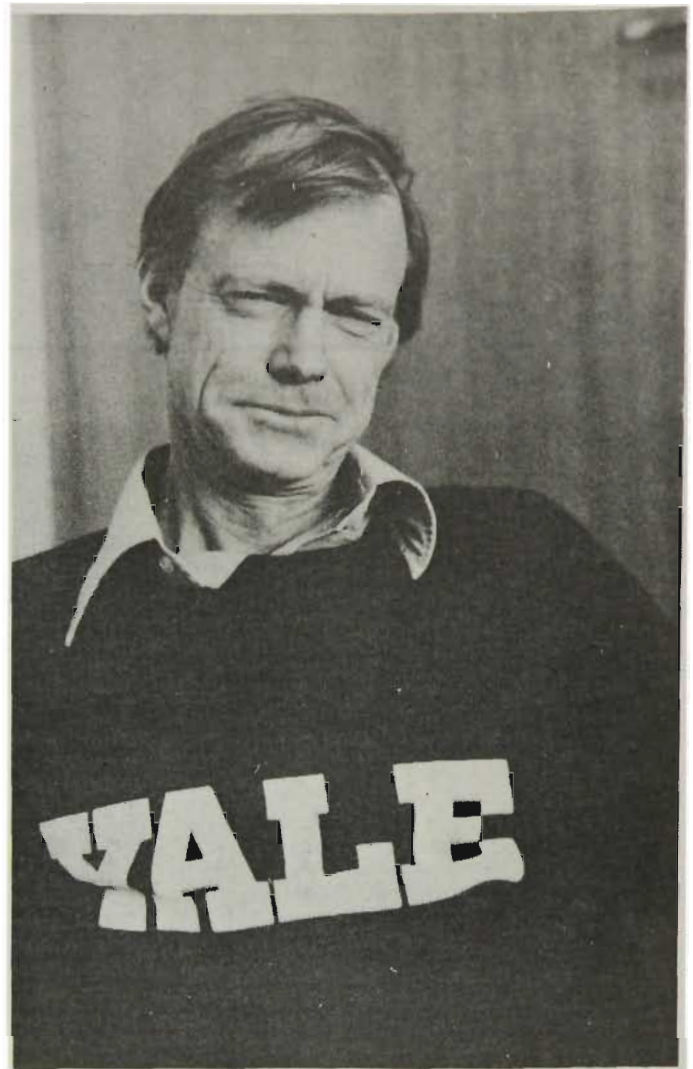
"As a result, our students have contact with, and some experience in, a wide range of biological disciplines. For example they gain practical experience in all cell physiology, plant and animal physiology, microbiology, biochemistry and ecology."

The versatility of this Department is indicated by the range of research undertaken by its staff and senior students.

Professor Brown's own research interests are within the broad area of microbiology. More specifically he has been concerned predominantly with the physiological basis of microbial activity under extreme conditions of low water availability. His research papers have been published in British, European, American and Australian journals. He is particularly interested in the salinity tolerance of microorganisms and most of his work has been done with the cell physiology of those microorganisms which are specially tolerant to very high salt concentrations or very arid conditions. He is planning to extend this work from a fundamental physiological study into the problems of developing salinity in soils following irrigation.

In 1977 he spent some months at Yale on a research project on problems referring to the physical state of water inside an unusual type of bacterium, an extreme halophil which requires a very high salt concentration in order to function. In 1978 he also visited Israel and Germany, where there is considerable interest in these problems.

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Above: Professor Duncan Brown's sweater is a souvenir of the time he spent at Yale.

Dr. Tony Hulbert is an environmental physiologist with a particular interest in Australian marsupials and monotremes. He is interested in their evolution and how their body functions interact with the environment. He began his studies on this in 1968 and today is also working on the hormonal aspects, especially the thyroid hormones. He has published extensively in international scientific journals and in 1978 was invited to deliver a paper on "THE EVOLUTION OF METABOLISM IN MAMMALS" at the 4th International Conference on Comparative Physiology, in Switzerland.

In 1978 he received a three year grant from the National Health and Medical Research Council for work on the effect of thyroid hormones on hearts. The aim of this is to get the hearts of warm blooded mammals to function at low temperatures in the same way as the hearts of cold blooded animals. The National Health and Medical Research Council is interested in this as findings could help in hypothermic surgery (such as open heart surgery, when the patient must be cooled down to slow down his heart beat) and in long term storage of human tissue.

Tony regards Australia as the ideal place for his work. The monotremes (platypus and echidnas) have been separate from other mammals for the last 200 million years. The marsupials (kangaroos, possums and bandicoots) have been distinct for about 135 million years.

"This means they have had a large amount of time to adapt to their environment in ways quite distinct from other mammals," explained Tony, "and apart from the intrinsic interest in these adaptations they can tell us a considerable amount about our own early history when we were first becoming "warm-blooded" mammals."

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Above: Members of the Biology staff. Back Row (from left): R. Furbank, P. Moran, W. Reynolds, R. Lilley, T. Grant. Middle Row: A. Ward, P. Else, D. Murray, D. Kelsey, U. Patzholz, H. Spencer. Front Row: P. Evans, A. Lee, A.D. Brown, A. Duong, A. Hulbert. Sitting: L. Deitch and Granite (with rock). Absent: J. Campbell, B. Spencer, E. Myer, H. Raus and M. Edgley.

When you can't find Dr. Tom Grant at the University you could try looking for him along a certain stretch of the Upper Shoalhaven River which is his favourite spot for the pursuit of his current absorption, the platypus.

Tom describes himself as a mammalogist and he is presently engrossed in the study of the physiology and ecology of the platypus. His work at times impinges on that of Tony Hulbert and the two sometimes work in tandem.

As the platypus is a mammal which lives in water, Tom's interest has broadened out to include fresh water ecology. He was awarded his Ph.D. by the University of N.S.W. for his work on temperature regulation in the platypus. This engaging creature is often called a "primitive mammal" and it was thought it could not regulate its body temperature but let it drift with the environment as reptiles do. Tom established that this is not so; the platypus can keep it constant at a slightly lower level than do marsupials, which is slightly lower again than that of placental mammals.

His present studies concern the ecology of the platypus, including its feeding habits, movements and seasonal activity patterns. He is however becoming more and more interested in fresh water ecology, especially that of water birds, and is looking towards the ways in which man's interference with the ecology affects them.

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Dr. Hugh Spencer is a neurophysiologist/pharmacologist. "A fellow of infinite variety" he is also a "part-time" electronics engineer and solar engineer. The electronic engineering, he says, is almost essential to his work as a neurobiologist; the solar engineering springs from his concern for the environment. It is clearly far more than a hobby with him for he has a U.S. patent pending for a solar hot water system using foil collectors.

Hugh's research is concerned with the micro-anatomy and pharmacology of the mammalian hippocampus (that part of the brain which seems to be involved in memory, at least in man.) He has published on this a number of times in the last 3 years. His research involves the use of living brain slices, a technique which allows one experimental animal to be the equivalent of say, 5 conventional preparations, and allows more elaborate experimental designs. One technique he uses to probe the pharmacology of the brain is "micro-iontophoresis", which allows a selection of drugs to

be directly "squirted" onto a single nerve cell while recording its responses.

Hugh was the first to identify the nature of the nerve transmitter involved in communication between the cerebral cortex and the basal ganglia, using this technique. This is the area involved in Parkinson's Disease, so his work may provide a break through in the understanding and treatment of this disease.

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Dr. Ross Lilley is a plant biochemist working on photosynthesis and other energy-related cellular processes. Photosynthesis is the process by which plants trap energy from the sun and use it to build sugars and other organic molecules by fixation of carbon dioxide from the air, thus converting solar energy into chemical energy. Man is totally dependent on photosynthesis for his food and largely for his energy supply.

The entire process of photosynthesis in plants takes place inside minute organelles called chloroplasts. Each cell of a plant leaf contains many chloroplasts. The isolation of intact and undamaged chloroplasts allows the study of the complete process of photosynthesis "in the test-tube". In practice this is very difficult because of the fragility of the chloroplasts, and most research on such preparations has been done in the last ten years by only a few laboratories, using chloroplasts from spinach and pea. Ross Lilley is endeavouring to widen the range of plants from which intact chloroplasts can be obtained, and is studying the movement of metabolites out of the chloroplast during photosynthesis, a process which involves specific membrane-located transport systems.

His work, which is being funded by the A.R.G.C., is at the basic research level. However, a thorough understanding of the mechanism of photosynthesis would provide agronomists and plant breeders with a better basis for their work to improve crop yields. He is particularly interested in a new method of working with plant cells, i.e., the preparation of protoplasts - plant cells with the cell walls removed.

Ross is also working on marine algae, including a study, with Professor Brown, of photosynthesis and osmoregulation in *Dunaliella* (a green alga), and on photosynthesis in *Griffithsia*, an unusual red alga with giant cells.

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## Biology - cont. from page 3.

Newest member of the department is Dr. David Murray, who joined in April this year. He is a plant physiologist specializing broadly in plant proteins and plant nitrogen metabolism. In particular he is concerned with seed proteins in legumes. All legumes, he said, have relatively high amounts of protein in their seeds - some 20% to 40%; however the qualities vary. Cereal proteins, for instance, lack the amino acid, lysine, necessary to human health, but this is abundant in legumes. Conversely, cereal proteins have plenty of methionine, which is lacking in many legume proteins.

American Indians have known this intuitively for generations. Indian braves would fill their saddle bags with Succotash (a mixture of maize and kidney beans) and ride off, secure in the knowledge that they were sure of a balanced diet, rich in protein.

The main proteins in legume seeds, said David, are globulins, which are salt soluble. It is this class of proteins which is most deficient in methionine. Recently albumins, which are water soluble, have been shown to contain a better balance of essential amino acids, in fact, almost as good a balance as that of ovalbumin (the albumin of eggs). There is a world-wide interest in improving legume seed proteins by breeding programmes and David's research into this is about to be published in the U.K. journal, *Plant, Cell and Environment*. Hopefully, other scientists working in the same field in other parts of the world will use his research as a starting point for their own work to identify individual albumin proteins containing the best balanced composition of amino acids.

David has also been working with the Australian Acacia. For countless years the Aborigines have realized the food value of Acacia pods, which they would roast before eating, thereby de-toxifying some of the proteins. This is relevant today for Acacia is still eaten in India where the indigenous species contain nerve poisons which can cause paralysis if eaten in sufficient quantity. Pointing up the international character of scientific research, David told *CAMPUS NEWS* that Professor Arthur Bell of King's College, London, has found Australian Acacias do not have nerve poisons.

In his own research into the Australian Acacias, David has found that they have 35% of their seed protein as albumins and thus could provide ecologically satisfactory alternatives to the toxic Indian and African varieties.

The earliest member of the department, Dr. Jim Campbell, is at present overseas. Jim, an entomologist is pursuing his work on cricket behaviour at Berkeley, California. On his return to Wollongong in January, *Campus News* will ask him for an account of his work during study leave.



Above: Norm Buckley (Patrol Staff), a member of Warilla Bowling Club, winners of the No. 2 State Pennant Final held in Sydney in June. Norm, a keen bowler, for many years, has won many titles but considers this his greatest success to date.

## EMPLOYMENT PROSPECTS FOR YOUNG

A federal Government Department, The Department of Employment And Youth Affairs, has produced a report entitled **EMPLOYMENT PROSPECTS BY INDUSTRY AND OCCUPATION**, which was recently tabled in Parliament.

Although the overall picture presented by the report is a gloomy one for job seekers there are bright patches.

### Energy field

Employment in the electricity industry is expected to hold steady during the next two years, the report says.

Since 1971 employment in this industry has been slowly increasing but at very small levels.

Employment prospects are brighter in the natural gas industry, and the report is particularly optimistic about the employment generated through the North West Shelf project.

It says employment levels in this field are almost exclusively affected by the levels of government spending.

But no expansion in this sector was contemplated.

### Mining

There are prospects of adding 1750 permanent jobs in coal, aluminium and iron ore projects over the next two years, the report says.

Up to 6000 temporary or construction jobs could also be available.

Coal industry employment was expected to rise by 2 per cent and perhaps more if domestic and international steel industry requirements accelerated.

In other mining areas employment peaked at 58,400 in early 1975 and had fallen steadily since.

### Fishing

Agricultural employment is expected to remain steady over the next two years but, reflecting earlier years, it is also expected to fluctuate strongly.

The report says rural employment has been declining gradually since the early 60s.

The decline will be offset somewhat by an expected increase in employment in the fishing industry.

Fishing, already one of the fastest growing primary industries, is expected to be further boosted when the 200-mile fishing zone is declared.

### Tertiary Sector

The report said much of the growth in jobs since 1974 had been in the tertiary sector, particularly in areas such as health, education and community services.

It said cuts in government funds next financial year would clamp employment growth in these areas and in the tertiary sector generally.

But if an economic recovery went ahead the tertiary sector - which accounts for 64 per cent of workers - would grow more strongly than other areas.

In manufacturing industries, employment levels appeared to have stabilised in recent months with some pick-up in activity expected in 1979-80.

### Textiles and Clothing

Job prospects in the textile industry are still gloomy but firms are expected to reduce overtime in an effort to stabilise the decline in unemployment. On the other hand, firms in the clothing and footwear industries are more optimistic about the next 18 months than they have been for the past 5 years.

### Women

Women have fared worse than men since 1974. Peak levels of female employment in that year have fallen by 24.5% and male employment by 12.6%.

# AUSTRALIAN INDUSTRIAL RESEARCH GROUP V.C. FOR C.S.I.R.O.

The Australian Industrial Research Group is a group of industrial research managers seeking to improve the quality of research management in Australia and to stimulate and develop an understanding of research as a force in economic, industrial and social activities.

They believe that, in Australia, our scientific and technological resources are limited and that one way of making more use of this limited resource is to increase the nature and extent of interaction between industrial researchers and their counterparts in the tertiary educational bodies, so that the research activities of one may complement and reinforce the research activities of the other.

They believe that a valuable opportunity to promote a better understanding between people in industry and in academic circles is being lost because few educators venture into industry during special studies programmes. An involvement with industry could lead to a research environment that would be supportive and mutually reinforcing, and the resultant broadening of perspective would be invaluable in an educational context.

For the second successive year they are offering opportunities for Industrial Special Studies Programmes, details of which appear below.

## General

Each project agreement would be between the particular business enterprise, the academic and tertiary body with the rights of all parties being taken into account. The following comments are provided for guidance only and each agreement would be expected to be subject to its own documentation as required.

## Financial

Specific financial arrangements for each engagement are not prescribed but are subject to individual arrangement between the academic, the host firm and the tertiary body, taking into account the specific circumstances that apply, but suggested as being within the following general guidelines:

- the tertiary body would pay the academic's salary and salary related expenses such as superannuation, long service leave, sick leave, workers' compensation, etc., at the normal rate.
- the host firm would provide facilities and support staff where necessary.
- where appropriate, travel, accommodation expenses or other incidental expenses or assistance towards them might be provided by the host firm.

## Confidentiality of Information

Confidentiality of information obtained during, and as a result of, participation in an industrial special studies programme project would be respected by the academic. A firm might require the signing of a secrecy agreement on specific projects.

## Patent Rights

Patent rights resulting from an industrial special studies programme shall normally reside with the host firm and assignment of patent rights may be required.

## Publication

The timing of publication will be at the discretion of the host firm and will be determined by proprietary rights and patent and licensing considerations. As a general principle, publication is favoured when, and as soon as, circumstances permit.

Twenty seven separate projects are offering for 1979. They include the following:  
Title: Rapid Curing of Organic Paint Systems Applied to Metal Substrates.

Suitable Disciplines: Chemical Engineering, Chemistry, Physics.

Location: Newcastle or Port Kembla.

Title: Water Protecting (Passivating) Films on Zinc and Aluminium-Zinc Alloys Compatible With Organic Paint Systems.

Suitable Discipline: Chemistry.

Location: Newcastle or Port Kembla.

FULL DETAILS OF ALL THE OFFERED PROJECTS ARE AVAILABLE FROM THE DEVELOPMENT AND PLANNING OFFICE, ADMINISTRATION BUILDING.

## WORK EXPERIENCE IN LIBRARY

Mrs. Christine Higham, a library assistant from the Shellharbour Municipal Library, is working one day a week at the University Library as part of a special Work Experience Programme which has been drawn up by Miss Dianne Allen, Shellharbour's Head Librarian.

The aims of the programme are:

- \* To obtain staff training in reference procedures at a variety of libraries for application in local public library service.
- \* To compile an annotated bibliography of materials held in the region containing local information.

Christine has already spent some time at the Wollongong Public Library, and after she leaves the University will work for a time at the A.I.S. Special Library.

Christine, who has been three years at Shellharbour Library, is studying part-time for a B.A. degree, majoring in Library Information Science. She is finding this special "work experience" invaluable. "It will help to give me a total experience in librarianship," she said. One immediate benefit to her work is that the experience will enable her to assist Dianne in her aim of building up the reference library at Oak Flats.

The Vice-Chancellor, Professor L.M. Birt, has been appointed a member of the reconstituted CSIRO Advisory Council. The twenty-two members of the Council have been drawn from a wide cross-section of leading figures in the fields of industry, tertiary education, government and community interests.

In announcing the membership of the reconstituted Council the Minister for Science and the Environment, Senator J.J. Webster, said: "The creation of the new Advisory Council is a vital step in the strengthening of the links between Government-funded scientific and industrial research as conducted by CSIRO and the Australian community."

The Advisory Council will advise the CSIRO Executive on such matters as:

- \* the objectives of CSIRO and the priorities to be followed to achieve them;
- \* industrial and economic matters bearing on CSIRO's work; and
- \* the identification of those interests of the Australian community that may be furthered by CSIRO.

## ELECTIVE PROCESS FOR HEADS OF SCHOOLS

The Council of the University of New South Wales has rejected a proposal that an elective process be instituted for the appointment of heads of schools. The decision was made following debate on the report of a Council committee, which looked into the question of school government within the University.

The Council committee, under the chairmanship of the Chancellor, Mr. Justice Samuels, was appointed in 1977 to collate and consider the reports of the various schools and departments on the subject of school government. The committee analysed the responses received from faculties and some schools to the committee's previous report of April 1978 and noted that a majority of faculties and schools favoured some form of elective system. There was, however, a good deal of variation between the different schemes proposed.

The Vice-Chancellor, Professor Rupert Myers, said that his main concern was with the long-term effects of the proposal. If some kind of elective system were adopted, there would be a danger that the University would hereafter be prevented from recruiting the best senior staff available. At present, professorial positions were advertised world-wide, and every effort was made to secure an outstanding person. Without such competition the better scholars would be lost to the University; one of the attractions was that they should have an opportunity to be the head of their school.

Schools needed dynamic, courageous and forthright leadership, but it was unlikely that they would get it from a head of school who was dependent on the goodwill of an electorate.



# VICE CHANCELLOR

As a supplement to the formal budget statements regularly received by members of the University's Council, the Vice-Chancellor, Professor L.M. Birt, has issued the first of a series of general commentaries. Extracts from that commentary are reproduced below.

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We are now within sight of a pattern of Government funding which, at best, will provide us with approximately the same real income for succeeding years, although our real costs will continue to rise because of certain inescapable cost increases (due to incremental progression through salary scales, promotions, and some other expenses). The general strategy which the University adopts in handling its income and expenditure will, therefore, become increasingly important. In particular, we are moving away from a situation in which we have been able not only to maintain all our current activities at a consistent level but also to augment many of those activities and even to add new ones. In future, there will be, increasingly, a need to reduce some of our activities and their cost if we are to fund any new developments or add to our staff and costs in particular existing activities.

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Despite the quite considerable fluctuations in the University's financial fortunes during the years since 1975 (the year of our establishment), it has been possible to follow certain broad budget strategies through succeeding years. The influence of these strategies is illustrated in the following table, indicating the distribution of recurrent funds within the Global Budget of the University:

## THE INTERNAL DISTRIBUTION OF RECURRENT FUNDS WITHIN THE GLOBAL BUDGET OF THE UNIVERSITY SINCE 1973 (PERCENTAGES)

	1973	1974	1975	1976	1977	1978	1979**	(a)
Academic Activities	62.5	55.3	57.1	58.3	55.6	57.0	56.8	(59.4)
*Academic Services	10.2	10.9	11.3	11.2	14.5	13.6	16.1	(13.4)
Library	9.7	9.7	9.0	8.7	11.4	9.9	12.2	
Computer	0.4	1.0	2.0	2.2	2.4	2.6	3.0	(1.5)
*General University Services	26.2	32.4	30.3	28.9	28.2	17.5	25.3	(25.7)
Central Administration	13.0	13.7	14.2	12.5	11.7	10.6	9.6	(11.5)
Buildings & Grounds	7.7	13.6	12.3	11.9	11.5	11.1	10.1	(8.8)

### Note:

\* The sub-division of these services covers only part of the total.

\*\* Estimates

(a) The figures in parentheses represent the average for six small universities in 1976 (Griffith, Murdoch, James Cook, Newcastle, Tasmania, Flinders).

The significant features of the budget strategies are as follows:

- a movement of funds from General University Services into Academic Activities and Academic Services (in other words, increasing the financial support for the essential functions of the University)
- increasing the amount of money available to the Library for acquisitions and (less markedly) for staffing
- increasing the amount of money transferred from general recurrent funds for research purposes
- the development of a computing facility which serves both academic and administrative purposes

It seems likely to me that at least some of the elements of the budget strategy will need to change in the light of changing circumstances. I have already referred to the problem of diminishing real income in the years ahead. The University will, therefore, need to make cumulative savings (perhaps as great as \$250,000 per year from 1982 onwards), a circumstance which will demand that some funding reductions for certain areas of activity must occur. Detailed consideration is being given to ways in which the University might cope with this problem.

## PERFORMANCE IN THE YEAR 1978

### General Recurrent Funding

The University's total income (in December 1978 prices) for the year was \$9,939,061. We began the year with the expectation that our recurrent funds must be both committed and spent by the end of the year.

In the event, we achieved a very satisfactory outcome, with the total expenditure being within \$1,000 of target.

### EQUIPMENT & SPECIAL RESEARCH FUNDING

Funds from the University's 1978 special equipment grant have all been committed and the entire 1978 special research grant has been committed and spent.

### GENERAL MATTERS

The Finance Officer has noted in his more detailed report that the transfer of records from the Finance Office to the computer is "progressing satisfactorily". He expects a more efficient, prompt reporting service to be available in the near future. It is particularly important to have such a service, as the control of cash flow has become increasingly significant for us.

# COMMENTS ON BUDGET

## FEATURES OF THE BUDGET FOR 1979

Details of a draft global budget were presented to Council in December, 1978. I confine myself in these notes, therefore, to pointing out what the budget means in terms of new developments.

For general recurrent expenditure, the University received for 1979 income amounting to \$11,518,000 (December 1978 prices), and has adopted a balanced budget for the year. The principle features of this budget are that it provides for:

- i. Most activities to be funded at a "standstill" level, that is, they have received increased funding to cover inflation costs only compared with the 1978 provisions. (In some areas (for example, in the Estate Division which has been asked to find \$10,000 of salary savings) there has been a reduction in the real level of expenditure compared with 1978).
- ii. An increase in expenditure on full-time academic staff posts. This will increase the number of such posts from 175 (in 1978) to 192 (in 1979\*). This is an increase of about 9.7%.  
\* The number of posts at present is 192 but two of them are half-time (the remaining 50% of staff time in each case is given to the Education Resources Centre and the Centre for Multicultural Studies respectively).
- iii. An increase in the Library vote for acquisitions of monographs, serials and other holdings by about 10% over 1978 (from \$489,500 in 1978 to \$539,980 in 1979). The University received no earmarked grant in 1979 for Library purposes, so that this increased funding represents a substantial outlay from general recurrent expenditure.
- iv. An increase in funds for the Library to undertake  
- retrospective cataloguing (a total of about \$80,000 for temporary staff and materials) and  
- strengthening inter-library cooperation and inter-library loan arrangements (\$30,000)
- v. An increase in funds for Library staff positions (about \$40,000, making possible an increase in the Library staff from 58½ positions to 65, an increase of about 11%).
- vi. An increase in academic support staff from 89 to 97, at a cost of about \$74,000. The new positions are six technical posts and two new secretarial posts. There is, therefore, a 9% increase in academic support staff.
- vii. An increase in Computer Centre staffing by three posts at a cost of about \$75,000, increasing the total staff from ten to thirteen, i.e. a 30% increase.
- viii. Provision of \$65,000 from the recurrent budget for disbursement by the Research Committee for individual research projects in the University. This sum of money is in addition to the special research grant received by the University direct from Government. Furthermore, members of the University receive monies from external sources (such as the A.R.G.C. and industries) for individual research projects. Some comparative information about annual changes in these various elements of research funding is contained in the following table:

### RESEARCH FUNDS IN

	1973	1974	1975	1976	1977	1978	1979 (Alloc)
Special Research	17,400	13,600	56,800	48,600	82,600	66,000	70,000
From Recurrent Funds		6,500			31,000	45,000	65,000
A.R.G.C.	74,000	40,200	90,900	60,500	40,000	54,700	120,000
N.H. & M.R.C. & E.R.D.C.	200	10,800	42,400	39,300	26,600	22,400	30,300
Other	31,900	55,600	48,500	56,300	113,200	173,300	N/A
TOTAL	\$91,600	\$126,700	\$238,600	\$204,700	\$293,400	\$361,400	

## EQUIPMENT FUNDING

The University has received in total from Government \$660,000 for equipment expenditure during 1979. The budget division of this sum is as follows:

Academic Activities	\$468,500 (71%)
Academic Services	\$ 70,000 (10.7%)
General University Services	\$ 35,000 (5.3%)
Contingencies	\$ 86,500 (13%)

## CONCLUSION

The 1979 Budget strategy, therefore, has been dictated by a need to preserve as much freedom as possible for making adjustments in the future, and by an intent to commit more resources to those areas which make us a University, namely, teaching, scholarship and research. As I indicated in my opening remarks, however, we must expect in future years to move towards a more difficult budgetary situation in which new activities or any expansion of activity in existing areas will have to be offset by economies or reductions in activity in other areas.

# SOLID STATE SPECTROSCOPY

Under the Chairmanship of Professor Peter Fisher, the University's Department of Physics is deeply involved in research into solid state spectroscopy (electronic and vibrational spectra of solids). It was this involvement which first attracted the interest of a young Cairo physics graduate, Emil Salib, to The University of Wollongong, on the other side of the world. He applied for a scholarship to study at this University for his Ph.D., was awarded it, and arrived here in April 1978 together with his wife, Mona, and infant daughter, and is now living at Coniston.

"Wollongong attracted me," he told Campus News, "because the field in which the University's physicists are interested and have done so much good work is the same as that in which my own interests lie."

Specifically, this work is on infra-red spectroscopy, which is employed in the study of the properties of semiconductor materials, e.g. germanium and silicon, from the point of view of the effect of impurities on the semiconductor material.

Spectra are observed which consist of discrete lines corresponding to electronic transitions between impurity states. Thermal vibrations of the host atoms are sufficient to disrupt these delicate "atoms" at room temperature. Consequently observations are made at very low temperatures, typically those close to that of liquid helium (4.2K or -269C) using infrared radiation. The results obtained are of interest since they not only give information about the impurity, but also about the host to which it is intimately coupled.

This is fundamental research; however a large area of modern-day technology is based on the properties of solids - e.g. the whole of the transistor industry is founded on the behaviour of semiconductors. More explicitly, crystalline samples of e.g. the elemental semiconductor, germanium, with suitable concentrations of impurities, can be used as detectors of infra-red radiation with applications in research, industry and defence. In its most highly refined state, this material is important as an X-radiation detector with important applications in fundamental research and medicine.

Emil's research is being supervised by Professor Peter Fisher and Dr. Phil Simmonds. When he has completed his studies here he hopes to remain in Australia, or alternatively to go to the U.S.A. to work for a few years before returning home to Cairo.



Above: Emil Salib.

## TABLE TENNIS

**Dr. Martin Bunder, President of the University's Table Tennis Club, reports that the Intersports Championships will be held at Wollongong for the first time from August 26 to 31.**

This will be only the second time this University has hosted an Intersports Championship, the first being Basketball, in 1978.

As the University's new Sports Hall will not be completed until December the matches will be played at the Badminton Hall, in Crown Street. Registrations to date have been very good with 9 men's teams and 5 women's teams definitely booked and 4 probable men's teams and 3 probable women's teams. Already this booking makes it the biggest event of its kind since 1975; should all the "probables" become definite it will be the biggest ever, and Dr. Bunder is hopeful that this will be so since enrolments are received until a fortnight before the event.

After the teams events have been played there will be a special Challenge Match between top players from the Universities and a representative team from the Illawarra.

Visiting teams will be accommodated at International House.

## MICROPROCESSORS

The University's Pentagon complex was the setting for the 3rd Combined Annual Meeting of the Professional Societies and Institutes of the Illawarra District. The theme for this was The Social Impact of Microprocessors and the day's proceedings included an Exhibition, a film, and a Key-note Address followed by a Forum. The Address was delivered by Dr. Fred Emery, Senior Research Fellow, Centre of Continuing Education, A.N.U.

The film was the brilliant B.B.C. production, NOW THE CHIPS ARE DOWN, which traces the development of chip technology, the international flavour of the production processes and the domination of the industry by "Silicon Valley," the giant U.S. Fairchild operation, under the leadership of Robert Noyce, King of the Fairchildren."

Amazing achievements of the industry are shown and duly credited.

- \* A computer reading an ordinary book to a blind man (Though the owner of a sensitive ear could claim that the Computer needed a few lessons in voice production!)
- \* A quadriplegic operating his wheel chair by voice control - "Turn left", "Faster", "Stop".
- \* An eminent American doctor who has spent 7 years "teaching" all his medical knowledge to a computer which can be "consulted" by other doctors to assist in diagnosing diseases and identifying affected parts.
- \* The Fiat production line in Italy, with 20 robots doing the welding.
- \* Word Processors, 2 or 3 of which can do the same volume of work as 10 typists.

All this has been achieved by the use of "microprocessors" - small chips of silicon on which parts of a computer are etched.

Pulling no punches, the film proceeds to point out the enormous unemployment that has already been created by the success of microprocessors, and to warn of the even greater unemployment that must result from their continuing success. In this future Industry will employ very few people but will produce vast wealth. Will this result in societies consisting of a handful of very rich people and a vast majority of very poor ones?

"When the chips are down," concludes the narrator, "What are the priorities?"

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**Dr. Emery's theme for the Keynote Address was that the electronic revolution, the centre of which is the microcomputer, is different from the pre-automation era of the late 50's and early 60's.**

He established the pattern of the world economy running in 40 - 50 year cycles of boom followed by a period of recession/depression. He then theorized that the recovery from depression was initiated by the development of new technology in the boom preceding the depression.

We are, at present, he suggested, teetering on the brink of a depression and recovery from this will be due to technology based on the use of microcomputers.



# COUNSELLING OF PATIENTS

A Health Service Development Project involving the counselling of patients during hospitalization for acute illness or injury is being undertaken by an interdisciplinary team at the Bulli District Hospital. The team will evaluate the long-term effects of this counselling - medical, psychological and financial.

The team consists of Professor Alex Clarke, Deputy Vice-Chancellor at the University of Wollongong; Dr. Linda Viney, Senior Lecturer in Psychology at Macquarie University; Dr. Terry Bunn, a local doctor and a Fellow of the Royal Australian College of General Practitioners; and Mr. John Anderson, Lecturer in Accountancy at the University of Wollongong.

Motivation for the work stems partly from the long-standing interest of both Professor Clarke and Dr. Viney in the prevention of illness, and partly from an initial study made by Dr. Bunn. He had noted that relatives who brought patients into an emergency ward - e.g., a mother with a severely burnt child - were often left waiting alone, sometimes for long periods, with high anxiety resulting. He began to provide counselling to some of these people and found that their anxiety levels were then much lower than that of those not counselled.

For the special project at Bulli District Hospital some 560 patients will be involved. Some of these patients will receive the standard treatment and some will be given special counselling. The relatives of some will be counselled while others will not. Cost comparisons of their previous medical and hospitalization records with their subsequent records will be made by Mr. Anderson. Medical and psychological follow-ups will also be carried out.

The primary objective of the project, which is being funded by the Department of Health, Canberra, is to prevent both patients and relatives from suffering additional distress and ill health as a result of accident or illness. The secondary objective is to save public money in an age of high and escalating hospital/medical costs.

"There is a relationship between a person's psychological state and his physical health," said Professor Clarke. "We predict that people who are counselled will have better subsequent health and thus be less of a cost to the community than those who must suffer the shock of acute illness or accident and subsequent hospitalization without such counselling."

# LAW REFORM COMMISSION

The Australian Law Reform Commission is looking for suitable members of the academic staffs of Australian universities to undertake research projects relevant to the tasks that have been given to the Commission by the Commonwealth Attorney-General, Senator Durack.

The Commission is established to review, modernise and simplify Commonwealth laws in Australia, in areas of inquiry assigned to it by the Federal Attorney-General. After investigation and consultation, the Commission produces reports which are tabled in Parliament. Many of the proposals of the Commission have been adopted at a Commonwealth and State level.

The projects currently before the Commission involve a range of disciplines. All of them are relevant to the future of Australian society. Present tasks include:

- \* Reform of child welfare laws and procedures
- \* The law and practice of punishment and sentencing
- \* The recognition of Aboriginal customary laws in Australia's criminal justice system
- \* The protection of privacy
- \* Reform of compulsory land acquisition law and practice
- \* Insurance and debt recovery laws
- \* Class actions and standing to sue in Federal jurisdiction in Australia.

Other important References to the Commission are currently under study.

The Chairman of the Commission, Mr. Justice Kirby, says that the Commission specifically wishes to hear from persons with suitable qualifications in any of the areas mentioned above who would be prepared to devote the whole or part of their study leave to a research project relevant to the Commission's programme. Already a senior legal academic in Sydney has begun work, during his study leave, upon a project of research which will be of interest to him but also of use to the Commission in reaching its conclusions. The Commission wishes to expand projects of this kind in order to increase its output and also to improve the inter-disciplinary quality of its work.

Applications by persons with suitable research interests are invited to the address below. Persons invited to assist the Commission will be appointed Consultants, with the approval of the Attorney-General. Although funds are generally not available for research projects, out-of-pocket expenses may be paid and Consultants are invited to take an active part in the deliberations of the Commission. The right of publication of research writing is guaranteed. The assistance of persons helping the Commission is acknowledged in its reports to Parliament.

Any person with suitable qualifications, not necessarily legal qualifications, who wishes to discuss the design of a research project for study leave in consultation with the Commission, should contact the Secretary of the Law Reform Commission. The work of Consultants need not be performed in Sydney. The Commission's facilities are available to assist Consultants in research projects relevant to the Commission's programme.

Inquiries should be directed to Mr. George Brouwer, Secretary and Director of Research, Australian Law Reform Commission, 99 Elizabeth Street, Sydney (telephone (02) 231 1733).

PRELIMINARY INFORMATION MAY BE OBTAINED FROM THE DEVELOPMENT AND PLANNING OFFICE, ADMINISTRATION BUILDING.

# FROM HANSARD - MARINE SCIENCE RESEARCH

**Question Upon Notice**  
1st May 1979

**Marine Science Research**  
(Question No. 3454)

Mr. Morris asked the Prime Minister, upon notice, on 21 March 1979:

What action has he taken to implement the recommendation of the House of Representatives Standing Committee on Environment and Conservation in its report on Oil Spills that he request the Australian Science and Technology Council to examine the need for increased marine science research.

Mr. Malcolm Fraser - The answer to the honourable member's question is as follows:

I refer the honourable member to my speech in the House on 29 March 1979 concerning the Australian Science and Technology Council (Hansard, 29 March 1979, paragraphs 5 and 6 on page 1320).

ASTEC has examined this matter and in its Report on Science and Technology in Australia 1977-78 Volume 1A, it recommended 'that greater attention be paid to the marine sciences and technologies in Australia'. The Government accepts this recommendation. It recognises the great importance of the marine sciences and technologies in our future well-being. The importance of marine science has increased in recent years, particularly in relation to off-shore energy resources and the utilisation and management of resources in our expanded off-shore economic zone.

The Government has also accepted ASTEC's suggestion that an Australian Marine Sciences and Technologies Advisory Committee (AMSTAC) be established. The Committee will investigate and report on the co-ordination of research and development and the establishment of priorities in this area.

# AUSTRALIAN RESEARCH DIRECTORY

## AUSTRALIAN RESEARCH DIRECTORY C.S.I.R.O.: MELBOURNE 1978

This is a directory providing extensive information on research projects in Natural Sciences and selected Social Sciences, being carried out in Universities and C.A.E.'s in Australia. It has been compiled by the Department of Science and the Environment and published by C.S.I.R.O.

In scope the directory covers the physical, chemical, biological and earth sciences as well as engineering and applied sciences, forestry and agriculture, medical science and such selected Social Sciences as accounting, business and commerce, administration, economics, geography and psychology. So although the emphasis is on the Natural Sciences, it also includes some of the more quantitative Social Sciences.

The Directory also provides information on research workers under its 'project leader' index, in addition to keyword and department indexes, as an aid to providing a bridge between those who perform research and those who wish to apply it.

The Directory consists of 18 microfiche, each with up to 270 frames. It is organised by states into 6 parts, and lists the following information relating to 13,000 individual projects:

1. University/CAE Department and Head of Department.
2. Research Objectives.
3. Specialised Equipment/facilities.
4. Project Leaders/Titles.
5. Magnitude of Project in man-years of effort.
6. Whether Project will be completed in 1979.

Access to the Directory is through a clear Table of Contents, a Project Leader(s) Index and a Key word Index. Project Leaders and Project Titles are listed alphabetically under the name of the Institution and Department concerned.

This Higher Education Research Directory, by providing access to ongoing research in Australia in one publication, fills a need which has not previously been adequately met.

The data for the Directory was taken from the Project SCORE Survey 1976/77 which had been modified to gather extra information for the Directory.

Approval was given by the Australian Vice-Chancellor's Committee and the Australian Conference of Principals of Colleges of Advanced Education for the Project SCORE Survey to be used for this purpose. Some data was even updated to 1978.

If this pilot edition proves useful it is hoped that the Directory will be updated at intervals, linked with future SCORE Surveys and covering also Federal and State Sectors (including C.S.I.R.O.) and research in industry.

The Directory is available in the Library at R507.20994/2.

Examples of other publications which give access to Research and Ongoing Research in Australian Higher Education Institutions are:

1. University Annual Research Reports. e.g. University of Melbourne Research Report (R378.94509/MEL/2) is a summary of departmental research activities and investigations including published contributions to science and literature during each research year. It includes:

- a) Research topics in progress.
- b) Published works.
- c) Articles.
- d) Theses passed for higher degrees.
- e) Theses in progress.

2. Certain research centres also publish annual reports about their activities, e.g. ANU Centre for Research on Federal Financial Relations - Report on Activities (S378.94705/AUS/6)

3. Australian National Bibliography - (R 015.9406/1) lists theses published in the current year.

4. Union List of Higher Degree Theses in Australian University Libraries. Uni. of Tasmania: Hobart, 1967. Supplement 1969-1971. Uni of Tasmania Library, 1974. Supplement 1972-73. Uni of Tasmania Library, 1976. R 016.3782/2

5. Dissertation Abstracts International (R 016.378205/2 & 3) lists abstracts of doctoral dissertations.

For any further information on these or any similar publications please consult the Reader Assistance Staff in the Library.

## EDUCATION RESOURCES CENTRE

Dr. John Panter has been appointed Acting Head of the University's Education Resources Centre. This will be a half-time appointment and Dr. Panter will devote the other half of his time to his work as Lecturer in History and Philosophy of Science, relinquishing the Chairmanship of that Department when Dr. Ron Johnston takes up his appointment as Professor of H.P.S. at the end of August.

With some twenty years teaching experience behind him and a clear dedication to teaching as a profession, Dr. Panter is delighted that E.R.C. has been established after several years of discussion. "But," he told Campus News, "I particularly want to avoid the idea that we in E.R.C. know all there is to know about teaching any and every discipline. That plainly is not the case."

"I want to make the Centre attract academics, firstly to use its facilities and equipment and secondly to pick up ideas and techniques which will help to make their teaching more effective."

"The Education Resources Centre supercedes the Audio Visual Unit which, in its five years existence, has, I believe, established a reputation for efficiency thanks to the Audio-Visual Officer, Liz Hilton and Technical Officer, Clint Symons, and the use of its equipment and services has increased enormously. This is a very good basis for E.R.C. to build on."

"The development of audio-visual equipment and techniques during recent years," said Dr. Panter, "has been so dramatic that teachers, at all educational levels, including tertiary level, have not been able to keep up with them. There is an enormous number of teachers in schools who have never been taught to use the audio-visual equipment such as the overhead projector, the 16mm projector; still less the video camera."

At tertiary level the situation is complicated by the fact that academics have a double responsibility - to their research and to their teaching. Both are equally important but there is a danger in the fact that effective research is seen to be more easily evaluated than effective teaching. When a young academic gets the impression that his promotion, his whole career, depends on how many research papers he can publish he will inevitably grudge the time taken away from research for teaching. This is particularly serious at first year teaching level for the standard of general knowledge possessed by many students entering Universities today is not high and such students need special assistance if they are to reach international standards by the time they graduate.

Dr. Panter said that a recent U.S. Survey showed that most student 'drop-outs' from Universities take place because of boredom - not because of financial problems. This is a severe indictment of the standard of teaching at Universities.

"With an efficient Educational Resource Centre on the Campus" he added, "we should be able to avoid a similar situation from developing at Wollongong. We aim to provide our academics with modern equipment and advice on modern techniques to assist them in maintaining the highest teaching standards, in terms both of effectiveness and interest."

Dr. Panter cited the Department of Accountancy and the Department of European Languages among those which have for some time been using Audio-Visual Laboratories interestingly and effectively.

Ultimately his Centre will, he hopes, be able to assist in the preparation of audio-visual programmes of various kinds 'tailor made' to any Department's requirements. This is a very time-consuming job, but one which could produce material superior to imported 'packaged sets'.



# TOURISM IN ILLAWARRA

Professor K.A. Blakey, Dr. S. Ali and Dr. D.E. Lewis, of the University's Department of Economics, have published the results of an independent study undertaken for the N.S.W. Department of Tourism, on **THE DEVELOPMENT OF TOURISM IN THE ILLAWARRA: ECONOMIC EFFECTS & PROSPECTS.**

In the introduction to this they say: "Like their forefathers, Australians are mobile. Now, because of high income levels and the low cost of travel, their propensity for migration has more scope than ever - but mainly it is temporary and recurrent migration by tourists.

"The Illawarra Region ... has some claims as Australia's first tourist resort. These claims are based on many accounts, dating back to the early years of last century, of tourist expeditions from Sydney to explore the beaches, forests and lakes accessible from new settlements on the south coast."

Now, they say, the flow of tourists has grown substantially and continues to increase in spite of closer settlement and highly localised heavy industry, and this is due to the extension of recreational opportunity and the increasing ease of access, as well as increasing demand by tourists from other parts of Australia and from abroad for space, sunshine, surf beaches and mountain scenery.

The study is concerned primarily with the viewpoint of the seller of tourist services, who naturally wants tourist activity for the income and employment it can generate. Points made in the study include:

- \* The tourists are mainly "do it yourself" visitors, and the majority are Sydney-siders. Most of them provide their own transport, equipment, provisions and services - and very often their own caravan or camper-van accommodation or stay with friends or relations. If they are Australians, and very often also if they come from overseas, their expenditure affects employment and incomes in the metropolis more than in the Illawarra.

- \* Local government and business interests in the region are studying means of providing better services. Not only do they want to attract more tourists, but also they want to induce the average tourist to spend more locally and provide more benefit to the region in terms of employment.

After studying "the customer" the report finds . . . . .:

- \* The tourist is usually an Australian, and in the Illawarra, nine times out of ten he comes from Sydney. He often leaves behind in the region little of value to the residents. He competes with the local people for anything available free of charge (like beach space, parking space, dumping space for garbage, and noise-free and pollution-free recreation space). Although they were formerly free goods, these amenities are becoming increasingly scarce and costly to maintain in the more popular tourist resorts.



Above: Professor K.A. Blakey.

- \* An increasing demand for accommodation and entertainment (e.g. poker machines and organised participatory sports) available at low cost. Also for special recreational facilities, including some high cost goods and services (e.g. those required for racing, golf and deep sea fishing) and coach trips.

In making this study 452 interviews were conducted; over three-quarters of those interviewed were accommodated in caravans or tents, or were staying with relatives or friends. The total expenditure per person per day was found to be only \$5.94 for "overnighters" - \$1.75 for day visitors. Nevertheless, tourist expenditures generated sales of over \$13 million annually, and resulted in the employment of nearly 1200 persons.

In all, the report of the group recommends a wary approach to the question of tourism. "In the past many regions and countries have seen the promotion and development of tourism as a panacea for their problems of stagnant growth and high unemployment." This study and others, however, suggest caution and restraint.

The report concludes: "The nature of tourist activity and of the particular shape it is taking in the hands of successive generations in Australia means that the cost of facilities required will appear onerous to the resident community and the monetary benefits to Australians will still be largely in the shape of income generated by expenditure outside the region."

The full text of the report is available for perusal from the Development and Planning Office, Administration Building.

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

The Program Committee for ANZAAS Section 33, Communications, is calling for applications for the presentation of papers within the Section theme "Communications for a Sustainable Society" at the Jubilee Congress to be held in Adelaide from 12-16 May, 1980.

The Section program will concentrate particularly on communication in science and technology, including computer, tele and satellite communications; and on communications in society, including mass media in Australia, access and privacy, and communications related to science and the media. A special session will be devoted to consideration of communication as a discipline.

Papers are being sought on topics under the following broad headings:

- Communication as a Discipline?
- Communication in Science
- Science and the Media
- Communication and Information Services in Australia
- Mass Communications and the Social Environment
- Communication Media in Australia: Problems and Issues
- Communication: Access and Privacy
- Communication for the Learning Society

The Committee hopes that papers will concentrate on fundamental issues confronting science, technology and society up to the year 2000, and will explore proposals for the resolution of problems that we currently face or are likely to face in the future.

A more detailed guide regarding the requirements of papers may be obtained by writing to Mr. D. Murray, Secretary, Section 33 Program Committee, of Educational Resources Branch, Department of Further Education, G.P.O. Box 2352, Adelaide, 5001.

## U. OF SINGAPORE

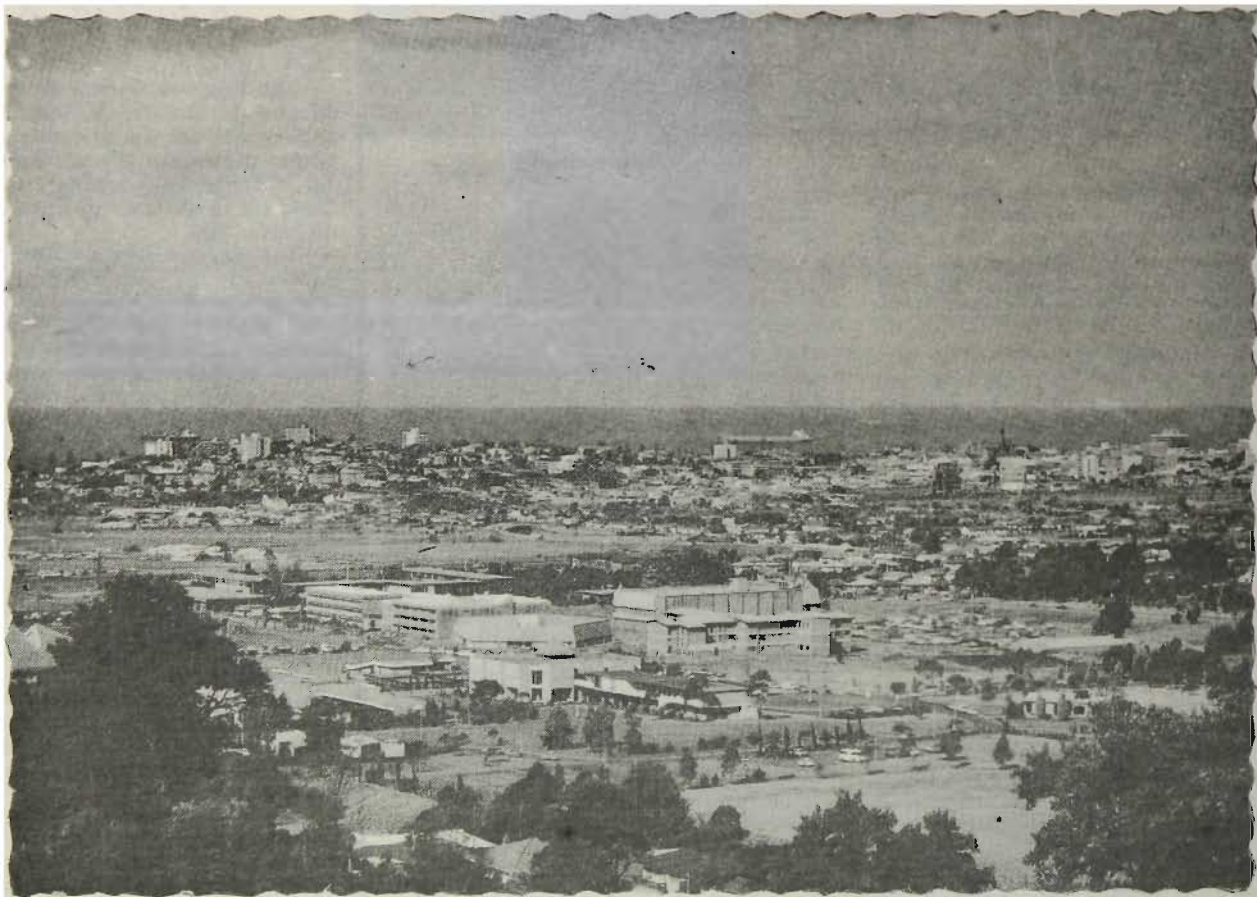
New engineering undergraduates at the University of Singapore will receive a heavier dose of management studies and the humanities to provide them with a more rounded education.

Announcing this recently the University's Vice-Chancellor, Mr. Kwan Sai Keong said this was because of heavy local demand for engineers and because engineers make good managers and administrators.

The new curriculum will give less time to Physics and Chemistry, only those portions of the syllabus in these two subjects which are essential to the making of an engineer being retained. For better coordination of instruction and time tabling the two subjects will be taken over by the Engineering Faculty from Science Faculty staff. These and other moves are geared to make Engineering the largest faculty in the University.

"The rate of expansion may appear excessive," said Mr. Kwan, "but it is in line with Singapore's projected manpower needs."

Another looming change is the take-over by the faculty of the Chemical Engineering course which, for historic reasons, has hitherto been a department of the Science Faculty.



Postcards showing an aerial view of the University are on sale at the Finance Office, Administration Building, for 25c each. These are very attractive cards in themselves, and give a splendid impression of the beautiful setting of this University.

Academics going on study leave, also staff and students travelling interstate would find these cards useful for informal correspondence, and they would have special interest for the recipients.

Archie Cartwright (Mechanical Engineering) and Stan Brooks (Civil Engineering), stalwarts of the University Radio Club (call sign VK2 WO) are finding these cards invaluable. They receive post cards from all around Australia and from many radio amateurs overseas and have been embarrassed to date at not having an appropriate reply. The new post cards, they say, are ideal, and are sure to attract favourable comment to the University from recipients the world over.

## FROM HANSARD - HEALTH & EDUCATION

**Question Without Notice**  
28 May 1979

### EXPENDITURE ON HEALTH & EDUCATION

**Mr. ALDRED** - I direct my question to the Prime Minister. In view of the fact that Australia's population growth is stabilising, will the Prime Minister agree that calls for increased expenditure on health and education infrastructure and benefits are based on extremely tenuous grounds?

**Mr. MALCOLM FRASER** - There was a time when there was a very significant backlog in education expenditure which needed to be made up. As a result of capital programs going back over 10 years or more much of that backlog has in fact been made

good. The very fact that a vote goes on at a certain level for year after year is not in itself an argument that that vote should have to go on at that level. It must be judged against total priorities and against the needs of the Commonwealth. The indications that were in the honourable member's question about a stabilising population, about a stabilising or even a falling school population, are very relevant to the size of the education vote. In addition, as has been made very plain on a number of occasions, we have been trying through negotiation with the States to achieve greater economies in hospital expenditure, one of the most expensive areas of health services. But we still have a situation in which there are a number of hospitals fully manned and staffed but operating at only 60 per cent or 70 per cent

occupancy rate. There has been the South Australian report of the Auditor-General and other indications that there is still a very great deal of waste within the hospital system. That is why the Government has decided that there should be a major inquiry as a matter of urgency into this matter. If it were one totally within the Commonwealth's control I doubt very much whether that inquiry would have been necessary. But we can operate only through the joint committees we have established with the States. It is the State governments and State administrations that basically have control over their hospital systems. We are able to operate only through the power of persuasion. We hope very much that there will be a greater degree of reason and economy as a result of the inquiry that is foreshadowed.