The Honourable Eric Bedford, B.A., M.L.A., Minister for Education,

In accordance with section 34 of the University of Wollongong Act 1972, the Council of the University has the honour to present to you the Annual Report of the proceedings of the University for the period 1st January to 31st December, 1977.

[Signatures]

Chancellor

Vice-Chancellor

ANNUAL REPORT 1977
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VICE-CHANCELLOR'S STATEMENT</strong></td>
<td></td>
</tr>
<tr>
<td>Introductory Statement</td>
<td>5</td>
</tr>
<tr>
<td>The Council</td>
<td>6</td>
</tr>
<tr>
<td>The Senate and Academic Structure</td>
<td>7</td>
</tr>
<tr>
<td>Academic Activities</td>
<td>8</td>
</tr>
<tr>
<td>Enrolments and Student Issues</td>
<td>10</td>
</tr>
<tr>
<td>Building Programme and General Site Development</td>
<td>11</td>
</tr>
<tr>
<td>Conclusion</td>
<td>12</td>
</tr>
<tr>
<td><strong>UNIVERSITY FACILITIES AND SERVICES</strong></td>
<td></td>
</tr>
<tr>
<td>The University Library</td>
<td>13</td>
</tr>
<tr>
<td>The Union</td>
<td>14</td>
</tr>
<tr>
<td>The Sports Association</td>
<td>14</td>
</tr>
<tr>
<td>The Counselling Centre</td>
<td>15</td>
</tr>
<tr>
<td><strong>UNIVERSITY STATISTICS</strong></td>
<td></td>
</tr>
<tr>
<td>Full-time Staff</td>
<td>16</td>
</tr>
<tr>
<td>Enrolments</td>
<td>18</td>
</tr>
<tr>
<td>Appointments, Resignations and Promotions</td>
<td>19</td>
</tr>
<tr>
<td><strong>DEGREES CONFERRED</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
</tr>
<tr>
<td><strong>ACADEMIC ACTIVITIES 1977</strong></td>
<td></td>
</tr>
<tr>
<td>Faculty Reports</td>
<td></td>
</tr>
<tr>
<td>Faculty of Engineering</td>
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<td>Faculty of Mathematics</td>
<td>42</td>
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<td>Faculty of Science</td>
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<tr>
<td>Faculty of Social Sciences</td>
<td>52</td>
</tr>
<tr>
<td>Research Interests and Publications</td>
<td></td>
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<tr>
<td>Faculty of Engineering</td>
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<td>Faculty of Social Sciences</td>
<td>81</td>
</tr>
</tbody>
</table>
STUDENT ACTIVITIES 1977
The Students' Representative Council .................. 88
GRANTS AND DONATIONS ...................................... 89
FINANCIAL STATEMENT ......................................... 92
Vice-Chancellor's Statement

Like all tertiary educational institutions in Australia, the University of Wollongong faced financial difficulties and a decline in growth prospects in 1977. The direct result was that planning and the establishment of a firmer scale of priorities became the leading task of both academic departments and administrative divisions within the University. Although the number of equivalent full-time students at Wollongong continues to rise each year, the enrolment plateau of 5,000, anticipated as a long-term goal when the University gained its autonomy in 1975, is unlikely to be reached. Foreshadowed academic developments have been and, of necessity, will continue to be adjusted to a more limited student demand and to financial contingency.

Early in 1977, I prepared and circulated, a draft document entitled 'The Role, Functions, and Development of the University'. My aim was to prompt discussion of the ways in which the University might react to the changes in its expectations. This discussion took place at Departmental and Faculty level, and among various student organisations. The document re-examined some of the ideas about the traditional role of a university and considered whether that role or some version of it might still be suitable for the University of Wollongong. Relations between the University and neighbouring educational institutions were reappraised, and possibilities for greater co-operation and rationalisation presented. The University's responsibilities in the region were also given attention as factors in any future development. The document will be revised in the light of the comments received and I hope to place the final product before the Council of the University in 1978.
Despite the constraints upon expansion, the University was able, in 1977, to record an overall increase in enrolments, and to consolidate its reputation as an institution of higher education and research. The number of publications issued by members of the academic staff of the University, as well as the increasing number of visits made by university scholars from elsewhere in Australia and overseas, provides encouragement for the future of university life in Wollongong.

The Council

Throughout 1977, the Council of the University continued to be actively involved in academic developments, and in the provision of student and staff services throughout the University.

At its April meeting Council approved the appointment of Professor A.M. Clarke to the second part-time position of Deputy Vice-Chancellor (Academic Affairs). Professor Clarke is Chairman of the University's Department of Psychology. He will work in the newly-created position with Professor A. Keane (Chairman, Department of Mathematics) who has held the initial position of Deputy Vice-Chancellor since 1975.

The Council met five times in 1977 and, as at 31st December, its membership comprised:

Ex-Officio

The Hon. Justice R.M. Hope, Chancellor Emeritus Professor L.M. Birt, Vice-Chancellor

Elected by the Legislative Council

The Hon. Mr. M.F. Willis

Elected by the Legislative Assembly

The Hon. Mr. L.B. Kelly

Appointed by the Governor on the Nomination of the Minister for Education

Dr. E. Beale

Mr. B.S. Gillett

Dr. D. Parry

Mr. W. Pike
Elected by the Students of the University
Mr. M. Robinson  Ms. R.L. Rowland

Elected by Convocation
Mr. W.E. Parnell  Mr. W.G. Petersen
Mr. L. Tobin

Elected by the Full-Time Academic Staff of the University
Associate Professor J.S. Hagan
Professor S.C. Hill
Professor J.B. Ryan
Professor B.H. Smith

Elected by the Full-Time General Staff of the University
Mr. C.J. Lambert

Elected by the Members of Council
Professor F.J. Fenner
Dr. E.A. Kernohan
Mr. J.R. Lysaght

The following changes occurred in Council membership during the year:

Resignations and Retirements
Mr. W.B. Burgess
Mr. R. Hohnen
Mr. A. MacDonald

Appointments
Mr. L. Tobin
Mr. M. Robinson
Dr. E.A. Kernohan
Mr. J.R. Lysaght

The Council learned with deep regret the news of the death of a former member - Mr. R.F.X. Connor. In extending its sympathy to members of the late Mr. Connor's family, Council noted his active contribution to the development of educational facilities, including the University, at Wollongong.

The Senate and Academic Structure

The University's academic development continued to be guided by the Academic Senate, the supreme academic advisory body to the Council of the University. The Academic Senate met thirteen times during 1977, and on 25th May met with a newly-constituted membership in accordance with a Council resolution of 1976. The Senate now has an ex-officio
membership of the Chancellor, Vice-Chancellor, University Librarian, Departmental and Faculty Chairmen, and an elected membership on a Faculty basis - each of the five Faculties elects one staff and one student representative.

Academic Activities

Reports of the academic departments within the University for the year 1977 reflected the concern felt throughout Australian universities at the effects of the continuing cutbacks in real funding. Although most departments were able to record the purchase of various items of equipment during the year, the problem of insufficient space and facilities had not been greatly eased. Some alleviation of the accommodation problem was felt within the Faculty of Social Sciences with the completion of the new Social Sciences building, but the need for the planned Stage 2 remained pressing.

Despite the above restrictions, several important academic developments were undertaken, and others foreshadowed, during 1977. The Department of Mathematics accepted its first enrolments for the course of study leading to the award of the Diploma in Mathematics. At its April meeting the Council of the University approved the introduction of a Graduate Diploma of Philosophy, to be offered from 1978. The Diploma is the first of its kind to be taught within an Australian university. The October meeting of the Academic Senate recommended the establishment of a separate Department of Computing Science within the Faculty of Mathematics; Council approval is expected early in 1978. Towards the end of the year, the University invited applications for the Chair in History and Philosophy of Science, which is the only discipline in the University in which a professorial appointment has not,
as yet, been made. The decision to invite applications was taken after the position was reviewed by Council.

A list of publications by members of staff within the University is included in this Report. An important contribution to study of the University's local region was made by several members of the University and in the publication of *Urban Illawarra*, under the editorship of Dr. Ross Robinson, Reader in Geography.

During the year, the University continued to strengthen its links with the Illawarra community. The University's consciousness of the diversity within the region, and of its indebtedness to the people of Wollongong, was reflected on a number of occasions.

In April the Council of the University endorsed the establishment of a Centre for Multi-Cultural Studies, under the Directorship of Professor R.C. King, Chairman of the University's Department of Education. The University of Wollongong is particularly well-suited to such studies. The population of the Illawarra region, includes over thirty distinguishable nationalities, and, in 1976, 30.3% of Wollongong residents had been born overseas. The Centre had already entered the research field, with short histories of various ethnic peoples in the region having been completed, and members of the University undertaking a study of the effectiveness of television programmes as a means of teaching English as a second language. The activities of the Centre were highlighted in the two-day conference of the Australian Population and Immigration Council which was held at the University in late October. Within the framework of the Centre the University hopes to begin teaching a course of study leading to the award of a Diploma in Intercultural (Migrant) Education. Both the Federal Minister for Immigration and Ethnic Affairs, Mr. Michael McKellar, and the N.S.W.
State Minister for Education, Mr. Eric Bedford, have endorsed the work of the Centre, and the University is hopeful of receiving financial support from both these levels of government.

On 6th May, the University held its second Graduation Day. Two ceremonies were held in the University Union Hall. At the morning ceremony the degrees of Bachelor of Arts and Bachelor of Commerce were awarded, while the afternoon ceremony saw seventy-nine students graduate in Engineering, Metallurgy and Science. The University recognised the contributions of one of Wollongong's leading citizens, Mr. Edgar Beale, when it conferred upon him the honorary degree of Doctor of Letters. His citation, read by Associate Professor J.S. Hagan of the University's History Department, stressed Dr. Beale's long and continuing association with the cause of education in the Illawarra region.

University Day, the anniversary of the first meeting of the Chancellor's Council, was celebrated on 12th August. The day's activities centred around the theme of education and training. A School's Day was held on 16th September. Four hundred students in Year 12 schooling visited the University and heard lectures given by various members of the academic staff.

**Enrolments and Student Issues**

The academic year 1977 saw the development of concern over the number of later-year students who failed to re-enrol at the University.

However, enrolments, as at 30th April, 1977, reflected an overall increase in student numbers. Enrolments totalled 2,540, 208 more than in 1976, and 62 more than had been the anticipated level for 1977. The number of new enrolments reached 871.
Building Programme and General Site Development

In February 1977 the University Council approved the University Development Plan December 1976 - as a basis for planning of the site and facilities and of triennial submissions for capital works.

No new buildings were authorised in 1977, although in the first half of the year, acting on the recommendations of the Universities Commission Report for 1977-79, a concentrated effort was made to complete, to sketch plan stage, the three major buildings scheduled to commence in 1978. The plans for Social Science Stage II, Science II and the Administrative Building were accepted by the Universities Commission in June 1977 and a grant of $115,000 was received for fees incurred. Effort was also expended on an investigation of the most suitable form of management and type of contract to be employed for these projects, having regard to lessons learnt in the 1973-75 building programme.

A grant of $300,000 (December 1975 prices) was used to overcome major deficiencies in site works and site services. A permanent solution to the problem of stormwater run off in the southern creek has been achieved by relocation in a new landscaped channel. A new main entry road to the University was constructed and a new car parking area to serve the western end of campus provided with necessary lighting, and access pathways to the buildings completed in 1976. In addition, site service systems for high and low voltage, domestic and fire service water, telephone and computer network conduits, were all extended.

The maintenance staff was augmented to provide for the continuing maintenance of the buildings which emerged from their contractual maintenance periods early in 1977, including the installed systems and air conditioning plants.
Conclusion

As part of its site work activity in 1977, the University gave earnest attention to the tree planting and landscaping that will eventually give the campus a distinctive colour and character. Perhaps this campaign symbolises, in a small way, the University's general approach in 1977. We came to terms with our situation; recognized, and initially, bemoaned its problems. We then considered the ways, in which we might best accentuate our natural advantages and give distinctive shape and pattern to our future development. 1977 has been a year for the "planting" of ideas and the initiation of projects, such as the Centre for Multi-Cultural Studies, which, we hope, will grow and contribute to the emerging character of the University.
UNIVERSITY FACILITIES AND SERVICES

THE UNIVERSITY LIBRARY

There was continued and particular emphasis on building up the Library's resources of serials and monographs. A total of $666,093 was spent on the collections, this amount including the special Ear-marked Grant provided for remedying deficiencies in resources, and made available through the auspices of the Universities Commission. A total of 13,570 monograph volumes and 7,447 serial volumes were catalogued and added during the year with total volumes reaching 133,337, including volumes in microformat. The Library experienced a considerable increase in material in microform, a medium which will become more necessary and important as space problems arise.

There was continued and increased co-operation with Macquarie University Library in automation of Library processes, particularly cataloguing. It was also possible to consider initial requirements for automation of acquisitions, and progress towards the production of current cataloguing in microfiche reached advanced programming stages.

Reader Services areas of activity showed significant growth in every phase, with general circulation rising 14.83%, Reserve Collection use increasing 18.81% and interlibrary loans registering almost 50% increases in every area.

The Archives Unit was able to establish an Archives Reference Service on the first floor of the Library. Although this was advantageous for Library users, there were difficulties in operation with the main bulk of material stored four kilometres away in the Kenny Street Parking Station of the City.

In July, the Archives became the first non-governmental facility to conduct a one-week Practicum for two students from the Graduate Diploma Course in Archives Administration at the University of New South Wales.

Advice on archives was also given by the Archivist to staff at the Wollongong Technical College and the Wollongong Institute of Education.

Secondment of staff to the Administration Data Processing Unit (ADPU) was formalised and, at the end of the year, five posts were involved, these being posts for a Systems Analyst, Programmer, Librarian and two Machine Operators. These arrangements enabled a more effective implementation of Library automation.
THE UNION

During 1977 there were thirteen full-time staff employed servicing the Union and the Sports Association. In addition part-time and casual staff were employed in the Union Shop, Catering and Cleaning sections.

The Union sponsored a programme of lectures, concerts, exhibitions and dinner dances throughout the year and also gave financial support to ten affiliated clubs and societies.

The remaining alterations were carried out to the Union Hall to enable the Public Halls Licence to be granted in May. Other alterations included four new storerooms in the old kitchen and a bar counter in the Common Room. Towards the end of the year the University allocated funds to: extend and air condition the Bar and Bistro, erect a colonnade round the Union Hall and install a lift from the kitchens to the first floor. The University also agreed to purchase and install 35 mm projection facilities in the Hall and the Union will make a grant towards the cost of the projectors. It is expected that these alterations and additions will be commenced in 1978.

The Union showed an improved financial position at the end of 1977 compared with the previous year due mainly to a decrease in the catering deficit. This was achieved by non-replacement of management staff, improved stock control systems and an increase in function trading.

THE SPORTS ASSOCIATION

In 1977 there were nineteen Clubs affiliated to the Sports Association. Clubs took part in district competitions and nine teams were sent to intervarsities throughout Australia. In addition, during August the Basketball Club hosted the first intervarsity to be held in Wollongong.

For the first time the Sports Association Blues Committee awarded Blues and Colours. These were presented at the Annual Dinner to individuals from the Australian Rules Football, Basketball, Cricket, Fencing, Hockey (Men's), Judo and Table Tennis Clubs.

Towards the end of the year a cool room was installed in the Sports Pavilion and the Committee Room was converted into a members' kitchen. These alterations have resulted in a much greater use of the Pavilion by Clubs and supporters at weekends. The Executive Committee of the Sports Association negotiated an interest-free loan, repayable over ten years, from the University for the provision of additional squash courts and a sauna to be built adjacent to the existing squash courts in the Union and it is hoped this work will be completed in 1978.
In 1977, 410 persons were seen individually by the two Counsellors involving 891 interviews. A second full-time Counsellor took up appointment in January 1977. The main result has been the introduction and implementation of group programmes offering both developmental and preventative services.

The Counselling Centre Secretary continued to co-ordinate both a Student Accommodation and Student Employment service and both services were used to capacity.

The Medical Service, operating out of the Counselling Centre and serviced on an hourly basis by interested general practitioners, continued to be well patronised. There were 402 visits to the General Surgery and 80 to the Family Planning Clinic.
UNIVERSITY STATISTICS
Full-time staff as at 30th April, 1977

<table>
<thead>
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| Teaching-and-research Staff                    |       |         |       |
| Academic Activities                            |       |         |       |
| Faculty of General Studies                     | -     | -       | 1     |
| Faculty of Humanities                          | 4     | 2       | 14    |
| Faculty of Engineering                         | 2     | 2       | 8     |
| Faculty of Mathematics                         | 4     | 3       | 5     |
| Faculty of Science                             | 2     | 2       | 11    |
| Faculty of Social Science                      | 6     | 2       | 22    |
| TOTAL TEACHING-AND-RESEARCH                    | 20    | 16      | 65    |

| Research only Staff                            |       |         |       |
| Academic Activities                            |       |         |       |
| Department of Chemistry                        | 1     |         | 1     |
| Department of Physics                          | 1     |         | 1     |
| Department of Education                        | 1     |         | 1     |
| TOTAL FOR ACADEMIC ACTIVITIES                  | 3     |         | 3     |
# Enrolments to 30th April, 1977

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<td><strong>TOTAL</strong></td>
<td>79</td>
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**TOTAL ENROLMENTS AT THE UNIVERSITY**

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<th>FULL-TIME</th>
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# APPOINTMENTS, RESIGNATIONS AND PROMOTIONS

## APPOINTMENTS

<table>
<thead>
<tr>
<th>Designation</th>
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</thead>
<tbody>
<tr>
<td>Dr. P.E. Simmonds</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Dr. W.J. Mitchell</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Dr. H. Beran</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Dr. G.E. Tibbits</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Ms. K. Salleh</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Mr. W.D. McGaw</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Mr. A.G. McLean</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Dr. W.K. Soh</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Mr. A. Coote</td>
<td>Sr. Lecturer</td>
</tr>
<tr>
<td>Dr. V.J. Cincotta</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Dr. R.H. Bradbury</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Dr. G.C. Nanson</td>
<td>Lecturer</td>
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<tr>
<td>Dr. I.M. McLaine</td>
<td>Lecturer</td>
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<tr>
<td>Dr. L.T. Smith</td>
<td>Sr. Lecturer</td>
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<tr>
<td>Dr. T.S. Ng</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Dr. R.G. Dromey</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Mr. T. Jagtenberg</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Mr. R.W. McConchie</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Miss B.L. Davidson</td>
<td>Lecturer</td>
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<tr>
<td></td>
<td>Physics</td>
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<td>Electrical Engineering</td>
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<td>Mathematics (Computing Science)</td>
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## RESIGNATIONS

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<tr>
<td>Dr. B.J. Opie</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Dr. J.N. Stephens</td>
<td>Sr. Lecturer</td>
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<tr>
<td>Dr. B.B. Jones</td>
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<td>English</td>
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## PROMOTIONS

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<tr>
<td>K.J. McLean</td>
<td>Reader</td>
<td>Snr. Lecturer</td>
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<tr>
<td>R. Robinson</td>
<td>Reader</td>
<td>Snr. Lecturer</td>
</tr>
<tr>
<td>D. Pearson-Kirk</td>
<td>Snr. Lecturer</td>
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<tr>
<td>J. Kontoleon</td>
<td>Lecturer</td>
<td>Lecturer</td>
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<tr>
<td>R.W. Young</td>
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<td>R.A. Facer</td>
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<td>Geography</td>
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<td></td>
<td>Civil Eng.</td>
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<td>Lecturer</td>
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<tr>
<td></td>
<td>Geography</td>
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DEGREES CONFERRED

UNIVERSITY OF WOLLONGONG GRADUATES

The following candidates were admitted to University of Wollongong degrees by the Chancellor at the Graduation Ceremony held on 6th May, 1977.

Bachelor of Arts

Graeme Thomas Algie
Leslie Royston Allen, BE N.S.W.
Jennifer Lynne Barham
Angela Therese Beckett
Murray Richard Blackett
Jennifer Margaret Bottcher
Michele Anne Broad
Iain George Brown
Christine Mary Burke
Ronald Stanley Clarke
Gordon Robert Cupitt
Gary Gordon Donaldson
Leone Jean Duff
Bernhard Alfred Fischer
Gerald Ian Friedner
Rhona Irene George
Faye Rosaleen Gilbert
Cheryle Anne Harris
Denise Joanne Harris
Bronwen Sally Heycox
Joy Lesley Hodson
Corinne Hoy
Susan Joy Hughes
Jacqueline Ann Jakeman
Barbara Anne Jeffery
Catherine Ann Jervis
Joanne Mary Kimmins
Wendy Lynne Lapham
Karina Erika Lettau
Glyn William Leysnon
Sava Manojlovic

Keith Michael McGowan
Philip John McKenzie
John Harvey Middleton, LLB Syd.
Kenneth Peter Milner
John David Morris
Arthur Charley Packer
Rodney Patison
Stephen John Lloyd Paul
Kerry Ann Pedersen
Sheila Mary Pike
Ann Elizabeth Powell
John Alexander Sims
Carol Anne Smith
Jennifer Maureen Smith
Ronald James Smith
Pamela Ann Squire
Sylvia Anne Stenton
Kimla Stephenson
Sylvia Ratna Sumasto
John Aldo Testoni
Lynette Ruth Thong
Ralph Charles Turton
Wilhelmina Johanna Van Haren
Guilan Maria Verney
Jennifer Margaret Watson
Janette Wilkinson
Gareth Wayne Williams
Joanne Williamson
Kenneth Wayne Willmott
Margaret Helen Woods

Bachelor of Commerce

Ross Owen Atkins
David Christopher Burrell (With Merit)
Patrick Bede Colby
Gregory John Cunningham (With Merit)
Glenn Davies
Greg Len De Coster (With Merit)
UNIVERSITY OF WOLLONGONG GRADUATES (cont'd)

Bachelor of Commerce (cont'd)

Noike Sieds de Vries
Andrew Deak
Marino Debernardi
Kenneth Petrie Dixon
Paul Graeme Dunstan, BE*Qld
Robert John Eager
John Brian Gallagher
David Groves (With Merit)
David John Guy
Philip Lloyd Harmer
Yik Sing Hoo (With Merit)
Colin John Lambert
Susan Therese Lanyon (With Merit)
Tracy Lai Wan Leung
Lim Kin Guan (With Merit)
John Morley Ling
Dennis Ling Li Kuang (With Merit)
Stephen Mark Maconachie
Alexander John Masters
Neil Samuel McCammon
Peter Melville Mowbray, BE N.S.W. (With Merit)
Noel Anthony Mulligan
Rodney Maxwell Perkiss
Mark Ramsden
Peter Raymond Rigney (With Merit)
Elizabeth Ann Roodmyns
Phillip Robert Ross
Sandra Ann Sampson
Elizabeth Anne Seymour (With Merit)
Susan Catherine Slaviero (With Merit)
Raymond Robert Tolhurst, BSc(Tech) Grad Dip (Mining & Mineral Eng) N.S.W. (With Merit)
Glen Norman Ward
Peter Noel Welsh
Dennis Charles Williams, BE N.S.W.
Anthony Bernard Wynack

Bachelor of Arts (Honours)

Cheryl Beth Akhurst (Honours Class I)
John Philip Compton (Honours Class I)
Colin John Harris (Honours Class III)
Robert James Hermann (Honours Class II)
Henry Patrick Lee (Honours Class I)
Brian Anthony McGirr (Honours Class III)
Joseph Augustine Murik, BA BEd Calc. (Honours Class II, Division 1)
Ronald James Neller (Honours Class II, Division 1)
Colin Ross (Honours Class II, Division 1)
UNIVERSITY OF WOLLONGONG GRADUATES (cont'd)

Bachelor of Commerce (Honours)

David Charles Cheney, BCom N.S.W. -- (Honours Class II, Division 1)
Ron Dietrich (Honours Class II, Division 2)
Gerald Adrian Lambert (Honours Class II, Division 1)
Pasquale Lucchitti, BCom DipEd N.S.W. -- (Honours Class II, Division 1)

Doctor of Philosophy

Kenneth Davies, MA MEd Syd.
Thesis: "Sectarianism and the Development of Elementary Education in New South Wales 1788-1918."

Honorary Degree

Edgar Beale

Bachelor of Engineering

Wolfgang Brodesser
Graham Francis Cowan
Bruce Robert Kerr
Philip John Milton

Bachelor of Science (Engineering)

Hayden Raymond Pauley
Peter Vujic
Larry Gordon Woodland

Bachelor of Metallurgy

Maxwell James Bland
Michael Raymond Boadle
Graham Frank Bowie
Robert Melville Cooper
Robert Charles Cowan
Warren Raymond Hoskins
Kay Lorraine Jones
Peter John Kennedy
Graeme Stuart McGregor
Warren Bruce Pill
David Arnold Rees
Sally Ann Schober
William Michael Swire
Grahame Hughes Thomas
Brian Duncan Wiltshire

22
Bachelor of Science

Peter John Anderson
Stephen John Armstrong
Henrique Manuel Leal Barracosa
Denis Ian Benjamin
Steven James Bott
Ivor John Brinson
Gail Christine Calvert
Phillip James Chapman
Mark Henry Clifford
Rodney Thomas Crookham
John Bernard Denison
David Bain Dorrain
John William Dowdell
Raymond Ellis
Elizabeth Marie Gorrell
Jennifer Elaine Gull
Bruce William Ham, BE Qld.
Peter Raymond Hughes
David Anthony Jolliffe
Thomas Eric Lange

Antonio Lenzo
Achim Franz Limmensee
Irene Amy McGrath
James McKay
Ian Coulter McKenzie
Colin McLean
Bruce Geoffrey Nevill
Garry Wayne Parker
Robert Anthony Regtop
John Stanley Rickersey
David Robert Ronald
Glendon James Ryan
Norman Jeffrey Sweeney
David John Tandy
Eugenie Patricia Tandy
Neil McKenzie Tanswell
Ian Robert Tatnell
Christine Elizabeth Terry
Louis Edward Tome
Wayne Edward Veigel

Bachelor of Engineering (Honours)

Nguyen Ngoc Ban (Honours Class II, Division 1)
Gregory Ronald Evans (Honours Class II, Division 2)
Neil Thomas Johnston (Honours Class III)
Phillip King (Honours Class II, Division 2)
Andreas Mochali (Honours Class II, Division 2)
Graeme Gerald Rennie (Honours Class III)

Bachelor of Metallurgy (Honours)

Philip William Boehme (Honours Class II, Division 1)
John Phillip Piper (Honours Class II, Division 1)

Bachelor of Science (Honours)

Subhan Ali (Honours Class II, Division 1)
Manfred John Giggaher (Honours Class II, Division 2)
Timothy William Hamilton (Honours Class I)
Stephen Wayne Harrison (Honours Class II, Division 1)
M. Dawn Harvey (Honours Class I)
Peter Christopher Langenegger BSc v.v.s.w. - (Honours Class II, Division 2)
UNIVERSITY OF WOLLONGONG GRADUATES (cont'd)

Bachelor of Science (Honours cont'd)

John William Pemberton (Honours Class II, Division 1)
Paul Kenneth Walsh (Honours Class I)

Master of Science

John Ernest Casey, BA BSc Syd., MSc Macq.

University of Wollongong Diplomates

The Diploma in Education was awarded to the following candidates:

Mark Joseph Askew, BA
Holger Bandte, BSc
Robynne Joy Barnes, BCom
Kim Benjamin, BA(Hons)
Richard Berry, BSc(Hons)
Glyn Raymond Bradford, BA
Gwyn John Brickell, BSc
Ross James Dooley, BSc(Hons)
Walter John Erven, BSc
Julie Ann Evans, BA
Gregory Vincent Falk, BSc
Rossana Forte, BA N S W
Susan Joy Gadsby, BA N S W
Linda George, BA
Robert John Giles, BA A N U
Kathleen Louise Graham, BA Syd.
Kenneth David Griffiths, BA
Raj Rani Gupta, BA P a n i a f i
Nicolaas Hart, BA A u c k
Busisiwe Magdalini Hove, BA
Stewart John Ison, BSc
John Joseph Jansen, BA
Catherine Becky Jardine, BA
Catherine Ann Jervis, BA
Susan Margaret Jorgensen, BA
Ruthlyn Mavis Kennedy, BA
Khene Khammana, BSc
Wendy Kon, BA
Gerard Kuip, BSc
Kenneth Wilson Maclean, BSc
Robert Martin, BA(Hons)
John Douglas McWilliam, BSc(Hons)
Sally Joan Meldrum, BSc
Francis Gerard Monagle, BSc L a t.
Margaret Alexandra Morrison, BA
Peter Keith Mostyn, BA
Wendy Jane Moxon, BA
Anne Marie Buchhorn, BA
Marie Antoinette Angela Carvalho, BA
Robert Allen Collins, BCom
George Patrick Cullen, BA
Gregory Brian Daly, BA
Eugenie Patricia Dean, BSc
John Clifford Donnelly, BCom N S W
Joanne Nairn, BA DipSocStud M a r
Christine Allice Oke, BA(Hons)
Perpetua Mary O'Loughlin, BA
Suzanne Margaret O'Malley, BA Syd.
Andrew Oppitz, BSc
Franca Parasmo, BA
Lindy Anne Pegler, BA N S W
Sharon Lea Perusco, BA
Charlotte Hermina Margretha Poelakker, BA
Anne Louise Porter, BCom(Hons)
Stephen Vernon Powell, BA N S W
Phillip Matthew Pratt, BSc
Kanaka Ramakrishna, MA BEd M y s.
Ian Harry Sawkins, BA
Penelope Ann Scott, BA
Suzanne Simpson, BA N S W
Garry John Sinclair, BA
Nigel James Smith, BSc
Robert Mary Thomas, BA
Barry Arthur Voller, BSc
Susan Mary Walker, BA
Suzanne Elizabeth Walker, BA
Kevin Jon Watler, BA
Geoffrey David Wayne, BCom
Janelle Maree Whitehead, BSc
Rosemarie Elayne Widdowson, BA(Hons)
Merrie Ann Williams, BA
Carolyn Wright, BA
Annette Joy Yeomans, BSc
UNIVERSITY OF WOLLONGONG GRADUATES (cont'd)

Doctor of Philosophy
Metallurgy

Robert Howard Edwards, BSc (Tech) MSc N.S.W.

Civil Engineering

Maxwell John Lowrey, ME N.S.W.

Master of Science
Mathematics

Joan Adele Shaw, BA DipEd MEd Syd., MA N.S.W.
Raymond Anthony Robinson, BSc(Tech) N.S.W.
Robyn Florence Robinson, BSc DipCompSc O/d.

UNIVERSITY OF NEW SOUTH WALES GRADUATES

The following former students of the University of Wollongong have taken out degrees of the University of New South Wales since June, 1976.

Doctor of Philosophy

Terrence Austin Cutler, BA Melb.
Ignatius Eng Tho Gan, MSc N.S.W.
Alan Philip Hope, BSc N.S.W.
Syozo Kanamori, BE Chuo
John Peter Louis, BSc N.S.W.
Peter George Rowley, BSc N.S.W.

Master of Arts

John Edward Maxwell, BA DipEd N.S.W.

Master of Engineering Science

Neville Thomas Hodkinson, BSc(Tech) N.S.W.
Raymond Smith, BSc(Tech) N.S.W.
UNIVERSITY OF NEW SOUTH WALES GRADUATES (cont'd)

Master of Science (Operations Research)

Terence Robert Munster, BSc Qld.
Alfred Neil Preston, BSc(Tech) N.S.W.

Bachelor of Arts

Penelope Griffith (Honours Class II, Division II)
Pamela Joan Moore (Honours Class I)

Bachelor of Commerce

Bruce Edward Price (Honours Class II, Division I)
Geoffrey Arthur Ewin (Honours Class II, Division II)
Graeme Alan French

Bachelor of Engineering

John Mathew Clancy (Honours Class II, Division II)
David Michael Dimitrievich (Honours Class II, Division I)
Colin Neil Foye (Honours Class I)
Richard Eben Hipsley (Honours Class II, Division I)
Rodney William Howard (Honours Class II, Division I)
Christopher Patrick Kennedy (Honours Class I)
John Stephen Ketteringham (Honours Class II, Division II)
Dung Le (Honours Class I)
Mai San (Honours Class II, Division II)
Robert David Mann (Honours Class II, Division II)
Tony Dieter Strasser (Honours Class II, Division I)
Peter Robert Tobin (Honours Class II, Division I)
Wilfred Brown
Robert Ian Bye
Simon Patrick Carrigan
Bruce Raymond Coghlan
Johnathan Davis
David John Harrison
Hoe-Lian How
Nguyen Ba Hung
Leslie James Robertson
Seang Lay Siv
Stephen Wilkinson
Andrew Charles Wilson

Bachelor of Science (Engineering)

Terence John Atkinson
Ian Frederick Bilkey (With Merit)
Eligio Bruno Buzai
Bruno Castagna
Bachelor of Science (Engineering cont'd)

Stephen Thomas Devitt
Philip John Evans (With Merit)
Antonio Jose Mendonca Garrochinho
Ivan Clem Glover (With Merit)
Frank David Leonard Jones (With Merit)
Ross Kenneth Kennedy
Richard Anthony Leupen (With Merit)
Trevor George Lock (With Merit)
Gregory Francis Newton (With Merit)
Patrick Vincent Peirce (With Merit)
Warwick Sidney Powis
Anthony Arthur Reczek
Allan Joseph Riches (With Merit)
Stephen John Thompson
Vidvuds Vidins
Gordon Neal Walker (With Merit)
Geoffrey Stephen Woods
Ronald Joseph Zahorodny

Bachelor of Science (Technology) in Metallurgy

Michael Victor Harriman
Julian Jordan
Michael Keutaslav Kalusek
Graeme Thomas Lock Lee
Christopher William Shelley Moor
Eugene Spunar
Peter Ivan Unicomb

Bachelor of Science

Paul David Hobson (Honours Class II, Division I)
ACADEMIC ACTIVITIES 1977

FACULTY REPORTS

FACULTY OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

General

The more advanced years of the Mining Engineering course were offered.

The Australian Road Research Board (A.R.R.B.) has invited Dr. Chowdhury to consider preparation of a state of the art review entitled Slope Stability in relation to current Australian Road Design Practice, in 1977.

Research

Major Topics of Investigation were:

Investigations Concerning Natural Slopes.
Progressive Failure in Geotechnical Engineering.
New Approaches to Stability Analyses Concerning Soil and Rock Masses.
Vibration of Plate Systems.
The Effect of Recreational Traffic on Highway Design Standards.
The Interactive Effects of the Provision of improved Leisure and Highway Facilities.
Regional Flood Frequency Studies.
The workability and strength of granulated blast-furnace slag concrete.
Fracture mechanics concepts applied to concrete.
Engineering education.
The applications of finite element methods to the design of bridges and flat plate structures.
Mathematical theories of elasticity and plasticity applied to engineering problems.
Testing of structure and components under cyclic loading.

Master's Thesis:

Application of Fracture Mechanics to Granulated Blastfurnace Slag Concrete.
Bachelors Theses:

An investigation into the workability and strength of Concrete made with Granulated Blastfurnace Slag as a Total Sand Replacement.

Investigation into the workability of concrete containing granulated blastfurnace slag as a sand replacement.

Strength, workability and yield of concrete made with varying additions of granulated blastfurnace slag aggregate.

Workability and Strength of granulated blastfurnace slag as a sand replacement in concrete mix.

A comparison of bond resistance of reinforcing steel in concrete by the pull-out and cantilever test methods.

Comparison of bond tests by cantilever and A.S.T.M. methods.

DEPARTMENT OF ELECTRICAL ENGINEERING

General

Wherever possible, at the 200 and 300 level, sessional subjects taken by electrical engineering students were re-arranged for presentation as annual subjects. These changes would not actually take place until 1978. It was felt that the rate at which new concepts had to be introduced in the majority of sessional subjects left insufficient time for their implications to be digested and built upon. It remains to be seen whether pass rates and performance improve as a result.

Research

Major Topics of Investigation were:

Electrostatic Precipitation of Particulate Solids.

System Modelling and Optimisation, including
(a) estimating the transfer function of induction motors;
(b) predicting the critical speeds of auger conveyors;
(c) dynamic modelling of granular material flow in chutes;
(d) optimising motor controls to effect speed or position changes in minimum time;
(e) optimising component values for a granular material elevator system;
(f) finding chute profiles to maximise material exit velocity or to minimise transit time in the gravity flow of granular material through chutes.

System Analysis and Reliability
With the development of highly sophisticated systems, such as those used in military, nuclear and aerospace applications, the
need for reliability analysis and design methods has become of vital importance. Within the specific research topics in the area of systems analysis and reliability, which are currently under investigation in this Department, are the following:

(a) Large-scale analysis of electronic systems;
(b) Fault-identification studies in electronic systems;
(c) Nuclear systems reliability analysis;
(d) Network reliability.

Energy Conversion

Interest centres mainly on electro-mechanical energy conversion. The problem is essentially the optimum design of the converter-motor combination with respect to some criterion such as efficiency, capital cost or certain performance characteristics. Research in the Department has been concerned with the development of improved types of motors.

Of particular interest is the development of an A.C. drive suitable for electric vehicles for which the overall transmission system efficiency has been maximised while keeping weight to a minimum.

Digital Systems and Interfacing Techniques

Attention has been focussed on the development of a general purpose interface incorporating a microprocessor which may be adapted readily to a range of problems.

A typical example of such a problem occurs at Wollongong where the Department of Electrical Engineering is co-operating with the Department of Chemistry on the problem of computer control of mass spectrometers. The latter are used in a biomedical application to identify unusual chemicals in the blood and urine of children which can help to diagnose metabolic disorders of genetic origin. An intelligent, general purpose interface has been built and is currently under evaluation in this application.

Research Theses being Undertaken with the Department were:

Ph.D -

A General Method for Optimum Design of Multivariable Feedback Controllers using a Hybrid computer.
An Investigation of Optimum Machine Controls.

Masters -

A Computer Controlled Infra-Red Sensing System.
Control of a Coating Mass on a Continuous Hot Dip Galvanising Line.
Fault Identification in Electronic Systems.
Computer Analysis of Large-Scale Nonlinear Networks.
Some Aspects of the Control of a Hot Rolling Mill.
Digital Analysis of Electronic Networks for Reliability Studies.
The design competition forming part of the subject MECH122 Design I was conducted again. Eight groups of four students each set about to design a teaching aid for assisting children between the ages of five and eight to tell the time. The winning design is being used at Parameadow School with some success.

Facilities and Equipment

Systems and Computing Laboratory:
- Interactive digital plotter
- Cartridge tape drive 4923

Materials Handling Systems Laboratory:
- Beckman air comparator pycnometer
- Fisher sub-sieve sizer
- Haco microwave oven
- Force sieve shaker
- Daytronic pressure transducer
- West. min. recorder
- Vibratory feeder

Fluid Mechanics and Thermodynamics Laboratory:
- Maxitherm boiler
- Laboratory balance
- One filter unit and circulating pump

Environmental Engineering Laboratory:
- Blackhawk 'model' TE 191 CO and HC emission analyser
- Bruel and Kjaer precision sound level meter type 2209
- Bruel and Kjaer 1/3 octave filter set type 1616; and
- Bruel and Kjaer pistonphone type 4220.
- Gelman Clemco model 13156 "little giant" vacuum pump
- Bruel and Kjaer portable vibration analyser type 3513

Control Engineering Laboratory:
- EAI Analog computer
- B.W.D. CRO Type 539C
- H.P. noise generator

Dynamics Laboratory:
- Phillips universal measuring bridge, type PR9308
- Coriolis acceleration demonstration equipment
- Curvilinear relative motion demonstration equipment
- B.W.D. CRO
General instrumentation:
B.W.D. CRO type 540
8 mm movie camera and projector
35 mm camera
Roneodex card index cabinet for student record cards

Research

Major Topics of Investigation were:

Control of large scale systems. Work on the control of large scale systems with particular application to boiler-turbine units and other process systems has proceeded.

Design of Bulk Storage Systems. Theories are being developed to improve the design of storage bins for bulk solids. During 1977 the main thrust of the work concerned the development of a theory to predict the flow rate of fine powders from mass-flow bins.

Environmental Engineering. The major topics of investigation included the dewatering of industrial sludges, the marine disposal of industrial effluents, and noise measurement and control of industrial noise sources.

Hydrodynamics. Free Surface Waves. Low Froude number flow in the presence of simple geometries is solved using the theory of singular integral equations. Results are expressed as power series of Froude number and improved estimates of added masses are obtained. Numerical techniques are being developed for the computation of transient waves.

Potential modelling of flow separations. The stepwise rediscretization method for unsteady vortex sheets has been refined to include the effects of vorticity gradients. Applications to the roll-up of trailing, vortex sheets shows a high degree of consistency in the results. The representation of the core regions is better than that obtained by the conventional multi-vortex method.

Thermodynamics. The effects of operating parameters on emissions and performance of internal combustion engines when using L.P. gas as a fuel was investigated and the study is continuing.

Research Theses being Undertaken with the Department were:

Ph.D -
Storage and flow of bulk granular solids.
Identification and optimisation of bulk granular materials handling systems.
Control of large scale systems.
Masters -

An investigation of some flow promotion techniques for bulk solid bins.
Dynamic analysis of a paint line.
Compressible flow through a two-dimensional nozzle.
The selection and use of sound measuring equipment in industry.
Analysis and design of flow velocity head sensors.
Water re-use in industry.
A study of two-dimensional heat flow under abnormal boundary conditions.
Development of a mathematical model of a heat recovery system.
Transportation of energy.
Computer aided design of ships' propellors.
Design of diffusers for ocean disposal of industrial wastes.
Mathematical modelling of engineering systems.
Optimum design of worn gearset.
The application of finite element analysis to problems of multi-dimensional heat conduction with non-linear boundary conditions.
The application of computers to the prediction of wall loads in mass flow bins.
Factors affecting ammonium sulphate crystal size.

Bachelors -

An introduction to no se measurement.
New techniques in refuse disposal.
Settlement of powders in vertical channels by gas escape.
Control systems analysis and design using root locus - time response.
Computer aided instruction in control theory using an interactive graphics display.
Commissioning and performance testing of TD37 heat transfer apparatus.
Commissioning and performance testing of gas turbine unit.
Metering of flow in small bore tubes.
Investigation of an industrial bin discharging flue dust under the influence of internal pressure.
DEPARTMENT OF METALLURGY

General

In 1977 enrolments in science-based courses in overseas Universities improved somewhat - particularly in North-American Universities. This trend was not particularly apparent in Australia, and it was therefore pleasing that new enrolments in 1977 (37) in the Department of Metallurgy were considerably higher than in 1976 (20). It remains to be seen whether this improvement will be maintained in future years but, enrolments in the Department at Wollongong are more satisfactory than other departments in Australia. It is also pertinent that in North America in 1975, 77 departments of metallurgy reported 709 potential graduates - an average of only about 9 graduates per department. In that year 25 students graduated from the Department at Wollongong.

It seems likely that, if present trends continue, there will soon be a shortage of metallurgists in Australia.

The Department began the introduction of a revised metallurgy subject in 1976 and further revised subjects were presented in 1977. It is expected that the new course will be fully in operation from 1978 onwards. Low postgraduate numbers continue to be a matter for concern. Only 7 postgraduate students were enrolled in 1977, 6 of whom were part-time. The majority of our postgraduate students are seconded from local industry and the present low numbers reflect the present depressed economy.

It is possible that a postgraduate diploma would prove a valuable addition to the courses provided by the Department. Preliminary discussions with local industry were held in 1977.

Facilities and Equipment

Allocation of equipment funds to the Department made it possible in 1977 to purchase a Leitz MM6 Metallurgical Microscope. This equipment will make it possible for the Department to carry out first-class metallography and will greatly improve our facilities at both the undergraduate and postgraduate level.

Student Performance

New enrolments increased in 1977; also comparatively few students (12%) failed to re-enrol. Pass rates at sessional examinations were good, but it appears that fewer students are achieving credits or better.

Research

Current research topics in the Department include:
Metallographic studies of structural changes in industrially important materials, and the association between structure and useful properties. Particular studies of martensitic transformations and recrystallization.
Fluid flow in packed beds with particular emphasis on velocity distribution and contact efficiency.
Process modelling of industrially important metallurgical processes.
Solidification of alloys.
Mechanical behaviour of ductile sheet metals.
Mechanical testing with computer control.
Deformation and fracture at elevated temperatures.
Properties and Applications of Shape Memory Alloys.
Flow and Fracture of Rate Sensitive Copper Alloys.
DEPARTMENT OF ENGLISH

Facilities and Equipment

The Department had no facilities in 1977, other than its staff rooms. It acquired no new equipment.

Research

Violence in Old English Poetry
Personal Relationships in Old English Poetry
Early-Tudor Poetry in Manuscript
Art and Nature in Sixteenth and Seventeenth Century Literature
Attitudes to Nature in Australian Fiction
The Poetry of Sylvia Plath
The Metaphysical Poets
The Restoration
Critical Thought in the Seventeenth and Eighteenth Centuries
James Joyce
Popular Song Lyrics as a Medium of Communication
The Pathology of Shakespeare's Plays

Research theses Undertaken with the Department were:

Ph.D -


M.A -

Disraeli's Scope as a Novelist.
The Image of the Perfect Place in Utopian Fiction.
Some Aspects of the Poetry of Sir Thomas Wyatt.

DEPARTMENT OF EUROPEAN LANGUAGES

General

Following efforts extending over a period of two years, Italian was offered by the Department for the first time in 1977. This major extension of the Department's activities now provides a firm base for future expansion. The fact that student numbers almost trebled from 1976 to 1977 is an indication of the significance of the introduction of Italian. Other courses in French were introduced in 1977.

Facilities and Equipment

The range of facilities available to the Department was extended slightly during the year but the need for an adequate language laboratory, a private study laboratory and improved conditions in the audio-visual tutorial room continued to be keenly felt. There is at present sufficient work in the Department to keep a technical officer fully employed.
Within the next year the Department needs to start planning to use video equipment in its teaching programmes. This will have major implications for the acquisition of equipment.

Student Performance

Principally because of the introduction of Italian, enrolments increased dramatically in 1977, the Department's E.F.T.S. figures almost trebling. This fact caused considerable staffing difficulties early in the year, as specialized part-time help was difficult to find. There was evidence that, because of the two languages offering, high calibre students wishing to specialize in foreign languages were now prepared to enrol at Wollongong rather than go to a Sydney university.

The Department follows a policy of progressive assessment, so that indolent or incapable students tend to withdraw rather than fail at the end of the course.

Research

Major Topics of Investigation were:

19th and 20th century French novel and theatre.
Literature, painting and film in 20th century France.
The "nouveau roman".
Linguistics applied to the teaching of French as a second language.
Intonation analysis.
Audio-visual methods in the teaching of French.
Italian "verismo": 19th century realism (Verga, Capuana, De Roberto).
Pedagogical aspects of teaching Italian.
Italian-American "teatro popolare".

DEPARTMENT OF HISTORY

General

For the History Department 1977 was a particularly good year. Not only did student enrolments at all undergraduate levels rise from 278 in 1976 to 306 in 1977 but, student performance was maintained at a satisfactory standard and improved in the case of fourth year.

An increasing number of distinguished visitors, two from the U.K., two from within Australia and one from the U.S.A., was indicative of improved standing, as was the increase in first year enrolments, from 136 to 148.

In the area of higher scholarship the department continued, with its staff of eight on campus in 1977, to supervise six postgraduate and seven fourth year honours students. By the end of 1977 Associate Professor Colm Kiernan's biography of A.A. Calwell was near completion (it was published early in 1978), while Associate
Professor J.S. Hagan's history of the A.C.T.U. was progressing satisfactorily.

It should be observed that the progress achieved in the last two years owes a great deal to a large increase in the materials, monographs, archival and otherwise, available in the University Library.

Facilities and Equipment

The History Department purchased a video monitor and video recording during 1977.

Research

Major Topics of Investigation were:

A study of the impact on the community of the Mt. Kembla Mine disaster of 1902 and the growth of a legend about the disaster.


The St. Andrews University Missionary Association 1823-28: a study of the origins and nature of missionary zeal.

A Life of A.A. Ioffe.

Translating and editing the four volume "Zapiskii o Grazhdonskoi Voine" by Antonev-Ovseerky.

A History of the A.C.T.U.

The rise and decline of the Liberal Party with particular reference to the personalities and political impacts of Gladston, Disraeli, Joseph Chamberlain, Ramsay MacDonald, Lloyd George and Winston Churchill.

Arthur Calwell: A Political Biography.

French 18th Century intellectual history.

Research Theses being Undertaken with the Department were:

Ph.D -

History and the Gothic Past in Eighteenth-Century French & British Thought.
Aspects of Industrialization in Port Kembla 1900-1970.
Employment of Women 1930-50.
The Development of Central Political Institutions in Papua New Guinea 1951-72.
A Study of Theological Education in Australia.
DEPARTMENT OF HISTORY AND PHILOSOPHY OF SCIENCE

Facilities and Equipment

The Department changed its location during the mid-year recess. Although the members of the Department are spread over three floors of the latter building, the advantages of the move are considerable. In particular, the Department is now able to use the laboratory effectively.

Research

Major Topics of Investigation were:

Nineteenth Century Philosophy of Science.
Women and Science and Social Relations of Science.
The Professionalisation of Science.
Nineteenth Century Theories of Inheritance.

Research Theses Undertaken with the Department were:

The Professionalisation of Science in Britain 1870-1914.
Some Key Concepts in Theories of Generation with Special Reference to the Second Half of the Nineteenth Century.

DEPARTMENT OF PHILOSOPHY

General

All courses except Philosophy 103 were new courses. The Department plans to offer predominantly single session specialised courses at second and third year levels, and is still experimenting to determine which of a probably smaller range of options will be offered every year. During 1977 the Department also obtained permission to offer a Graduate Diploma in Philosophy, commencing in 1978.
In August 1977, the Department of Philosophy at the University of Wollongong was host to the largest ever conference of the Australasian Association of Philosophy. There were about 200 delegates at the peak of the six day conference.

Facilities and Equipment

Accommodation is most unsatisfactory. The rooms occupied by Professor and lecturers are much smaller than those normally occupied by academic staff of these levels. Extremes of temperature have also been a problem, in particular high temperatures.

Not only is the accommodation sub-standard in the level of amenity provided; by the end of 1978 even with the planned removal of the printery from the building, there will be insufficient space to accommodate the full-time research students (1 in 1976, 2 in 1977, 3 in 1978); the part-time tutorial staff who need some (shared) accommodation to interview students in relation to returned written work etc., of whom there are now 2 other than full-time research students in 1978; the part-time research students (2 in 1977, 3 in 1978), or the final honours students (of whom there will be at least 3 in 1979, the first year in which the honours programme will have been offered).

In sum, the poor quality and already inadequate quantity of Departmental accommodation has been a serious impediment to the effective work of the Department.

Student Enrolments

The Department continued its practice of having papers in new courses marked by consultant examiners external to the Department. External involvement - the external examiners are asked to assess the papers as if they were submitted to their own universities - provides evidence of parity of standards of our courses with those of other older institutions and, provides reassuring evidence of the calibre of the students enrolled in subjects in the Department of Philosophy in this university. This exercise also enhances the standing of this Department amongst other Departments in older universities.

Research

Major Topics of Investigation were:

- Continued work on the development of a 'private enterprise' liberal political philosophy, in conjunction with the Centre for Independent Studies.
- Consent and political obligation.
- Secession and political theory.
- Privacy.
- A Theory of moral responsibility.
- Catholic doctrine of double effect.
Theory of probability.
Modal logic and its interpretation.

Research Theses Undertaken with the Department were:

Ph.D -
Contemporary Aspects of Thomistic Thought.

Masters -
Kant's Deduction of the Pure Concepts of Understanding.
For the first time, several part-time students were enrolled in the new Diploma in Mathematics.

Facilities and Equipment

Computing Science

The Computing Science laboratory was used primarily to support first year computing science. The small space (34m²) of ACS III and inadequate air conditioning made the last hour of most laboratory sessions most unpleasant.

The UNIX operating system was converted from PDP-11 computers to Interdata 7/32 computers and put into production in the laboratory in July, 1977. This greatly expanded the facilities available to the students and the operating system conversion caused world-wide interest.

As a result of this work our version of UNIX was installed at the University of Illinois at Urbana, U.S.A. This was the first step of a joint software development effort between Urbana and Wollongong.

Oceanography

Two water level recorders were obtained and a laboratory/workshop was developed in Building 20.

Student Performance

Honours grades obtained were as follows:

1 x I class Honours (and University medal)  
3 x I class Honours  
1 x II class Honours Division (i)

Research

Major Topics of Investigation were:

Applied Mathematics:

The Numerical Solution of Partial Differential Equations,  
Finite Element Methods,  
Interactive Computer Languages for Experimental Numerical Mathematics,
Applied Mathematics (cont'd):
Simulation,
Population Dynamics,
Large Elastic Deformations of Rubber-like Materials,
Edge Waves.

Pure Mathematics:
Characterization of Moment,
Invariant Linear Functionals,
Combinatory Logic,
Mean Periodic Functions with Applications.

Computing Science:
Computing Software Development,
Portable Operating Systems,
Text processing Algorithms,
Programming Languages.

Research Theses being Undertaken with the Department were:

Ph.D -
Applications of Control Theory in Economics.
Multi-Dimensional Newton Diffusion.
Differential Equations.
Application of Energy Dependent Potentials.
A Problem in Sequential Analysis.
A Correction to the Narrow Resonance Approximation for the Calculation of Resonance Absorption.
A Laboratory for Computing Science.
Some Results in Neighbourhood Lattices.
Flow over Submerged Plates and Barriers.
Some Aspects of Population Dynamics.
Boundary Effects of Shelf Waves.
Application of the Finite Element Method to the Design of Gas Slider Bearings.

M.Sc -
Applications of Transfinite Numbers and Infinitesimals.
The Influence of Bathymetry on Coastal Upwelling.
General

The presentation of BIOL204/304 was different from that in 1976 because of the appointment of an ecologist, to assume responsibility for the course.

Facilities and Equipment

A new class laboratory was made available. The following equipment was purchased in 1977:

1 balance
9 stereomicroscopes
1 surveyor's level
1 oscilloscope
1 constant voltage DC power supply
1 Bausch & Lomb Spectronic 20 spectrophotometer
1 Gilford 300T spectrophotometer
1 thermopile
1 HAAKE constant temperature water bath
1 refrigerated illuminated incubator (ARGC)
2 refrigerators
1 National chart recorder (ARGC)

As in our previous two years of experience, students were generally reluctant to read beyond the scope of their lecture notes and in some areas did not make enough effort early in a subject to deal with conceptual problems.

Research

Major Topics of Investigation were:

Environmental physiology of marsupials.
Thyroid function in vertebrates.
Photosynthesis: regulation and metabolic fluxes in isolated chloroplasts.
The physiology of microbial response to water stress, embodying:
(a) the regulation of glycerol production in algae and yeasts;
(b) the state of water in halophilic bacteria.
Factors affecting the spatial distribution of field crickets.
The spatial distribution of reef corals and interaction between fish and coral communities.
Research Theses Undertaken with the Department were:

Ph.D -

The regulation by water availability of glycerol metabolism in yeast.
Studies of the physiology of the dermatophyte, *Candida albicans*.

M.SC -

Biosynthetic mechanisms of antibiotics in Chromobacteria.

DEPARTMENT OF CHEMISTRY

General

There was a rationalization of subject offerings at 200 and 300-levels.

During 1977 a Workshop in Mass Spectrometry was run by Professor B. Halpern and A/Professor P.D. Bolton for the Association of Clinical Biochemists.

Facilities and Equipment

Two major items of equipment were purchased in 1977: a T.O.C. analyser and a Polarograph.

Student Performance

This was generally found to be good.

Research

During 1977 work on the application of gas-chromatography-mass spectrometry and computer techniques for the diagnosis of metabolic disorders has been continued. Investigation of new computer search procedures were also undertaken. In the field of environmental chemistry heavy metal pollution, flocculation of coal tailing and the control of leachate from landfill operations were investigated in addition to work on the treatment of wastewater by the use of peroxides. Work on the isolation and structure determination of natural products likely to possess pharmacological activity, and synthesis of new drugs with expected neoplastic activity, the separation of long-chain fatty acid using HPLC and the investigation of the thermodynamics of dissociation of organic acids have also been continued. Development and application of computational techniques to predict molecular behaviour and molecular energy storage characteristics were under investigation. Synthesis and study of transition metal complexes with organic ligands as models of biological systems, and the identification of metal-ligand bonds by the use of stable metal isotopes were also actively pursued.
Ph.D -

The Magnetic and Chemical Behaviour of some Polynuclear Methoxide Complexes of Tervalent Iron with Bidentate Oxygenous Ligands.
The Application of Gas Chromatography and Mass Spectrometry to the Study of Human Diseases: - The Identification and Quantitation of the Urinary Volatiles Associated with a number of Genetic Defects.
Stereospecificity of some Enzyme-catalysed Hydrolysis Reactions.
Voltammetric Analysis of group 5 and 6 Trace Elements in Copper.
The Use of Stable Isotopes in the in vivo study of Metabolic Disorders.
Chemical Studies on the Flocculation of Argillaceous Slurries.
Application of Chemical Ionization Mass Spectrometry to the Quantitative Analysis of Metabolites in Biological Fluids.
Substituent Effects on the Thermodynamic Functions of Ionization of Phenols.
The Use of CI-MS for the study of Genetic Defects - The Analysis of Amniotic Fluid for Antenatal Diagnosis of Heritable Disorders in High Risk Pregnancies.
In the area of Synthesis of Drugs.
Chemical Studies on the use of peroxides for the treatment of Industrial Wastewater.

M.SC -

The Application of Ketimine Derivatives to Solid Phase Peptide Synthesis.
The Preparation of Derivatives of Carboxylic Acid and Phenols suitable for High Pressure Liquid Chromatography.
Studies into the Electronic Structure of Transition Metal Complexes.
Determination of Serum Trace Metals (Zinc, Iron & Lead) by Atomic Absorption Spectroscopy.
Indolizidine Derivatives.
Investigation of the Incidence of Heavy Metals in Biological Fluids resulting from Occupational Exposure in the Non-ferrous Metals Industry.
Development of a Computerized Magnetic Mass Spectrometer System.
Metal Complexes of Some Polydentate Ligands.
The Constituents of Lauraceae.
A physico-chemical investigation of the recovery of hydrous tin oxides from electroplating liquors and rinse waters.
The Determination of Steric Purity of Asymmetric Compounds by Gas Chromatography and Mass Spectrometry.
DEPARTMENT OF GEOLOGY

General

The Department continued to offer subjects leading to the B.SC. (pass and honours courses) and the pass B.A. Study toward the degrees of M.SC. and Ph.D. by thesis continued to form a major activity of the Department. Servicing subjects for Engineering courses became numerically more important with the introduction of 300-level Mining Engineering subjects and a 400-level Civil Engineering subject.

The small amount of part-time funds allocated permitted the employment of some research students to assist with demonstrating to first year classes and with teaching the engineering servicing courses. The amount was insufficient and had to be supplemented from materials funds. It is very difficult to staff servicing courses without cutting back on other teaching commitments.

Facilities and Equipment

Rooms: There was a further reduction in the amount of space available for use by the Department.

Serious problems continued with specimen storage facilities and a decision was made to install in 1978 a second compactus at the east end of 608. Accommodation for postgraduate students also continued to be a problem with there being in effect no office type space available for the vast majority of part-time postgraduate students. This makes their work much more difficult and diminishes the amount they are able to contribute to the general life of the university.

Blue/U.V. fluorescence facilities were developed during the year. A Magna I electronic typewriter was installed late in the year. This will greatly aid in the annual updating of documents such as this through its edit facilities.

Research

Major Topics of Investigation were:

Coal geology and coal petrographic studies on both coal seams and rocks containing carbonaceous matter.

Thermal regimes in Australian sedimentary basins with particular reference to oil exploration.

Cambro-Ordovician trilobites of New Zealand.

Ordovician to Devonian stratigraphy of the Capertee High, New South Wales.

Sedimentological investigation of the Pernjara Group, Amadeus Basin.

Sediment dispersal patterns and clay mineralogy in Lake Illawarra.

Palaeomagnetic studies of the Sydney Basin, New South Wales.
Palaeomagnetic studies of the River Valley area, Ontario, Canada.  
Geophysical survey of the University of Wollongong campus.  
Textural, mineralogical and petrological studies of gneisses from Broken Hill.  
Geochemical and petrographic studies on igneous and sedimentary rocks of the South Coast.  
The geology of the Bungonia area.

Research Theses being Undertaken with the Department were:

Ph.D -
A study of a base metal ore deposit in the Mt. Isa region.  
Geochemistry of recent sediments in Lake Illawarra.  
Studies in coal measure sedimentation.  
Thermal regimes in Australian sedimentary basins.  
Mineralization in the Palaeozoic rocks in New South Wales.  
Aspects of sedimentology of coal measure sequences.  
Igneous rocks of the southern Sydney basin.  
Late Silurian to early Devonian faunas of Central Victoria.  
Geological controls of coal accumulation, Moranbah region, Queensland.  
Low grade metamorphism in sedimentary sequences.  
Relationship between coals and associated hydrocarbon source rocks.  
Field relations and laboratory studies of industrial clays of New South Wales.

M.SC -
A study of the post-Permian quartzites of southern New South Wales.  
The geology of the Capertee valley.  
A study of coal rank variation in the south central Sydney basin, New South Wales.  
Petrological and Petrophysical Study of Potential Hydrocarbon Storage Reservoirs in Permo-Triassic Sandstone Bodies in the Sydney Basin.  
The geology of the Ardrossan dolomite and its development as a refractory in the steel industry.

Master Preliminary
Magnetism in rocks

B.Sc (Honours) -
Aspects of the clay mineralogy from the catchment area of Macquarie Rivulet, N.S.W.  
Geology of an area south-east of Bullio, New South Wales.  
The geology of an area around Cudgegong, central western New South Wales.
DEPARTMENT OF PHYSICS

General

The course content was essentially the same as for 1976, but the course structure was different by virtue of the need to combine the previous smaller subjects into larger units.

The department presented, for the first time, the subject GENE220 Concepts of the Modern Universe. The course attracted a good enrolment at its first offering.

Facilities and Equipment

Facilities

The department received no further space in 1977. The first, second and third year optics laboratories were further developed while, in the latter part of the year, the Modern Physics Laboratory was planned and partially arranged.

Equipment

The department purchased its first ultra-major piece of equipment in 1977. This consists of a far infrared Fourier spectrometer for teaching and research.

The upgrading of the first year laboratory was, and still is, a major undertaking. At this stage very little impact has been made. A co-ordinated effort on this will be initiated from now through 1979 with the intent to replace existing antediluvian equipment and significantly alter and improve the offerings. In second year, the laboratories demand equipment which is more major than that used in first year. Expenditure for 1977 was approximately $12,000. This will significantly improve the quality of the instruction for that year. It is estimated that a further $12,000 will be needed to provide an adequate programme. Equipment costing approximately $4,000 was purchased for the third year laboratory in 1977. This, together with some major purchases in 1976 will enable a reasonably modern offering to be given, although there are still several deficiencies.

The department possesses very little in the way of dedicated lecture demonstration equipment. To present physics in the most effective way, it is essential that this side of the discipline be greatly strengthened. A minimal expenditure on this would be approximately $15,000, but it should be clear that two or three times this amount is really needed.

In 1977, apart from the Fourier spectrometer, approximately $11,000 of the departmental funds were expended on research equipment.

Workshops and the departmental computing facility absorbed approximately $6,000 in 1977. A significant part of this was used to purchase a consol, peripherals and additional core for the computer.
Student Performance

The EFTS for the Department was approximately 71 at the beginning of the year and approximately 70 near the end of the year; these figures include a post-graduate enrolment of 10 EFTS. The stability of the enrolment was due to the second session enrolment in PHYS151 which essentially cancelled out the discontinuations in all other subjects. The EFTS of the department was less than that for 1976 (78 at the beginning of the year). This presumably reflects the overall decrease in the science-based enrolments.

Usually significant decreases in student numbers over an academic year occur only in 100-level subjects; this was again the case in 1977. In PHYS141, the percentage of students sitting for the final exam relative to those enrolled in early May was 76% while for PHYS142 this same quantity was 77%. These figures are only slightly different from those of 1976.

It was felt that the performance of the students was somewhat better than in 1976 although the numbers completing each subject were not very different from last year.

Research

Major Topics of Investigation were:

Astronomy:

A computer model has been developed which is capable of determining the combined gravitational field due to the galaxy and the Large Magellanic Cloud, its nearest galactic comparison. This model has been used to investigate motions of stars which travel large distances from the galactic plane.

In addition to the above, planning has commenced for a programme of fast photoelectric photometry of southern sources with the 18" telescope.

Musical Acoustics.
Nuclear Physics.
Solid State Physics. The far infrared grating spectrometer equipped with a cooled bolometric detector has been used for the quantitative piezospectroscopy of arsenic impurity in germanium.
Spectroscopy.

Research Theses Undertaken with the Department were:

Ph.D -

The Capture Cross-Section of Different Nuclei in the Kilovolt Region.
Angular Distribution of Fission Fragments.
Neutron Emission from Fission Fragments.
The Energy Spectrum of Neutrons in a Pulsed Fast Assembly.
M.Sc -

The Measurement of Fission Neutron Spectrum of $^{252}$Cf and to Determine the Average Neutron Energy.
An Infrared Wavelength Modulation Spectrometer for the Study of Impurity Spectra of Semiconductors.
Scattering of Light by Solids.
A Survey of Infra-red Astronomical Objects.
A Study of Some Infra-red Detectors.
A Tracking System for the Wollongong University 18 inch Telescope.
General

Due to lack of staff a number of the Department's undergraduate subjects were not offered despite increasing student demand.

First enrolment into the M. Com degree (by thesis) was accepted.

Facilities and Equipment

Development of the Accounting Laboratory commenced in earnest in December, 1977; it is hoped that the major impact will be felt in 1978.

Student Performance

The steady rise in enrolments continued from 165 EFTS at 30th April, 1976 to 189 EFTS at 30th April, 1977.

The review of the credit point weighting of second year subjects (outlined in the 1976 Report) was completed and an increased weighting was approved for 6 subjects as from January, 1978.

The lack of literacy of marginally qualified and overseas students continued to pose problems for both the staff and the particular students themselves.

Research

Major Topics of Investigation were:

Australian Company Financial Reporting.
Extractive Industry Accounting.
Partnership Basis of Tax Assessment for Certain Companies.
Interfirm Comparisons for Small Businesses.
Review of Australian Administrative Law.

Research Theses being Undertaken with the Department were:

M. Com -


B. Com (Hons) -

Taxation.
Leasing.
DEPARTMENT OF ECONOMICS

General

The changes introduced in first year in 1975, which flowed through to second year in 1976, had their impact in 1977 at third year level. These changes which increased the degree of integration in studies in each year and the progression from year to year, combined with the increased emphasis on quantitative analysis to improve the standard of student performance in final year subjects.

The virtual standstill of academic staff since the beginning of 1974 has hampered planned developments.

Members of the Department continue to participate in a wide range of regional, State, and Commonwealth economic studies and projects, including those reported for 1976 and the following new developments:

- Development and maintenance of a set of regional statistical handbooks.
- Research and advisory work for N.S.W. Departments of Planning and Environment, Decentralisation and Development, Education, and Transport.
- Participation in (a) N.S.W. Government Inquiry into Land Valuation and Rating and (b) Commonwealth Committee of Inquiry into Housing Costs.

Facilities and Equipment

The development of teaching in Economics depends increasingly on practical assignments, group work, field work, and workshop-type activity. In spite of the lack of facilities, and because of the extraordinary keenness and ingenuity of staff members much has been done by the Department in these terms, particularly in:

- Industrial Economics.
- Natural Resource Economics.
- Economics of Social Welfare.

Research

Major Topics of Investigation were:

- International Commodity Agreements.
- Comparative Quit Rates of Men and Women in Australia.
- Regional economic development.
- Input-Output Analysis applied to (a) the Illawarra Region and (b) Fiji.
- Public services for the disposal of pollutants - a regional study.
- Economics of the building industry.
- Economics of the Australian Fishing Industry.
- History of Economic Thought.
- Economic Aspects of Federal, State and Local Government relationships.
Research Theses being Undertaken with the Department were:

Ph.D -

Impact of Education on Agricultural Productivity in Developing Countries.
P.W.S. Andrews and the Unsuccessful Revolution.
The Economics of the Australian Fishing Industry.
Decentralization in Australia.
Change in property values affecting inner-city development and redevelopment.

M.Com -

Towards a General Equilibrium Model for Port Development.

DEPARTMENT OF EDUCATION

General

Education 200-level subjects were re-introduced in 1977. Staffing difficulties which had existed in 1976 and persisted into 1977 meant that no 300-level subjects could be offered in 1977.

In 1977 candidates for the degree of Bachelor of Education were admitted for the first time. This development was made possible by the streamlining of the Diploma in Education program such that much of the fieldwork became more directly the responsibility of the school-based part-time lecturing and supervising staff. Full-time academic staff were able to re-direct some of their effort towards the first year of the two-year, part-time program in Bachelor of Education.

A degree of Master of Education was also approved. This degree allows for study by coursework/thesis combination or by thesis alone.

Members of the Department have been involved in many activities apart from the regular obligations concerning University Committees.

Dr. Fielding and Dr. Cavanagh were involved in conference activity with regard to in-service education of teachers generally. Professor King continued as a member of the Innovations Committee of the Schools Commission and as Chairman of its Evaluation Committee.

Facilities and Equipment

The space problems of the Department continue. This difficulty is unlikely to change unless and until Social Sciences Stage II is built. Naturally, the purchase of equipment is inhibited by the sheer lack of housing.
Student Performance

Student performance was considered to be good.

Research

Major Topics of Investigation were:

Migrant Education Television Research Project, undertaken for the Australian Department of Education to study the effects of television series directed towards language and culture learning by migrants.

Study of manpower availability of psychologists in Australia was continued on behalf of the Australian Psychological Society and the Australian Hospitals and Health Services Commission. The study into the effects of learning environments on the acquisition by children of literacy, numeracy, and related skills.

A study of the nature of the clientele of schooling outside the compulsory-education age range.

A cross-cultural developmental survey in Pacific, Asian, and North American countries.

Project Enrichment of Childhood experimental compensatory preschool, Bourke, N.S.W.

Research Theses being Undertaken with the Department were:

Ph.D -

Learning Environments in Australia.
The School Council and Community Education in NSW - A repertory grid investigation of teacher role perceptions.
Decision-making in the Australian Universities.
Discrete and Holistic Features within the Structure of Knowledge.

Masters -

Teacher Education: Comparative Studies in Australia and the United Kingdom.
A Study of Verbal and Operational Performance among Intellectually Handicapped Children.
In the area of cumulative deficits amongst minority groups.
Ethical Problems of the Integrated Curriculum.
Implications of the Social Studies Curriculum for deprived children, and the teacher's role.
Health Programs in Schools as a factor in controlling Nutrition and Obesity.
Social Influences on the Cognitive Development of Children from Different Ethnic Groups.
Open Education and Technical Training.
Towards a Model of Teacher Development.
DEPARTMENT OF GEOGRAPHY

Facilities and Equipment

Owing to pressure on accommodation in the Social Science Building the Department was required to relinquish to the H.P.S. Department the Honours Student Laboratory and the office used by part-time and visiting staff.

Student Performance

Enrolments in Geography for 1977 were the lowest for several years resulting in a reduction of some 27% in total student load over 1976.

The origins of this situation are both internal and external. A significant decline (a reduction of c. 50%) in the number of students enrolled in 200-level subjects, for instance, reflects (a) a heavier than usual failure rate among 100-level students in 1976, (b) a slight reduction in the credit point value of 200-level courses, and (c) a significant reduction in the number of 200-level subjects taken by each student. The substantial fall-off in 100-level numbers was, however, the major problem. While no completely convincing explanation for this decline can be suggested it is clear that to some extent, at least, a sudden change in the demand for Geography teachers, reflected in advice given to potential teacher trainees, had a quite significant impact on subject selection at this and all other N.S.W. Universities. The public-relations impact of perceived high work loads, and higher failure rates by comparison with some other Social Science/Humanities Departments cannot be ignored entirely, however, and these and related issues are currently receiving serious consideration within the Department.

Pass rates in 100-level subjects were significantly higher in 1977 than in the preceding year. Without detailed information on entry qualifications it is not possible to investigate this change too deeply. It is thought, however, that the significant decline in new enrolments, perhaps due to the discouragement of students less highly motivated, less well prepared, or simply less able, may have helped to improve overall performance levels. In 1978 the Department expects to undertake its own analysis of entry qualifications in relationship to performance with an eye to rendering more effective its teaching in the first year. In addition a survey of student opinions and attitudes relating to the Department and its offerings was conducted at the end of 1977 in an effort to determine which of our procedures, etc. were perceived to be in need of special attention or modification. The results, while helpful in confirming some of our own views, did not, however, generate any radical new thrusts for the Department's teaching programme in 1978.

As in previous years the assessment of thesis work done by final year Honours students involved an external examiner. It was pleasing to obtain, yet again, independent confirmation of the high quality of Honours graduate research from the Department.
Research

In 1977 departmental personnel continued to be actively involved in research over a wide range of areas. Physical Geographers were concerned with a number of problems relating to the coastal barrier, nearshore sediment movement, and flood plain formation and change while among the Human Geographers investigations into topics as diverse as the modernization of Indian agriculture, port modernization in South and S.E. Asia, urban deprivation in British cities, the rural ecology of N.S.W. and use patterns of baby health centres in Wollongong have been pursued. Specific projects underway are listed below.

New methods for the measurement of agricultural intensity from land use data.
Agricultural modernization in India.
Processes and patterns of shoreline change on Warilla Beach.
Morphostratigraphic investigations of receding barrier beaches at Bulli, Shellharbour North, and Killalea Lagoon.
Nearshore water circulation, sediment transport, and beach morphology in single current catchments.
Coastal barrier and lagoon systems of N.S.W.
Upland lake Quaternary geomorphology.
The ecology of rural N.S.W.
The growth performance of Canadian trade centres - an Alberta example.
Formation of meandering-river floodplains.
Vegetation succession on floodplains.
Port modernization in South and S.E. Asia.
Modelling port systems.
Accessibility to and use of low order health facilities; baby health centres in Wollongong-Shellharbour.
Social deprivation in British urban areas - the Glasgow example.
Intra societal variation in reproductive activity - the case of Scotland.
Arid landscapes of the U.S.A.
Meander morphology and dynamics.
Techniques for the reconstruction of ancient environments.

Research Thesis being Undertaken with the Department was:

B.A. (Honours) -

A Behavioural Approach to the Study of Retirement Migration: the case of the South Coast of N.S.W.

DEPARTMENT OF PSYCHOLOGY

General

A number of new courses were offered and some existing courses were re-designed.
Facilities and Equipment

A Devices M19 8 channel physiological recorder and associated equipment were purchased. Also additional physiological equipment has been constructed from purchased components.

Student Performance

The pass rate in both PSYC 101 and PSYC 102 improved markedly on the previous year.

Research

**Major Topics of Investigation** were:

Operant conditioning and its applications.
Physiological psychology especially the interaction of the alpha and gamma motor systems in man.
Problem solving and communication in industrial organizations.
Sources of job satisfaction and dissatisfaction.
An examination of some recent literature on consciousness (including the occult and magic). Also includes imagery and fantasy as useful techniques in counselling and psychotherapy.
An examination of training techniques in intensive groupwork.
Research into psychopathology in the Wollongong area.
The relation between intrinsic and extrinsic motives in occupational choice and how each motive affects perceived probability of success.
The perceived sex roles of students undertaking tertiary study.
Psychology in the Peoples Republic of China.

Research Theses being Undertaken with the Department were:

Ph.D -

Attitudes of Australian men and women toward the traditional, cultural sex role stereotypes.

Masters -

Punishment and locus of control.

Bachelors Honours -

Some similarities and some differences between the self image of the psychologists and their reflection in fictional literature.
Some effects of three behaviour modification techniques on severely retarded behaviours in children.
The contact boundary in gestalt therapy. Some insights and recommendations.
Attribution of source of uncontrollability and learned helplessness in human subjects.
The work vs. freeloading choice in humans.
A learned helplessness interpretation of the prisoner syndrome.

DEPARTMENT OF SOCIOLOGY

General

In 1977 the Department introduced new courses at 300-level, which are intended as a range of options which capitalise on staff specialist interests, build on the core coursework of first and second years but round off the pass level sociology major course sequence.

Facilities and Equipment

Facilities available comprise only office space, a store and some priority of access to a Seminar room. These facilities are seriously inadequate for mounting our full research and teaching programme - as we have no methodology/research/data collection space available: this problem is more serious in 1978 and expected to be a serious limitation in 1979.

Equipment purchased during the year was primarily to build up our sociological recording resources, particularly for photographic recording; in addition both video and audio tape stocks were further developed; Portapak video equipment ordered in 1976 arrived early in 1977 and was integrated into our methodology teaching programme.

Research

Earlier work on the bridging of empiricist and phenomenological perspectives in sociology was developed in relation to the secondary socialization of scientists, and their learning of the criteria of objective meaning in scientific knowledge; it was also integrated into work on mission-orientation in science, in the fields of pharmaceutical and solar energy research. Research on the theory of the dialectic in social science, is being done and is of direct relevance to the establishment of epistemological and metatheoretical perspectives that underscore the more pragmatic research which flows out of, and tests these perspectives. Work continues in military sociology on the social support for soldiers being prepared to act in military combat. Work has been initiated on the sociology of the Sufi belief system.

Other research deals with the WUSC Subject Catalogue Study; the training and employment of psychologists in Australia; a community study of the Mt. Kembla village; the effectiveness of migrant education television in Australia; the productivity of scientists; science and technology in developing countries.
Research Theses being Undertaken with the Department were:

Ph.D -

A contrast of the sociological premises of knowledge in science vs. the occult
Goals and mission-orientation in science.
Sociological impact and conditions for establishment of the motor car industry in Australia.
Sociology of migration.
Consumer communication and purchasing behaviour.
RESEARCH INTERESTS AND PUBLICATIONS

FACULTY OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

Research Interests

- Load Distribution in Orthotropic Bridge Decks.
- Dynamic Behaviour of Elastic Plate Systems.
- Road Materials Research - Skid Resistance.
- The C.C.T.V. Camera as a Research Tool.
- Stress Analysis Using Holography.
- The Analysis of Stress Distribution Produced at Abrupt Changes in Section.
- The Investigation of Curvature Produced in Plates with Edge Loading Using Moire Fringe Techniques.
- The Analysis of Whole Stress Fields under Impact Conditions.
- Experimental Analysis of Structures.
- The Development of High Speed Photographic Techniques.
- Identification of System Dynamic Characteristics by Cross Correlation Analysis.
- Stability of Natural Slopes.
- Finite Element Applications in Geomechanics.
- Soil Anisotropy.
- Temperature Wave Method Applied to Determining Fracture Toughness.
- Hydrology of the Storm Rainfall-Runoff Process.
- Mathematical Modelling of a Hydrologic System.
- A Computerised System for the Design of Prestressed Multispan Box Girder Bridges.
- Cracking and the Rigidities of Concrete Multicellular Bridge Decks.
- The Use of Granulated Slag in Concrete.
- The Use of Granulated Slag in Asphaltic Surfacing.
- Transport requirements in the Municipality of Shellharbour.
- Preparation of Noise Level Maps.
- Planning and Design of Buildings for Comfort.
- Non-Linear Analysis of Box-Type Structures by Special-purpose Finite Element Techniques.

Publications


Conference Papers -


DEPARTMENT OF ELECTRICAL ENGINEERING

Research Interests

Automatic control.
Plant identification.
Electrostatic precipitation.
Static converters.
Electrical machines.
Computer systems.
Reliability techniques.
Large-scale systems.
Communications.
Computer-aided analysis and design.
Transportation.

Publications


Conference Papers


DEPARTMENT OF MECHANICAL ENGINEERING

Research Interests

Determination of flow properties of bulk solids.
Dynamic analysis and optimization of bulk handling systems.
Flow of granular materials.
Design of bins for bulk solids.
Computer simulation.
Process modelling and control.
Random signal analysis and stochastic processes.
System identification studies.
Computer aided control system design.
Multivariable control system theory and design.
Some applications of solar energy.
Boiling heat transfer.
Exhaust emissions from internal combustion engines.
Propagation of waves in small bore tubes.
Treatment and disposal of industrial effluents.

Publications


Conference Papers


Higher Degree Theses

G.J. Montagner (Ph.D.). "Identification and optimisation of the bulk granular materials handling systems".
R. Smith (M.Eng.Sc.). "The application of computers to the prediction of wall loads in mass flow bins".

Other papers

P.E. Wellstead, G.J. Montagner & S. Crale. "A self adaptive model for the prediction of blast furnace hot metal production and quality" Control Systems Centre Report No. 403, UMIST, P.O. Box 88, Manchester, U.K.


DEPARTMENT OF METALLURGY

Research Interests

Deformation and fracture at elevated temperatures, with particular reference to multiphase materials.
Solidification of metals.
High temperature calorimetry.
Development of precision testing equipment for studies of metal deformation in uniaxial and biaxial tension.
Analysis and structural interpretation of plastic behaviour in metals.
Studies of transformations in various alloys having the property that shape deformation by loading at some appropriate temperature is recovered by heating at some higher temperature (shape memory alloys).
Metallographic studies of alloys of commercial importance.
Studies of the structures developed in metals by recrystallisation, with particular reference to rapid recrystallisation.
Studies of flow phenomena in packed beds.

Publications


DEPARTMENT OF ENGLISH

Research Interests

Old English language and literature.
Middle English language and literature.
Early-Tudor literature.
Elizabethan literature.
Early seventeenth century literature.
The works of James Joyce.

Publications


Raymond Southall. Literature, the Individual and Society. Lawrence & Wishart, London.


DEPARTMENT OF EUROPEAN LANGUAGES

Research Interests

19th and 20th century French novel and theatre.
Literature, painting and film in 20th century France.
The "Nouveau Roman".
Linguistics applied to the teaching of French as a second language.
Intonation analysis.
Audio-visual methods in the teaching of French.
Italian "verismo": 19th century realism (Verga, Capuana, De Roberto).
Pedagogical aspects of teaching Italian.
Italian-American "teatro populare".
Publications


Conference papers


Other Publications


V.J. Cincotta. Editor of revised tape text (Units 1, 2, 3) A L M Italian, level one, second edition, Harcourt Brace Jovanovich, Australia, 1977.

DEPARTMENT OF HISTORY

Research Interests

19th and 20th century English social and political History.
French History from 1650.
Russian History from 1825.
Religious History in Australia and Modern Britain.
Industrial, Trade Union and socio-political history of Australia.
Modern South East Asian history.

Publications


A.M. Healy. "Role of Prospectors in New Guinea Culture Contact"


Conference Papers


DEPARTMENT OF HISTORY AND PHILOSOPHY OF SCIENCE

Research Interests

Early 19th century British philosophy of science.
Women and science.
The history of evolutionary biology.
Social relations of science in the 19th and 20th centuries.
19th and 20th century genetics.

DEPARTMENT OF PHILOSOPHY

Research Interests

Interpretation and evaluation of Kant's critical philosophy.
Philosophical logic, with special reference to existence and truth.
Legal and political obligation and its basis.
Aesthetics of Benedetto Croce.
Private enterprise based social philosophy.
Philosophy of mind.
Marxism.
Anarchism.
The liberal theory of the state.
Self-determination and secession ethics.
The concept of privacy and the right to privacy.
Identity and criteria.
Mathematical logic - its history, development and applications.
Probability and its theoretical interpretation.
Induction.
Responsibility, with reference to action, motive and intention.
Issues arising from the Catholic doctrine of double effect.
Contemporary aspects of Thomistic thought.
The ethical evaluation of the life and teachings of Jesus.

Publications


Conference Papers


Other Publications


Research Interests

Numerical analysis.
Matrix analysis.
Oceanography.
Nuclear reactor theory.
Computer science.
Statistical decision theory.
Probability.
Operations research.
Functional analysis.
Measure theory.
Abstract algebra.
Logic.
Set theory.
Topology.
Continuum mechanics.
Non-linear partial differential equations.

Publications


Conference Papers


Other Papers


Research Interests

**Microbial Water Relations**
Metabolic regulation in response to environmental stress. Cellular mechanisms of retention of "compatible solutes" at high concentrations.

**Photosynthesis**
Chloroplast function and energy transfer within the plant cell.

**Environmental Animal Physiology**
Temperature regulation. Thyroid function in vertebrates. Hormones and metabolism.

**Ecology**
Ecological and behavioural mechanisms regulating spacial and temporal patterns of population distribution. Theoretical and mathematical ecology.

Publications


Conference Papers

Research Interests

Information retrieval from computer-based libraries of mass spectral and other data.
Applications of computer controlled mass spectrometers to analytical problems.
Investigation of the role of ozone and its metastable cyclic conformer in atmospheric phenomena.
Quantum Theoretical search for potential high energy chemical lasers.
Prediction of the electronic structure and properties of transition metal complexes in crystalline and biological environments.
Spectroscopic investigation of simple transition metal complexes in crystals at cryogenic temperatures.
Development of sensitive new analytical methods for organic nitrogen compounds and nitrogen oxides.
Use of peroxides for wastewater treatment.
Development of computerised feed forward control systems for cyanide, sulphide, phenols and other contaminants.
Surface chemistry of iron oxides.
Isolation and structure elucidation of alkaloids from a New Guinean plant.
Synthetic modification of tylocrebrine, an antileukaemia agent.
Synthetic approaches to brain-active drugs.
Trace analysis especially related to electrochemical techniques.
Solvent effects in acid-base studies.
Thermodynamics of non-reacting systems involving high temperature calorimetry.
The Application of Chemical Ionization Mass Spectrometry to the analysis of biological fluids.
The determination of absolute configuration of asymmetric molecules by gas chromatography and mass spectrometry.
The sequencing of tryptic peptides by Cathespin "C" and mass spectrometry.
Absorption studies on supported metal catalyst systems.
Exchange reactions on heterogeneous catalysts.
Detector systems based on specificity of heterogeneous catalysed reactions.
Variable temperature (4-300°K) Magnetochemistry of First Row Transition Metal Polynuclear Complexes.
Structure and Properties of oxygen carrying transition Metal Complexes.
Structure and Properties of Transition Metal Complexes of Polydentate Schiff Base Ligands.
A Study of the Infrared Spectra of Transition Metal Complexes using the Metal Isotope Substitution Method.
Variable Temperature (4-300°K) Magnetochemistry of Polynuclear Transition Metal Complexes.
Structure and Properties of Lanthanide Schiff Base Complexes.
Publications


E.M. Boge, G.M. Mockler & E. Sinn. "Crystal and molecular structure of pyridine and 3-methylpyridine adducts of{N,N'-Bis[5-chloro-2-hydroxyphenyl)methylene]-4-thiaheptane-1, 7-diaminato}Cobalt(II) and Nickel(II)." Inorg. Chem. 16 (1977), 467.

E.M. Boge, D.P. Freyberg, E. Kokot, G.M. Mockler & E. Sinn. "Five and six coordinated Cobalt(II), Nickel(II), Copper(II) and Sinc(II) complexes of the pentadentate Schiff Base Ligands N,N'-Bis[2-hydroxy-5-Y-phenyl)-phenylmethylene]-4-azaheptane-1, 7-diamine (Y= chloro, methyl) and N,N'-Bis 5-chloro-2-hydroxyphenyl)phenylmethylene)-4-thiaheptane-1, 7-diamine". Inorgan. Chem. 16 (1977), 1655.


Conference Papers


P.G. Burton. 32nd Molecular Spectroscopy Conference, Columbus, Oh. U.S.A. 13.6.77-17.6.77.


DEPARTMENT OF GEOLOGY

Research Interests

The geology of coal measures.
Rock magnetism and related geophysical phenomena.
Textures and petrochemistry of igneous and metamorphic rocks.
Invertebrates of the Early and Middle Palaeozoic of Australasia.
Terrestrial and shallow marine sedimentology.
Igneous petrology of the Illawarra district.
Organic geochemistry.
Economic and environmental geology.
Geothermal properties.

Publications


DEPARTMENT OF PHYSICS

Research Interests

Astronomy - Visible and Infrared.
Experimental Nuclear Physics.
Infra-red Detectors.
Musical Acoustics.
Scattering of Light by Solids.
Solid State Spectroscopy of Impurities in Semi-Conductors.
Studies of Electronic Wave Functions in Solids.

Publications


Research Interests

Accounting theory construction and verification.
Administrative law.
Analysis of Australian company financial reporting practices.
Behavioural aspects of management information systems.
Business finance.
Business objectives.
Capital and profit concepts, including cost and value concepts, and their measurement.
Capital expenditure decision-making.
Constitutional law.
External reporting in the extractive industries.
History and development of accounting thought.
Interfirm comparisons.
International accounting.
Learning curve.
Small business management.
Statements on accounting standards by professional bodies, and other means of improving accounting practice.
Taxation.
The use of computers in accounting, auditing and business decision-making.
Trade practices and consumer protection.

Publications


Research Interests

Industrial economics.
Urban and regional studies.
Economic development.
Economics of migration.
Labour economics.
Monetary economics.
Natural resource economics.
International economics.

Publications


Other Papers

K.A. Blakey et al. Submission to the Committee of Inquiry into Education and Training appointed by the Commonwealth of Australia, for the Illawarra Regional Advisory Council, Department of Decentralisation and Development Government of New South Wales, 30th March, 1977.


DEPARTMENT OF EDUCATION

Research Interests

Classificatory ability in Australian children.
Cognitive development of minority groups.
Convergent, divergent and operational thinking among white and Aboriginal children.
Curriculum studies and development.
Effects of mass media on children.
Enrichment programmes for disadvantaged preschoolers.
Schooling and social class.
Socialization of children, migrants and minority groups.
Educational administration.
Organizational behaviour.
Open education.
Work preparation of the mildly mentally retarded.
Migrant education through the media.

Publications


A.J. Fielding. Contributions to chapters 1, 2 & 9 in Teacher Training: Anticlimax to Education?


DEPARTMENT OF GEOGRAPHY

Research Interests

Transport systems analysis.
Agricultural geography.
Coastal geomorphology.
Fluvial geomorphology.
Urban studies.
Biogeography.
Population studies.
Regional development and planning.
South-east Asian studies.
Publications


Other Publications


DEPARTMENT OF PSYCHOLOGY

Research Interests

Accidents in industry - psychological and physical factors.
Achievement motivation.
Action research and organizational development in industry and other organizations.
Attitudes.
Autonomic components of the orienting reaction.
Classical and instrumental autonomic conditioning.
Decision and risk taking.
Disadvantaged children.
Gestalt therapy.
Human learning.
Intensive groups.
Personnel - selection and placement.
Prediction of academic success.
Psychophysiology of the autonomic nervous system.
Sex roles.
Social psychology of industry.
Student guidance and counselling services.
Time perception.

Publications


DEPARTMENT OF SOCIOLOGY

Research Interests

Knowledge and Theory
The sociology of knowledge.
The development of "interpretive" sociological theory and research.
The dialectic in social theory.
The cultural location of Eastern and Western knowledge systems.

Sociology of Science
Development of an "interpretive" sociology of science.
Mission-orientation.
Professional socialisation.
Research communication and production.
The impact of science and technology on industry and society.
Science, technology and developing countries.

Social Process
Self concept development and socialisation theory.
Interaction and small group behaviour.
Sociology of conflict.

Social Phenomena
Sociology of organisations.
Professions - established vs. marginal.
Consumer behaviour.
Sociology of migration, migrant integration and education.
Military sociology.
Religion, ideology and belief systems.
Publications


Conference Papers


The Students' Representative Council participated in the activities of the National Students' Union (The Australian Union of Students), maintaining close links with the N.S.W. region of A.U.S. in particular.

Important student welfare issues, such as Tertiary Education Allowance, Women's Issues and the possibility of various education cut-backs, invoked considerable action.

Internally, the S.R.C. strove for an increase in student participation in the governing bodies of the University. Student participation in both University Council and University Senate was encouraged. Student representation on departmental committees and faculty was also encouraged.

Unfortunately, students often failed to take advantage of the opportunities awaiting them for an increased voice in the operation of the education system which so clearly effects them.

Although the S.R.C. attempted to open students' eyes to the importance of having constructive student representation on various University Committees, it would appear that it was partly hampered by a definite lack of adequate facilities to achieve such awareness. Members of the S.R.C. have commented that considerable academic work loads and difficulty of access to the Union building during weekends may have reduced the time available for S.R.C. duties.

A major decision, a result of a General Meeting of Students, was to pay an editor from 1978 onwards. A paid editor results in increased communication between the S.R.C. and students, and an overall better student newspaper. Thus this year has seen a marked improvement in both the quality and the quantity of "Tertangalas".

Throughout 1977, meetings between the S.R.C. executive and "Central Administrative Officers" occurred monthly. These meetings provided valuable and constructive communication between students and administration. Significant issues, such as the Student Discipline By-Laws were discussed at these meetings. Fortunately, this important and essential link has continued throughout 1978.
GRANTS AND DONATIONS

SPECIAL PURPOSE FUNDS

Australian Institute of Nuclear Science and Engineering
- Removal of Soluble Organic Compounds from Aqueous Effluents by Radiation Induced Co-polymetisation with Polyelectrolytes $200

Australian Education Research & Development Committee
- Precis - Its Applicability for the Subject Catalogue in an Academic Library - 1976 $794

Australian Iron & Steel P/Ltd.
- Automatic Monitor & Forward Feed Controller (Water Research Account) $5,000

Australian Hospitals & Health Services Commission
- Grant for Survey to Psychological Manpower in Australia $500

Bulk Solids Handling
- Mechanical Engineering $908

Comalco Ltd.
- Donation Towards Bourke Pre-School $4,000

Department of Aboriginal Affairs
- Bourke Pre-School $19,873

Department of Education
- Evaluation of Effectiveness of the Migrant Education Television Programme $51,785

Department of Tourism
- Study of Illawarra Tourism $2,000

Electrical Research Board Grants
- Control of Large Scale Systems $750

Geology & Petrophysics Research
- Geology $251

Learning Environmental Research
- Education $2,000

National Coal Research Advisory Committee
- Use of Coal $633

National Health & Medical Research Council
- Application of GC-MS and Related Techniques to the Study of Inborn Errors of Metabolism $20,414
- Screening for Metabolic Disorders by Gas Liquid Chromatography & Mass Spectrometry $6,500

New South Wales Ministry of Education
- Compilation of the History of the A.C.T.U. $8,933
| Organisational Development and Job Satisfaction | Psychology | $1,740 |
| Photographic Study of Antarctica Its Landforms & Their Development | Geology | $327 |
| Sundry Donations for Research | Accounting | $25 |
| | Chemistry | $350 |
| | Civil Engineering | $32 |
| | Economics | - |
| | Electrical Engineering | $729 |
| | Mathematics | $683 |
| | Metallurgy | $1,010 |
| | Sociology | - |
| Vice-Chancellor's Special Research | Water & Natural Slope Instability | $4,000 |
| | Siltation in Coastal Rivers of New South Wales | $1,000 |
| | Use of Peroxide in Waste Water Treatment | $3,000 |
| Wollongong City Council | Study of Leachate at the Russell Vale Waste Disposal Depot | $354 |
| Australian Research Grants Committee | Clarification and Detoxification of Effluent Water from the Steel Industry | $2,026 |
| | Combining Flow of Fluids in Packed Beds | $1,118 |
| | Influence of the Chemical Environment on the Bonding Spectra and Reactivity of Molecules in Condensed Media | $1,000 |
| | Investigations Concerning Natural Slope Stability | $2,500 |
| | Metabolite Fluxes Across Chloroplast Envelope Membrane | $818 |
| | Photosynthesis and Osmoregulation in Marine Algae Isolation and Study of Chloroplasts from Dunaliella | $7,836 |
| | Sedimentological Investigation of the Pertnjara Group Amodes Basin | $678 |
SPECIAL PURPOSE FUNDS (cont'd)

Australian Research Grants Committee (cont'd)

Solid State Spectroscopy Electronic and Vibrational Spectra of Solids

Thermodynamic Studies of Solute Retention by Micro-organisms

Wave Analysis for the East Australian Coast

SPECIAL PURPOSE FUNDS - OTHER

Donations to Geology

Donations to Geography

Library Appeal Fund

Wollongong University Appeal Fund

DONATIONS FOR SCHOLARSHIPS, BURSARIES, PRIZES, ETC.

Ampol Award for Graduate Students

Mathematics Prize Fund

Wollongong University Prize Fund

Metal Manufacturers
Metallurgical Society
Commonwealth Bank
Australian Iron & Steel
Australian Institute of Metals
G.W. Daniels
Dept. of Education
Gina Savage
Australian Institute of Mining and Metallurgy
A.W. Brown
Institute of Engineers
Australian Psychological Society
Australian Society of Accts.

$90
$35
$185
$214
$3,000
$151
$25
$20
$30
$30
$40
$20
$32
$50
$100
$30
$50
$100
$150
FINANCIAL STATEMENT

FINANCES

A brief summary of the accounts of the University for 1977 is set out below.

Since the 1st January, 1974, Australian Government Grants to Universities have been subject to supplementation based on various indices. This has had the following effect on the various grants to this University.

RECURRENT FUNDS

The 1977 grant to the University as recommended by the Universities Commission and accepted by the Government was $7,385,000. With supplementation this was increased to $8,781,000.

SPECIAL RESEARCH GRANT

The 1977 grant to the University as recommended by the Universities Commission and accepted by the Government was $48,000. With supplementation this was increased to $57,000.

EQUIPMENT GRANT

The 1977 grant to the University as recommended by the Universities Commission and accepted by the Government was $640,000. With supplementation this has been increased to $781,000.

BUILDING PROJECT GRANTS (INCLUDING MINOR AND SITE WORKS)

The 1977 grant to the University as recommended by the Universities Commission and accepted by the Government was $348,000. In addition the University received $115,048 to cover costs incurred as a result of the deferred 1977 to 1979 building programme.
### 1977 Recurrent Income and Expenditure

#### Source of Income

<table>
<thead>
<tr>
<th>1976 Comparisons</th>
<th>Source of Income</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>7,114,000</td>
<td>Australian Government Grants</td>
<td>8,781,000</td>
<td>98.96</td>
</tr>
<tr>
<td>48,041</td>
<td>Other General Income</td>
<td>91,893</td>
<td>1.04</td>
</tr>
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<td></td>
<td>8,872,893</td>
<td>100.00</td>
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#### Expenditure Headings

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<thead>
<tr>
<th>1976 Comparisons</th>
<th>Expenditure Headings</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,968,889</td>
<td>Salaries and Staff Changes</td>
<td>7,201,930</td>
<td>80.68</td>
</tr>
<tr>
<td>789,095</td>
<td>Maintenance Expenses</td>
<td>1,256,981</td>
<td>14.08</td>
</tr>
<tr>
<td>159,457</td>
<td>Furniture &amp; Library Books</td>
<td>467,275</td>
<td>5.24</td>
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<td></td>
<td></td>
<td>8,926,186</td>
<td>100.00</td>
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</tbody>
</table>

#### Aggregate Funds

During 1977 income received from all sources totalled 10,781,124 while aggregate expenditure amounted to 10,952,533.

Aggregate income was received from the following sources:

<table>
<thead>
<tr>
<th>1976 Comparisons</th>
<th>Source of Income</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>24,527</td>
<td>State Government Grants</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>Building Projects</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>Equipment</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>Special Research</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>24,527</td>
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<td>-</td>
<td>-</td>
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</table>
### 1976 Comparisons

#### Source of Income

<table>
<thead>
<tr>
<th>1976 Comparisons</th>
<th>AMOUNT</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Government Grant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>8,781,000</td>
<td>-</td>
</tr>
<tr>
<td>Building Projects</td>
<td>463,048</td>
<td>-</td>
</tr>
<tr>
<td>Equipment</td>
<td>781,000</td>
<td>-</td>
</tr>
<tr>
<td>Special Research</td>
<td>57,000</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>10,082,048</td>
<td>93.52</td>
</tr>
<tr>
<td>Special Purpose Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>165,060</td>
<td>-</td>
</tr>
<tr>
<td>Scholarships, Prizes, etc.</td>
<td>3,892</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>438,231</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>607,183</td>
<td>5.63</td>
</tr>
<tr>
<td>Other General Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>91,893</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td>10,781,124</td>
<td>100.00</td>
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</tbody>
</table>

#### Expenditure Headings

<table>
<thead>
<tr>
<th>1976 Comparisons</th>
<th>AMOUNT</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and Staff Charges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>7,201,930</td>
<td>-</td>
</tr>
<tr>
<td>Special Research</td>
<td>57,892</td>
<td>-</td>
</tr>
<tr>
<td>Special Purpose - Research</td>
<td>134,689</td>
<td>-</td>
</tr>
<tr>
<td>Special Purposes - Other</td>
<td>60,524</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>7,455,035</td>
<td>68.07</td>
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94
<table>
<thead>
<tr>
<th>1976 COMPARISONS</th>
<th>EXPENDITURE HEADINGS</th>
<th>AMOUNT</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New Buildings (Including Sites)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grants for Building Projects, etc., Under States Grants (Universities) Acts</td>
<td>513,836</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Special Purposes - Other</td>
<td>78,054</td>
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</tr>
<tr>
<td></td>
<td>1,022,807</td>
<td>591,890</td>
<td>5.40</td>
</tr>
<tr>
<td></td>
<td>Maintenance</td>
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<td></td>
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<tr>
<td></td>
<td>Recurrent</td>
<td>1,256,981</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Special Research</td>
<td>21,779</td>
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<tr>
<td></td>
<td>Special Purposes - Research</td>
<td>22,984</td>
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</tr>
<tr>
<td></td>
<td>Special Purposes - Other</td>
<td>83,988</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,002,250</td>
<td>1,385,732</td>
<td>12.65</td>
</tr>
<tr>
<td></td>
<td>Equipment, Furniture &amp; Library Books</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recurrent</td>
<td>467,275</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Special Research</td>
<td>2,901</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grants for Equipment</td>
<td>964,053</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Special Purposes - Research</td>
<td>22,224</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Special Purposes - Other</td>
<td>63,423</td>
<td></td>
</tr>
<tr>
<td></td>
<td>843,567</td>
<td>1,519,876</td>
<td>13.88</td>
</tr>
<tr>
<td></td>
<td>Total Expenditure</td>
<td>10,952,533</td>
<td>100.00</td>
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</tbody>
</table>

95
## AGGREGATE FUND BALANCES

<table>
<thead>
<tr>
<th>SOURCE OF FUNDS</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent Funds</td>
<td>87,002 DR</td>
</tr>
<tr>
<td>Special Research Grants Under the States Grants (Universities Assistance) Act 1976</td>
<td>5,283 DR</td>
</tr>
<tr>
<td>Grants for Equipment Under States Grants (Universities Assistance) Act 1976</td>
<td>14,542 DR</td>
</tr>
<tr>
<td>Special Purpose Funds (Research)</td>
<td>83,100</td>
</tr>
<tr>
<td>Special Purpose Funds (Scholarships, Bursaries, Prizes, Etc.)</td>
<td>6,349</td>
</tr>
<tr>
<td>Special Purpose Funds (Other Purposes)</td>
<td>758,982</td>
</tr>
<tr>
<td>Australian Research Grants Committee Projects</td>
<td>2,522</td>
</tr>
<tr>
<td>Sundry Suspense Accounts</td>
<td>4,166</td>
</tr>
<tr>
<td>Sundry Creditors</td>
<td>510,133</td>
</tr>
<tr>
<td></td>
<td>$1,258,425</td>
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</tbody>
</table>