The Honourable David Paul Landa, LL.B., M.L.C., 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, 1980.

Chancellor.

Vice-Chancellor.

ANNUAL REPORT 1980

21st August, 1981.
# TABLE OF CONTENTS

## VICE-CHANCELLOR'S STATEMENT

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductory Statement</td>
<td>1</td>
</tr>
<tr>
<td>The Council</td>
<td>1</td>
</tr>
<tr>
<td>The Academic Senate</td>
<td>2</td>
</tr>
<tr>
<td>Academic Activities</td>
<td>3</td>
</tr>
<tr>
<td>Enrolments</td>
<td>4</td>
</tr>
<tr>
<td>Building Programmes and Site Development</td>
<td>4</td>
</tr>
<tr>
<td>Conclusion</td>
<td>4</td>
</tr>
</tbody>
</table>

## UNIVERSITY FACILITIES AND SERVICES

<table>
<thead>
<tr>
<th>Facility</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Library</td>
<td>4</td>
</tr>
<tr>
<td>Computer Centre</td>
<td>5</td>
</tr>
<tr>
<td>Union</td>
<td>5</td>
</tr>
<tr>
<td>Sports Association</td>
<td>6</td>
</tr>
<tr>
<td>Counselling Centre</td>
<td>6</td>
</tr>
<tr>
<td>Education Resources Centre</td>
<td>7</td>
</tr>
</tbody>
</table>

## STUDENT ACTIVITIES 1980

<table>
<thead>
<tr>
<th>Activity</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students' Representative Council</td>
<td>7</td>
</tr>
</tbody>
</table>

## STAFF AND STUDENT STATISTICS

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointments, Resignations and Promotions</td>
<td>8</td>
</tr>
<tr>
<td>Full-time Staff</td>
<td>10</td>
</tr>
<tr>
<td>Enrolments</td>
<td>12</td>
</tr>
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## DEGREES CONFERRED

<table>
<thead>
<tr>
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<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>

## ACADEMIC ACTIVITIES - 1980

### Faculty Reports

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Engineering</td>
<td>23</td>
</tr>
<tr>
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<td>30</td>
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<tr>
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</tr>
<tr>
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<td>38</td>
</tr>
<tr>
<td>Faculty of Social Sciences</td>
<td>45</td>
</tr>
<tr>
<td>Centre for Multicultural Studies</td>
<td>52</td>
</tr>
</tbody>
</table>

## RESEARCH INTERESTS AND PUBLICATIONS

<table>
<thead>
<tr>
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<th>Page</th>
</tr>
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<td>Faculty of Engineering</td>
<td>53</td>
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<tr>
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## FINANCIAL STATEMENT

<table>
<thead>
<tr>
<th>Statements</th>
<th>Page</th>
</tr>
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<tr>
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## GRANTS AND DONATIONS

<table>
<thead>
<tr>
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<th>Page</th>
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<td>Grant</td>
<td>93</td>
</tr>
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</table>
THE UNIVERSITY OF WOLLONGONG

ANNUAL REPORT - 1980

Vice-Chancellor's Statement

The planning and review process described in our Annual Reports for 1978 and 1979 continued in 1980.

Following consideration of the Reports of three Working Parties on the admission of students and academic programmes, the development of University research and postgraduate training and the University and its region, the University Council endorsed the following goals for the period 1981-84:

(i) the attraction of more students to the University through improvements in the academic programmes;

(ii) the fostering of the development of more effective research and postgraduate training;

(iii) the identification of what needs to be done by the University to give positive encouragement to the development of closer links between the University and the community.

In addition, the Council is examining a statement of the long term objectives of the University.

During 1980, it became apparent that a full and formal association between the University and the Institute of Education would be the most educationally and economically desirable course of action. In November, the proposed federation was endorsed in principle by the governing bodies of the two institutions and a detailed statement of the arrangements is being prepared.

A further development undertaken in 1980 was the launching of the 'Friends of the University of Wollongong' - an organisation whose aim is to promote external support for the University. It is noted that membership of the 'Friends' will be drawn from business, trade union, and local professional and community circles, as well as from interested individuals in the local region, in Sydney, and interstate.

Several reviews of existing activities were also initiated during this period. In addition to the reviews of academic departments, the University commenced reviews of its Library, Central Administration and Workshops.

The Council

Council held six meetings in 1980, and, as at 31st December, its membership comprised:
The Academic Senate

At its ten meetings held during 1980 the Academic Senate considered all course and subject developments proposed for 1981, as well as a wide range of other issues relating to academic affairs within the University.
The work of the Academic Senate as academic advisory body to the University Council was assisted by the establishment of the Standing Committee of Senate which met for the first time in May, and on a further sixteen occasions throughout the year. The new arrangements have proved highly effective as a means of co-ordinating the academic work of the University.

Academic Activities

Following endorsement by the Academic Senate, departments were urged to use a common format for teaching evaluation. For most departments the relevant practice is to issue to students at the end of each academic session a questionnaire seeking opinions regarding subject content and the teaching of the subjects concerned.

On Thursday, 1st May and Friday, 2nd May three graduation ceremonies were held in the University Union Hall. A total of 387 degrees were conferred. The University was honoured to hear three distinguished guests deliver the occasional addresses at the 1980 ceremonies: Sir Ian McLennan, Chairman of the Australian and New Zealand Banking Group Ltd., and the former Chairman of B.H.P., Professor Noel Dunbar, Chairman of the Universities Council; and Professor Peter Elkin, Head of the Department of English of the University of New England, all provided very stimulated comments.

On Friday, 18th July, another successful Schools Day was organised to assist the 500 senior high school students in attendance in making their respective choices for tertiary education. A range of introductory presentations were provided including formal lectures, films, and tours of departments. At various stages of the year the Schools Day was supplemented by schools liaison activities mounted by individual departments.

University Day, the anniversary of the first meeting of the Chancellor's Council, was celebrated on Friday, 8th August. The successful series of lectures which have been given to mark this occasion was continued by Mr. Evan Whitton, Editor of The National Times, who addressed an evening gathering on the subject 'The Relationship Between the Universities and the Community which supports them'.

During the year the University suffered a great loss of two of its most distinguished scientists: Associate Professor Evan Phillips and Professor Bert Halpern. Associate Professor Phillips joined the Department of Geology in 1968, and had twice served as Chairman of the Faculty of Science. His speciality was the study of granitic and gneissic rocks - a subject on which he published a number of journal articles and conference papers. Although Associate Professor Phillips had been in poor health for some years, his death at a comparatively young age came, nonetheless, as a great shock to all who had worked with him.

The sudden death of Professor Halpern in November deprived both the University and, indeed, the entire world of science of an outstanding researcher in the applications of chemistry to medical science. In mid-1978 the University had been proud to note the election of Professor Halpern as a Fellow of the Australian Academy of Science - one of the many honours bestowed upon him during his career. In placing on record its great respect for Professor Halpern's work Council noted also the considerable contribution made by the late Professor to the administrative development of the Wollongong University College and, later, to the University.
Enrolments

The number of total enrolments for 1980 was 2,871, 58 above the 1979 figure. The number of new enrolments at the University was 854, while EFTS stood at 2,178.

Building Programme and Site Development

The Social Science Building Stage 2 was completed in 1980 at a total cost of $2,599,000. The building was occupied in two stages, the North Wing in February 1980, and the East Wing in July 1980. External roadworks, pathways and landscaping were not completed until December 1980.

The continuing deferment of other major building projects is adversely affecting the development of teaching and research programmes. Some Science and Engineering Departments have, in relation to the present numbers of students and staff, quite inadequate areas in buildings which are unsuitable in design and facilities for current needs.

The difficulties experienced are compounded by the meagre grants ($172,000 in 1980) provided for Minor Building Projects; the only source of funds available for augmenting and upgrading existing facilities. Our relatively new campus remains "raw at the edges" and is likely so to continue for many years at present levels of funding.

Conclusion

The University moved into its seventh year with an immediate background of external review and intensive internal self-assessment made necessary in the late 1970s by the onset of a steady state situation in Australian tertiary education following years of expansion.

UNIVERSITY LIBRARY

During 1980 collection growth again continued at an acceptable pace and at the end of the year 22,794 volumes of monographs and serials had been added, including serial volumes in microformat. This has maintained the Library's record of adding at least 20,000 volumes each year over the last four years, figures from 1977 to 1980 being respectively 21,017; 22,431; 23,959 and 22,794. The whole collection now totals 202,499 volumes, still modest by comparative standards, but able to meet many of the requirements at least of teaching, if not research.

Statistics of Library use continued to be encouraging with an increase of 22.1% in interlibrary loans supplied by other libraries. To some extent this reflects the inadequacies of the existing collection within research fields insofar as interlibrary loans are available only to academic staff and honours, postgraduate, and higher degree students.

Co-operation with Macquarie University Library in a joint automated cataloguing system continued. Activities of the Office of Library Cooperation, a New South Wales initiative, were strongly supported.
THE COMPUTER CENTRE

The enhancement of resources was the main theme throughout 1980. Mass storage capacity was increased by some 40% as a product of a disc subsystem upgrade. Communications networking grew considerably with the acquisition of a Perkin-Elmer 3220 mini-computer, affording resources to facilitate the additional terminal clusters in the Central Terminal Laboratory. Most significant, however, was the mainframe upgrade to the Univac 1100/60, doubling available memory, offering faster processing and accommodating a greater growth potential over the older, saturated Univac 1106. The improvements in user accessibility and real computer power was reflected in the increased throughput.

By the end of the year over 100 terminals were configured on the system, with further growth planned for 1981, chiefly through the Perkin-Elmer 3220 interfaces.

THE UNION

All students and staff of the University are members of the Union which exists to provide a social centre for the campus and to promote a range of activities to complement the mainstream academic work of the University. The affairs of the Union are controlled by a Board of Management and in day to day matters, by the Secretary-Manager.

1980 was a year of consolidation for the Union, following the completion of several extensions and alterations to the Union Building in the previous year. However, one major innovation was the creation of a Women's Room, to provide a social area where women on campus would have the opportunity to meet to discuss informally matters of common interest and to obtain advice and information on a variety of welfare and legal matters.

The opening of new premises for the Parents' Club Children's Centre in August was a major development which at long last enabled "Kids' Uni" to operate in modern purpose-built facilities and thus provide an excellent preschool service for children of University members.

During 1980 the Union Board submitted a request to the N.S.W. Government for Union staff membership of the State Superannuation Scheme, but this was rejected on the grounds that Union staff were not employed by the University.

The Union was sad to lose Mrs. H. Susan Stevenson as Secretary-Manager (and the Executive Secretary of the Sports Association) in September after four years of valuable service. Mrs. Stevenson was granted Honorary Life Membership of the Union by the Board.

Mr. Geoffrey Williams was appointed as the new Secretary-Manager in October.
THE SPORTS ASSOCIATION

The Sports Association exists to provide a range of sporting and recreational activities for the University and all students and staff are full members of the Association.

In 1980 there were twenty-two constituent clubs of the Sports Association in which members can participate. These clubs cover most sporting activities as shown in the list below:

- Australian National Football
- Rugby Union
- Badminton
- Sailing
- Basketball
- Ski
- Cricket
- Soccer
- Hang Glide
- Squash
- Hockey (Men's)
- Surf Riders
- Hockey (Women's)
- Table Tennis
- Cricket
- Tae Kwon Do
- Hang Glide
- Tennis
- Hockey (Men's)
- Table Tennis
- Hockey (Women's)
- Touch Football
- Judo
- Tennis
- Motor Cycle
- Volleyball
- Netball
- Outdoors

The clubs compete in local competitions as well as annual inter-varsities at universities throughout Australia.

The Indoor Sports Centre was opened in 1980 - the formal ceremony being carried out by the Speaker of the Legislative Assembly of N.S.W., The Hon. Laurie Kelly in May - and this provided a major boost to the activities of several clubs.

Work continued on upgrading the playing fields and preparation of a major new oval near to the Sports Pavilion was commenced.

THE COUNSELLING CENTRE

During 1980 the University Counsellor provided an individual counselling service for students and staff. Research was conducted on the nature of first year students experience of university and a group of senior students were trained to facilitate "Resource Groups" which will assist first year students in their transition to university in 1981.

The Counselling Centre continued to oversee the Student Accommodation and Student Employment Services, both of which were extensively patronised by students.

The University's Medical Service also operates from the Counselling Centre and is serviced by interested local general practitioners. A total of 326 persons consulted the Medical Service's personnel during 1980, while 66 availed themselves of the Family Planning Clinic.
THE EDUCATION RESOURCES CENTRE

The Centre, which was established in August 1979, provides advice to academic staff on teaching methods and provides the University with audio-visual services. In 1980, following discussions aimed at improving the University's administration of conference and seminars, the Acting Head of the Centre was appointed Conference Liaison Officer.

Approval for three new staff positions late in the year gave hope that, in 1981, the Centre would be able to plan more effectively and expand its activities to meet the needs of staff and students.

Accommodation for full-time members of staff improved dramatically in July, when the East Wing of the Social Science Building was opened. For the first time since the inception of the Centre (and that of the Audio-Visual Unit which preceded it), it was possible to provide adequate storage, working space and reasonable working conditions.

The Centre continued to serve a wide variety of community organizations, not only by provision of assistance to conference and seminar convenors but by the provision of advice and other forms of help. Although such assistance was restricted by the amount of time staff members could give, all requests were met.

THE STUDENTS' REPRESENTATIVE COUNCIL

Although no major structural change occurred during the year, the internal administration of the S.R.C. was re-organised. The year 1980 was the first in which the period of office of the S.R.C. corresponded to the calendar year.

The funding of affiliated clubs and societies was increased significantly over the allocations of previous years, and several new clubs applied for affiliation with the S.R.C.

During 1980 the S.R.C. also began to take a greater interest in the needs of part-time and mature-age students, and has provided financial support for the child minding facility, "Kids' Uni", as a first step in fulfilling the needs of this rapidly growing section of the University community.
## APPOINTMENTS, RESIGNATIONS AND PROMOTIONS

### APPOINTMENTS

<table>
<thead>
<tr>
<th>Name</th>
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<th>Department</th>
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<td>Lecturer</td>
<td>History &amp; Philosophy of Science</td>
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<td>Dr. A. Dragun</td>
<td>Lecturer</td>
<td>Economics</td>
</tr>
<tr>
<td>Miss C. Strauh</td>
<td>Tutor</td>
<td>Sociology</td>
</tr>
<tr>
<td>Miss K. Hempsoll</td>
<td>Tutor</td>
<td>Geography</td>
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<tr>
<td>Mr. D. Davis</td>
<td>Lecturer</td>
<td>English</td>
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<tr>
<td>Dr. L.L. Viney</td>
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<td>Computing Science</td>
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<tr>
<td>Mr. J.H. Crabb</td>
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<tr>
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<tr>
<td>Mr. G.H. Kirkpatrick</td>
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<td>Mr. G.W. Price</td>
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<td>(retired)</td>
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<td>Tutor</td>
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<td>Mr. A.J.S. Partridge</td>
<td>Lecturer</td>
<td>Economics</td>
</tr>
<tr>
<td>Mr. B.A. Crozier</td>
<td>Tutor</td>
<td>History</td>
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<tr>
<td>Mr. D.J. Johnston</td>
<td>Tutor</td>
<td>Accountancy</td>
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<tr>
<td>Mr. J.C. Forge</td>
<td>Lecturer</td>
<td>History &amp; Philosophy of Science</td>
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<tr>
<td>Associate Professor</td>
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<td>E.R. Phillips</td>
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<td>Computing Science</td>
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<td>Senior Tutor</td>
<td>Economics</td>
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<td>Mr. S.C. Mares</td>
<td>Lecturer</td>
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<tr>
<td>Dr. A. Dragun</td>
<td>Senior Lecturer</td>
<td>Accountancy</td>
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<td>Mr. C.T. Heazlewood</td>
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<td>Professor</td>
<td>Sociology</td>
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<td>Ms. P.A. Brewer</td>
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<td>Education</td>
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<tr>
<td>Dr. A.W. McHoul</td>
<td>Lecturer</td>
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<td>Mrs. A.M. Tych</td>
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<tr>
<td>Mrs. J. Hiddlestone</td>
<td>Lecturer</td>
<td>Economics</td>
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<td>Mr. G.H. Kirkpatrick</td>
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### PROMOTIONS

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<tr>
<td>Dr. J. Kontoleon</td>
<td>Electrical Engineering</td>
<td>Reader</td>
<td>Senior Lecturer</td>
</tr>
<tr>
<td>Dr. I.M. McLaine</td>
<td>History</td>
<td>Senior Lecturer</td>
<td>Lecturer</td>
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<tr>
<td>Dr. F.S. Piggin</td>
<td>History</td>
<td>Senior Lecturer</td>
<td>Lecturer</td>
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<td>Dr. R.G. Dromey</td>
<td>Computing Science</td>
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<td>Dr. P.G. Laird</td>
<td>Mathematics</td>
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<td>Dr. R.M. Lilley</td>
<td>Biology</td>
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<td>Dr. D.E. Lewis</td>
<td>Economics</td>
<td>Senior Lecturer</td>
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<td>Dr. A. Basu</td>
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<td>Mr. P.F. Carr</td>
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<td>Mr. J.A. Land</td>
<td>Chemistry</td>
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UNIVERSITY STATISTICS

Full-time staff as at 30th April, 1980.

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| Building Planning and Maintenance Staff|       |         |       |
| Professional                           | 2     |         | 2     |
| Tradesmen                              | 16    |         | 16    |
| Other                                  | 6     | 2       | 8     |
| **TOTAL**                              | 24    | 2       | 26    |

| Other Services                         | 353   | 166.1   | 519.1 |
| Independent Operations                 | 8     | 10      | 18    |
| **TOTAL STAFF**                        | 361   | 176.1   | 537.1 |

<p>| Teaching and Research Staff            |       |         |       |
| Academic Activities                    |       |         |       |
| General Studies                        |       |         |       |
| Faculty of Humanities                  | 5     | 2       | 7     |
| Faculty of Engineering                 | 3     | 9       | 9     |
| Faculty of Mathematics                 | 2     | 2       | 7     |
| Faculty of Science                     | 4     | 3       | 13    |
| Faculty of Social Science              | 5     | 3       | 11.5  |
| <strong>TOTAL TEACHING-AND-RESEARCH</strong>        | 19    | 19      | 47.5  | 76.5  | 16 | 12 | 190 |</p>
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Enrolments to 30th April, 1980.

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Bachelor Degree Courses

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DEGREES CONFERRED

The following candidates were admitted to degrees of the University of Wollongong by the Chancellor at Graduation Ceremonies held on Thursday, 1st May, and Friday, 2nd May, 1980.

Bachelor of Arts

Jo-Anne Baker
Lee Anne Barham
Julie Barningham
Mark James Baxter
John Bayliss
Susanne Jane Blackstock
Karen Anne Blewitt
Isabel McCance Brown
Kay Bunn
Suzanne Maree Burford
Bernice Patricia Burgess
Ronald John Carne
Angela Chan
John Charles Chapman
Cheryl Magdalene Chenery
Philip James Church
Patricia Anne Clarke
Helen Maree Connor
Therese Mary Constable
Trevor Steven Coombes
Patricia Rae Cooper
Philip Francis Cox
John Graham Currie
Linda May Curry
John Edward Clarence Daley
Raymond Garth Davies
John Stephen De Agnoli
Susan Josephine Dennison
Christopher Maxwell Diment
Darelle Gay Duncan
Anthony Owen Dwyer
Norah Ellen Dwyer
Neville John Erskine
Julie Dorothy Evans
Ian Kenneth Faragher
Wendy Faricy
Paul Dominic Fazzolare
Sigrid Felus
Deborah Joy Foreman
Colin Anthony Fraser
Graeme John Freedman
Narelle Gai Furlong
Robert Lloyd Gallagher, BSc(Tech) N.S.W.
Janelle Maree Geraghty

Lorraine Gibson
Susan Joy Gilroy
Tania Tatiana Gluvchinsky
Catherine Marie Golding
Sandra Lynne Goodie
Colin David Hadfield
Andrea Haigh
Phillip Lewis Halstead
Alison Louise Harman
Bronwyn Leigh Harmer
Katherine Harney
Joy Myree Harris
Phillip James Heath
Corinne Jane Hill
Janice Margaret Jarvis
Helen Rose Jayasingha
Michael Austin John
Keith Thomas Johns
Sonia Maree Jurgens
Brian Khin Maung Gyi
Deborah May Klepzig
Cheryl Jean Alison Knell
Michael John Kokot
Christine Robyn Langley
John Leonard Larkin
Michael John Larkings
Bronwyn Anne Lee
Garry Arthur Lee
Michael Peter Long
Elizabeth Gae Lyons
Pauline Lysaght
Carolyn Maddeford
John George Mandl
Amanda Lee Martin
Erminio Anthony Mattesich
Robyn Louise Matthews
Pauline Jane McInerney
Lorraine Anne McIntyre
June Greta Mills
Penelope Jane Mills
Elizabeth Minns
Josephine Maria Mizzi
Jane Misticia Montgomery
Helen Ann Moore
Robyn Alison Morison
Bachelor of Arts Graduates (Cont’d.)

Geoffrey James Morrell
Jan Louise Maxon
Barry Michael Myler
Lina Niko
Jonathan Freeman Nott
Jeffrey Joseph O’Brien
Gerald O’Neill
Maret Oser
Enrichetta Antonia Parolin
Carolyn Heather Peady
Gary Polis
Carmelo Pollicina
Richard Kim Thomas Porter
Robert George Preston
Darinka Radinovic
John David Rava
Lynelle Gloria Rava
Janet Edelle Rees
Kristina Elizabeth Rennig
David Phillip Richardson
Karen Lois Roberts
Kathleen Frances Roberts
Ermantine Alice Robinson
Kerry Hazel Robinson
Jane Michelle Rodgers
Kathryn Grace Rogers
Colin George Russell
Linda Elizabeth Schmidt

Christopher Dalkeith Scott
Hing Yee Shum
Thomas Francis Sleigh
Robert John Sloman
Brian Leslie Smith
Eric Smith
Christine Frances Smythe
Andrew John Snedden
Doris Stewart
Ada Theresa Stroligo
Oliver Tams
Wendy Lee Testoni
John Gregory Thompson
John Sidney Thorne
Marian Patricia Thorne
Sue Elizabeth Truscott
Judith Louise van de Ven
Bryan Walker
Wayne Gregory Walkerden
Bronwyn Ellen Watson
Phillip John Webb
Susan Joy Westwood
Kathryn Anne Wilson
Russell John Woodard
Annette Kathleen Woods
Jeffrey Wragg
Kanthong Xaysana
Nadia Eleanor Yen

Bachelor of Arts - Honours

James Dewar Black, BA - (Honours Class II, Division I)
Norma Maie Blundell, BA - (Honours Class II, Division I)
Brian Eric Cantor, BA - (Honours Class II, Division I)
Vicki Louise D’Adam (Honours Class I)
June Doyle (Honours Class I)
Steven Dragutinovich, BA - (Honours Class II, Division I)
Sherrie Lynn Escobar, BA - (Honours Class II, Division I)
Wendy Ann Foulser, BA Syd. - (Honours Class II, Division 2)
John Robert Frew (Honours Class II, Division I)
John Peter Heininger (Honours Class II, Division I)
Andrew George Hilton, BA - (Honours Class II, Division 2)
Steven Gibson Henry Johnson, BA - (Honours Class II, Division 1)
Brenda Carol Keaveny (Honours Class II, Division 1)
Jennifer Anne Lanyon, BA DipEd. - (Honours Class II, Division 1)
James Phillip Malcolm (Honours Class II, Division 1)
Helen Ruth Mandl (Honours Class I)
Stanley John O’Brien, BA Macq. - (Honours Class I)
Stephen Parker (Honours Class I)
Shashi Kala Ravinder (Honours Class I)
Jeffrey Leigh Rogers, BA - (Honours Class II, Division 2)
Victor Henry Royer, BA Melb. - (Honours Class III)
Bachelor of Arts - Honours (Cont'd.)

Graeme Ronald Schubert, BA - (Honours Class II, Division 1)
John Neville Shipp, BA DipEd. Macq., DipArchivAdmin. N.S.W. - Honours Class II, Division 1)
Jennifer Louise Smith, BA - (Honours Class 1)
Pamela Helen Smith (Honours Class 1)
Julie Stubbs, BA - (Honours Class 1)
Deborah Ruiz Wall, BA Philip. - (Honours Class II, Division 2)
Lawrence George Wells, BA - (Honours Class 1)
John Wilkie, BA A.N.U., DipEd. - (Honours Class II, Division 1)
Gregory Jon Williams, BA - (Honours Class II, Division 2)
Janet Wilson (Honours Class II, Division 1)

Bachelor of Commerce

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Bachelor of Commerce - Honours

Shane John Hugo (Honours Class I)
David James Johnstone, BA - (Honours Class I)
Svetlana Sztyk (Honours Class II, Division I)
Peter Anthony Taranto (Honours Class II, Division I)

Bachelor of Engineering

Civil Engineering

Howard Alan James
Glyn Scott Kearney

Mukesh Jethalal Mehta
Joseph Scimone

Electrical Engineering

Peter Ihnot
Edward Frederick Lodden

Nicolas Rojas
Andreas Vasiliiou

Mechanical Engineering

David Alexander Burt
Peter March
Victor John McLeod
Malcolm Frederick Newton

Peter John Rolfe
Peter Bryant Sansom
Robert Baden Simpson

Mining Engineering

Gordon Edward Arthur

Bachelor of Engineering - Honours

Civil Engineering

Thomas Graham Blow (Honours Class II, Division 2)
John Henry Bubb (Honours Class II, Division 2)
James Thomas Croton (Honours Class II, Division 1)
Ian Jeffrey Francis (Honours Class II, Division 2)
Mark Graovac (Honours Class II, Division 2)
Michael Patrick Hevern (Honours Class II, Division 2)
Philip Ronald Hough (Honours Class II, Division 2)
Robert Keessen (Honours Class II, Division 1)
Geoffrey William McIntosh (Honours Class II, Division 1)
Enh Phengsavanh (Honours Class III)

Electrical Engineering

Raul Igor Boccola (Honours Class II, Division 2)
James Allan Butterfield (Honours Class II, Division 2)
Michael John Duffy (Honours Class II, Division 2)
Walter Koeller (Honours Class I)
Murray James Robinson (Honours Class II, Division 2)
Bachelor of Engineering - Honours (Cont'd.)

Mechanical Engineering

Peter Morton Beaumont (Honours Class III)
Paul Anthony Buchhorn (Honours Class I & University Medal)
Mark Ignatius Carney (Honours Class II, Division I)
Richard Albert Dwight (Honours Class I)
David John Goard (Honours Class II, Division I)
Gunnar Richard Holz (Honours Class II, Division I)
John Vicars Kopetko (Honours Class II, Division 2)
David John Martin (Honours Class II, Division I)
Brian Allen Moore (Honours Class II, Division I)
Trevor William Phillis (Honours Class II, Division I)
John Vasic (Honours Class III)
Eric Lyle Vickery (Honours Class II, Division 2)
Graham John Williams (Honours Class III)

Mining Engineering

Robert John Reynolds (Honours Class II, Division 2)
Ian Charles Sheppard (Honours Class II, Division I)

Bachelor of Science (Engineering)

Electrical Engineering

Francisco Canero
Nuri Phillip Chorvat
Erwin Haider

Stephen James Hall
Russell John Hayes (With Merit)
Michael James McAlear
(With Merit)

Bachelor of Metallurgy

Lance Paul Dyer
Leslie George Gregory
Graeme Peter Hunt

David Gordon Mellor
John Charles Monaghan
Phillip Alan Rimes

Bachelor of Mathematics

Ahmed Rami Adra
Michael William James Atfield
Michael John Beckman
Carmen Bongailas
Jagoda Cergovska
Karen Maree Kelly

Paul Adrian Meyer
Leslee Ann O'Grady
Michael John Petre
Paul Alfred Anthony Plateris
Leonnie Elizabeth Travers
Joanna Maria Werakso
Bachelor of Mathematics - Honours

Geoffrey Karl Aldis (Honours Class I)
Gregory Bruce Davis (Honours Class I)
Ross Stewart Nealon (Honours Class I)

Bachelor of Science

Donna Marie Ashelford
Roslyn Joy Atkins
David Andrew Aynsley
Pamela Isobel Bath
Denis John Behan
James Edward Bennett
Geoffrey Wayne Brown
Paul Leslie Brown
Terence John Bunn
David James Cook
Patrick James Creenaune
Edward Andrew Dubowski
Geoffrey Fields
Kenneth John Grant
Tovipol Hemangkorn
Charles David Jackson
Donald Round Jephcott
Richard Korber
Rodney James Lewin

Bachelor of Science - Honours

Paul Lewis Else, BSc - (Honours Class I)
Robert Thomas Furbank (Honours Class I)
Warren Neale Judd (Honours Class II, Division I)
Jindrich Raus, BSc - (Honours Class II, Division I)
Werner Reynolds (Honours Class II, Division I)
Peter William Sims (Honours Class I)
Gary Tominez (Honours Class I)
Wayne Edward Veigel, BSc - (Honours Class II, Division I)
Alan Ward (Honours Class III)
HIGHER DEGREES

Bachelor of Education

Barry Reginald Banks, BA N.S.W.
Dennis Frederick Drabble
David Kenneth Smith, BA N.S.W.
Raymond Robert Tolhurst, BSc (Tech) GradDip N.S.W., B.Com.
Zafirios Dimitrios Voulolas, BSc DipEd
John White, BA N.E.

Master of Arts

Marie Anna Zaunbrecher, BA BD Q'ld.,
Thesis: "Religious Attitudes in Australian Literature of the 1890's."

Master of Commerce

Terry Maxwell Alchin, BSc Syd., DipEd N.E.

Master of Engineering

Solomon Battino, BE Syd.

Master of Science

Steven Docko, BSc N.S.W.
Thesis: "The Analysis of Free Fatty Acids in Biological Fluids HPLC."

Jurgen Korth, BSc N.S.W.
Thesis: "Application of Transfinite Numbers and Infinitesimals to Measure Theory."

Pamela Joan Moore, BA N.S.W. DipEd
Barry Irwyn Noyce, BSc N.S.W.

Peter Pavlik, BSc N.S.W.

Alessandro Raffaele Augusto Salvatore, Dr. in Chimica Perugia
Fook Cheong Siew, BSc Q'ld.
Doctor of Philosophy

Edward Michael Boge, BSc N.S.W.

Colin Richard Pidgeon, BSc DipEd N.S.W.
Thesis: "Substituent Effects on the Thermodynamic Functions of Ionisation of Phenols."

Keith Phillip Tognetti, BE MEngSc N.S.W.

Graham Kenneth Winley, BA Macq., MSc (O.R.) N.S.W.
Thesis: "Topics in Population Dynamics."

Doctor of Science

Emeritus Professor Austin Keane, MSc Syd., PhD N.S.W., (Posthumous)

HONORARY DEGREE

Doctor of Letters (honoris causa):

Walter Pike, MA DipPA Lond., DipEd Camb., AFAIM, MACE

UNIVERSITY OF WOLLONGONG DIPLOMATES

The Council of the University awarded Diplomas as follows:

Diploma in Accountancy

Thomas Franklyn Clemens, BA Calif.
Ian Stann, BTech Kharagpur

Diploma in Education

Mark Anderson, BSc
Ian Appleby, BA
Glynis Jean Arber, BA
Bernadette Mary Askew, BA
Michael Charles Askew, BA
Heather Ann Bailey, BA
Dawn Narrell Bartlett, BSc
Henry John Walter BAumeister, BSc
Denis John Behan
Sandra Joy Boccola, BA
Garry Lyle Brabham, BA
Norma Marlene Broers, BSc Syd.

James Michael Cahill, BSc N.S.W.
Sharon Audrey Caldwell, BA
Anne Elizabeth Cassidy, BSc
Jane Caulton, BSc
Anne Kathryn Elizabeth Chapman, BA
Barry John Christiansen, BSc
Joanne Maree Collison, BSc
Joseph Lenehan Davis, BA
James David Dawson, BSc
Christopher Graham Dileva, BSc
Ian Geoffrey Doney, BEc Syd.
John Holger Eklund, BSc
Diploma in Education (Cont'd.)

Graham William Fitzpatrick, BA
Roland William Foster, BA
Merilyn Anne Gabriel, BA
Nadia Ghirardello, BA
Harry Grabowski, BSc
Robyn Ann Graham, MA N.S.W.
Janet Elizabeth Green, BA
Christine Mary Hall, BA
John Henry Hambly, BA
Judith Mary Hicks, BA
Keith Andrew Hopkins, BA
Dora Horvath, BA A.N.U.
Elizabeth Maria Keenan, BA
Merin Ann Kemp, BSc
Janette Elaine Kenworthy, BA
Lillyan Kolevsko, BA
Richard Korber
Thomas Eric Lange, BSc
Paul Didacus Larkin, BSc
Inga Lazzarotto, BA
Peter Wayne MacDonald, BA
Gregory Paul MacRae, BSc
Jane Mahoney, BA
Philip Walter Mann, BA
Lilybeth Margaret Mayhew, BA
John William McKay, BA
Paula Louise Mitchelson, BSc
Jerry Murtin, BSc
Brian Liddell Nutt, BA
Terry Raymond Ogle, BSc
Eileen Ann Perkiss, BSc
Cheryl Ann Perry, BA
Lenny Phillips, BSc
Joseph Pini, BSc
Rocco Pasquale Polidoro, BSc
Geoffrey Peter Pratt, BSc
Bryan Thomas Schofield, BA
Amanda Jane Stomps, BA A.N.U.
James Harold Sturgiss, BSc
Vivienne Margaret Szakacs, BA
Sam Tadros, BA
Cheryl Daphne Talbot, BA
Christine Elizabeth Terry, BSc
Mary Vellar, BA
Leanne Wilson, BA

Diploma in Philosophy

James Lawrence Jones
**ACADEMIC ACTIVITIES - 1980**

**FACULTY OF ENGINEERING**

**Department of Civil Engineering**

**General**

A University review of the Department was still in progress at the end of 1980, following the retirement of Professor Gray.

Greater contact with industry was maintained during 1980, and this was a major factor in the attraction of increased numbers of students in both Civil and Mining Engineering subjects.

Research output has continued to increase, as has the number of postgraduate students, the Department now having the largest number of postgraduate students in the University.

Teaching loads for members of staff continued to be excessive, and a major review will be undertaken in 1981 to try to reduce contact hours for staff while at the same time retaining adequate breadth of coverage and total hours for subjects comparable with the Australian average.

**Facilities and Equipment**

No new facilities were obtained during 1980. Space continues to be a major problem for the Department, necessitating the building and installation of equipment in the open.

Major equipment purchased during the year included the following:

- Hydraulics Laboratory equipment
- Environmental wind tunnel equipment
- Road research laboratory equipment
- Photographic equipment
- Computing and calculating equipment
- Mechanical testing equipment
- Meteorological station equipment
- Concrete laboratory equipment
- Environmental laboratory equipment
- General laboratory equipment
- Mining equipment
- Surveying equipment

**Research Thesis Being Undertaken Within the Department**

**Ph.D. - Civil**

- A Technique to Resolve Road Accident Problems.
- Progressive Failure in Slope Stability Analysis.
- In Situ and Laboratory Studies of Sandy Soils.
South Coast Coal Field - The Influence of Coal Mining on Settlement and Transport.
Non-Linear Analyses of Plate and Plated Structures by the Finite Strip Method.
Deflection of R.C. and Prestressed Concrete Box Beams.
Hydrodynamic Forces on Offshore Structures by Laboratory Study and Numerical Method.

Mining
Excavation Analysis Considering Pore Pressure Changes and Progressive Failure.
Subsidence and Strata Control in the Sydney Coal Basin.

M.E. -

Civil
Shoalhaven River Studies.
Urban Drainage Design Procedures.
The Effect of Slow Moving Heavy Vehicles on Road Pavements Performance.
Use of Unburnt Colliery Shale in Road Construction.
Flood Frequency Estimation.
Storm Temporal Patterns and Flood Hydrographs.
Cement Stabilization of Road Bases.
Environmental Noise Pollution.
Materials in Road Construction.
Urban Drainage.
Computer Graphics Associated with Civil Engineering Problems.
Reinforced Earth Design and Analysis.
Kinematic Wave Models for Flood Hydrography.
Use of Coal Waste in Road Construction.
Recreational Trip Forecasting.

Mining
Pressure Losses Due to Ventilation in South Coast Mines.
Transportation.
Methane Drainage in Longwall Mining.
A Study of Mine By-Products.
Permeability of Coals.
Control of Gas in Coal Seams.
Analysis of Structural Problems in Faulted Mining Roofs.

Department of Electrical Engineering

General

The 1980 academic year saw a most welcome improvement in the average quality of first year full-time students when compared with that of the students in the previous two years. Performance of the first year part-time students was excellent.
Fourth year performance was disappointing as there were only five graduating students from a group of thirteen potential graduates. Investigation suggested that there was no single cause of the failures. Additional tutorials are scheduled in 1981 for fourth year students to enable academic staff members to monitor the situation more closely.

Facilities and Equipment

Although the Department remains desperately short of space, some relief is in sight. A demountable building to be placed in the close juxtaposition to the Department's laboratories will provide an additional $86m^2$ of floor space for the fourth year project laboratory. Consequent rearrangements will enable a terminal cluster for computer-aided design classes and a new microprocessor laboratory to be established.

Although the solar energy and antenna research platform has been completed little progress has been made with the erection of the Radio Telescope at the Mt. Keira site.

The following items of equipment were purchased during 1980:

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 off BWD Cathode ray oscilloscopes</td>
<td>$3,115</td>
</tr>
<tr>
<td>2 &quot; HP Pulse generators</td>
<td>$5,616</td>
</tr>
<tr>
<td>1 &quot; Wave analyser</td>
<td>$9,450</td>
</tr>
<tr>
<td>1 &quot; BWD Powerscope</td>
<td>$2,821</td>
</tr>
<tr>
<td>1 &quot; Philips cathode ray oscilloscope</td>
<td>$6,820</td>
</tr>
<tr>
<td>Microwave components</td>
<td>$410</td>
</tr>
<tr>
<td>1 &quot; Microcomputer</td>
<td>$1,163</td>
</tr>
<tr>
<td>1 &quot; Micronova and controllers</td>
<td>$5,931</td>
</tr>
<tr>
<td>1 &quot; OKI Printer</td>
<td>$1,070</td>
</tr>
<tr>
<td>1 &quot; QUME Printer</td>
<td>$4,025</td>
</tr>
<tr>
<td>1 &quot; Hard copy unit</td>
<td>$5,375</td>
</tr>
<tr>
<td>1 &quot; HP Printer</td>
<td>$4,331</td>
</tr>
<tr>
<td>14 &quot; Beehives</td>
<td>$15,000</td>
</tr>
<tr>
<td>Lathe accessories</td>
<td>$648</td>
</tr>
</tbody>
</table>

$65,775

It may be of interest to note that according to the Plant List the Department holds or has on order the following categories of equipment:

<table>
<thead>
<tr>
<th>Number of Items</th>
<th>Cost of Replacement</th>
<th>Total Replacement Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>270</td>
<td>Greater than $300</td>
<td>$600,000</td>
</tr>
<tr>
<td>330</td>
<td>Between $200 and $300</td>
<td>70,000</td>
</tr>
</tbody>
</table>

600

$670,000

Thus there are some 600 items of equipment costing on the average, about $1,100 to replace, which must be maintained in good working order. Even if a life of ten years may be assumed, the replacement cost alone is of the order of $60,000 per annum which is approximately equal to the total annual amount of equipment money available.
Research Theses Being Undertaken Within the Department

Ph.D. -

"An approach to the practical design of sub-optimal control systems."

"Single frame cascade induction machines: analysis and design."

"Permanent magnet synchronous machines."

"Identification and experimental design of linear and distributed parameter systems."

M.E. -

"A computer controlled infra-red sensing system."

"Control of a continuous copper casting line."

"Motor speed control through a microprocessor controlled thyristor converter."

"Electrical characteristics of a pilot scale electrostatic precipitator."

"Photographic measurements of stratospheric aerosols."

"A study of harmonic generation by and fault occurrence in static converters."

"High bit rate microwave data link."

"Computer analysis of large-scale non-linear networks."

"Fly ash resistivity and back corona measurements using a biased grid electrode."

"Effect of time delays on control system stability."

"Modulation of polyphase inverters."

"Adaptive control of the efficiency of variable speed drives."

"Glider control and supervisory equipment."

"Microprocessor control of static converters."

"Fault identification in electronic systems."

"Investigation of microwave holography."
Department of Mechanical Engineering

General

The number of students graduating in 1980 to the B.E. degree in Mechanical Engineering was 20, with 11 students completing the course at the end of the academic year.

The Department's teaching evaluation surveys continued to be based upon three sources: comment made by student representatives on the Departmental Committee; performance statistics at the end of each session; assessment of student performance in follow-up subjects in a stream.

In August, 1980 the Department sent a letter to fifty local companies engaged in primary and secondary industry in an effort to draw the attention of industrial managers to the need for sponsorships for part-time engineering students. The letter discussed present difficulties encountered in filling engineering positions and projected shortages of qualified engineers in years to come. A follow-up letter was sent in December.

Facilities and Equipment

Use and development of experimental equipment was severely hindered by dustproofing problems in the Dynamics Laboratory. Efficient use of this equipment for undergraduate courses will only be possible when this equipment is housed in a dedicated laboratory of laboratory standard.

The makeshift facilities and severely restricted room size both contributed to this laboratory falling short of the standard expected of a University Laboratory.

The teaching and research work of the department remains seriously affected by the lack of a suitable heavy, high ceiling laboratory.

Equipment purchased during the year was as follows:

- Horiba CO recorder purchased
- Pulse phase pneumatic conveying system and instrumentation
- Station waggon for bulk solids research.
- Graphics terminal (Tektronix 4006)
- B & K portable tape recorder.
- Dissolved oxygen meter.
- A 5 m water channel capable of flow speed up to Froude number 1.5 has been constructed. It will be used for teaching and research in hydrodynamics.
- Spectrum Analyser.
- X-Y recorder.
Tektronix Terminal (4006).
Air velocity meter.
Butterfly valve + regulator (Woonona).
Signal Conditioning Amplifiers (2 off).
Tasman Minidata logger (2 off).
Oval P.D. Flowmeter (Woonona).
Kelvinator Air Conditioner.

Research Thesis in Progress

Ph.D. -

"Control of large scale systems."
"Flow properties of bulk solids."
"The optimum design of spur and helical gears to BS 436."
"Development of numerical technique for two dimensional fluid flow with flexible boundary."

M.E. -

"Dust collection in the refractories industry."
"Performance of vibratory bin activators."
"The effects of and instrumentation techniques for transient sound."
"Design of diffusers for ocean disposal of industrial wastes."
"The application of finite element analysis to problems of multidimensional heat conduction with non-linear boundary conditions."
"Factors affecting the recovery of benzine from coke ovens gas."
"Some aspects of shaft design."

Department of Metallurgy

General

Undergraduate enrolments represented an improvement on figures for previous years, while there was also a quickening in the postgraduate activities of the Department. As noted in earlier reports an Australia-wide shortage of good graduates has made it difficult to recruit postgraduate students in recent years. However, general support from local industry has made it possible for us to seek out capable overseas graduates for Departmental projects.
Facilities and Equipment

The Department of Metallurgy is still pressed for space because of the continuing need to share facilities with the Department of Biology and, although the situation has been somewhat relieved by the provision of mezzanine floor space in Metallurgy Building 2, the upturn in postgraduate activities will aggravate the difficulty.

Research Theses in Progress

Ph.D. -

"On line dynamic process computer modelling of a blast furnace."

"Structure development in eutectic alloys."

"The effect of rapid thermal cycling on structure and properties of low-carbon steels."

M.E. -

"A metallographic study of some aspect of metal joining."

"Some aspect of metal forming operations."

"Modelling of metallurgical processes."

"Fluid flow in sinter beds."

"The structure and properties of metallic coatings on steel."

"The mechanical behaviour of copper alloys."
In accordance with what is a logical development, rather than a change of direction or structure, the Department in 1980, offered for the first time 300-level courses in Theatre Arts and Modern Media, and, in 1981, hopes to introduce a Drama Honours component which can be taken in conjunction with some of the English Literature 400-level courses.

The Drama courses have involved both students and staff in activities related to their work in these courses. These have added a new and valuable dimension to the work of the English Department, and it is hoped that such activities will continue to flourish. A local theatre company, Theatre South, performed under the sponsorship of the Department, a successful pilot season of *The Con Man* in mid-1980. The play was adapted by Mr. Maurie Scott, and directed by Mr. Des Davis, both of whom are members of the Department's academic staff. Ten students took part in the production in various capacities as part of their course work. Plans have been formulated for a longer season in 1981.

In November, 1980, a group of students, in conjunction with Dr. James Wieland, published a volume of poetry and short stories entitled *First Draught: Campus Writing*. It is hoped that this will become a bi-annual publication.

Student enrolments in English have remained steady over the past three years. Pass-rates are close to the University average in first year and a little higher in second and third year subjects. The Department's academic staff are conscious of the need to offer students careful guidance and supervision and to carefully monitor student progress, particularly in first year subjects. The use of continuous assessment means that first year students who are performing poorly tend to withdraw before the end of the academic year.

Facilities and Equipment

The English Department moved twice in 1980 first into the north wing of the Social Science Building and finally into its permanent quarters in the East wing. We find our new offices and class rooms a great improvement on our former accommodation in the ACS building and are particularly pleased to have three teaching rooms of our own and in particular a fully equipped A/V tutorial room. The English Department also offers accommodation to Theatre South.

But as a number of staff now have part-time or full-time research assistants, space is beginning to become a problem.
Research Theses in Progress

Ph.D. -

"Certain Secrets: Sterne's Momus - Glass and the Heart of Man."

"Commitment and two modern British Dramatists: Trevor Griffiths and David Hare."

"The Poetry of Robert Lowell."

M.A. -

"Disraeli's Scope as a Novelist."

"Attitudes to Landscape in Australian Fiction."

"Some Aspects of the Poetry of Sir Thomas Wyatt."

Department of European Languages

General

The aims of the Department's teaching programme is to promote awareness of the richness and diversity of the European cultural tradition, principally through a study of the language and literature of France and Italy; and to develop competence in the use of the French and Italian languages. Graduate courses exist to give students the opportunity to pursue in depth an aspect of French and/or Italian language, literature, or civilisation.

Enrolments are relatively constant. However, the Department's inability to offer Italian honours, because of a lack of staffing has an adverse effect on student load figures. There is evidence that enrolments in the early years of the Italian programme are affected by the absence of an honours year.

The Department follows a policy of progressive assessment so that indolent or incapable students tend to withdraw early rather than fail at the end of the academic year. This tends to explain the Department's relatively high pass rates. The same policy, together with extensive hours of staff-student contact in the Department, also accounts for our lower than University average attrition rates.

Facilities and Equipment

In June the Department moved to new quarters in the East wing of the Social Sciences Building. Although facilities and equipment are better than those tolerated in previous years in the ACS Annexe desirable improvements to the present situation would be more adequate soundproofing, and some method of hiding unsightly air-conditioning ducts.
Research Theses in Progress

Ph.D. -

"The interplay and development of objective and philosophical attitudes in the study of Eastern religions in 18th century French literature with special reference to Voltaire."

"An aspect of the work of Marguerite Yourcenar."

Department of History

General

Following discussions between the Chairman of the Department, Professor Duncan, and the Vice-Chancellor it was decided that a formal review of the Department be undertaken. At the time of writing the review is still underway and is being carried out in line with University review procedures that have also been applied to other academic departments in recent years.

Facilities and Equipment

Following the Department's move to new premises in the North wing of the Social Sciences Building a Resources Room was acquired.

Research Theses in Progress

Ph.D. -

"Lenin as Head of the Sovoborony."

"The Historian as Moralist: Edward Gibbon."

"Labour and Capital in the Illawarra Coalfields, 1855-1910."

"Labour and Politics in N.S.W., 1880-1900."

"A History of Pollution in Port Kembla, 1908-1971."

"Irish Assisted Immigration to N.S.W., c.1830-1870."

M.A. -

"Women in Politics in N.S.W., 1930-1950."

"Central Political Institutions in Papua New Guinea, 1951-1972."

"J. T. Lang and the Unions, 1930-1941."

"Middle Class Women's Immigration to Australia, 1861-1901."
Department of History and Philosophy of Science

General

The objective of the History and Philosophy of Science teaching programme is to develop in students an ability to recognise and dissect complex problems, to draw on the concepts and techniques of other disciplines as appropriate, and to communicate their understanding effectively. New subjects have been designed to offer a strong major to students with widely varying interests in science and technology, a range of subjects related to the content and concerns of other disciplines, and an opportunity for those working in areas affected by technology to develop expertise in dealing with it.

The Department's long-standing range of subjects in the traditional areas of History and Philosophy of Science continues to be offered and to attract substantial numbers of students. Together, the two streams of subjects make up the restructured undergraduate programme that was offered for the first time in 1980. The same streams also form the basis of two separate M.A. programmes available for study within the Department.

Enrolments in the Department continue to expand, and can at least partly be attributed to a considerable publicity effort aimed at schools and libraries throughout the Illawarra region.

Members of the Department of HPS devoted considerable effort during 1980 to the establishment of the Technology and Social Change (TASC) group - a collection of academics across all faculties interested in this general area. TASC was launched in March to considerable press coverage. It held a full-day meeting with all the staffs of the N.S.W. Science and Technology Council and the Technology Information Research Unit. The current major project is the production of a book on technological change in Australia.

Faculties and Equipment

With the rapid growth of the research programme through outside funding, the employment of a large number of research assistants, and the expansion of the graduate teaching programme, the major difficulty encountered was that of space. Research assistants were forced to share three to a room, and no accommodation of any kind could be offered to full-time Masters students.

Research Theses in Progress

Ph.D. -

"Towards a Philosophy of Technology."

"Australian Industrial Research and Development and Technology Transfer."

"Scientific and Political Aspects of Risk Assessment in Australia."
M.A. -

"Political Decision - Making in Situations of Technical Uncertainty -
the role of 2, 4, 5.T."

"The Impact of Technology on the Employment of Professional
Chemists."

Department of Philosophy

General

In 1980 the Department experienced a substantial rise in first-year
enrolments, and also saw a much lower attrition rate at 100-level than had
occurred in previous years. The Department is, however, investigating the
causes of a high attrition rate at 300-level.

The number of students successfully completing "majors" in Philosophy is
rising and, in 1980, the Department's first Honours Class I result was
achieved.

Facilities

At the beginning of 1980 the Department moved from the grossly
inadequate facilities (noted in previous years) in 'The Hut' to the newly
completed Northern wing of the Social Sciences Building. The new
accommodation is generally most satisfactory, although some sound­
proofing work needs to be done.

Research Theses in Progress

Ph.D. -

Luigi Pirandello's anticipations of existentialism.

M.A. -

The nature of war crimes and their moral evaluation.

The aesthetics and philosophical psychology of imagination, with
special reference to Kant and Wittgenstein.

F. H. Bradley and Absolute Idealism
FACULTY OF MATHEMATICS

Department of Computing Science

General

The year 1980 saw a further sharp rise in the Department's undergraduate enrolment. Graduate enrolments remained relatively stable in 1980, but it is anticipated that this will change in 1981-2 due to the increase in the number of students seeking admission to the Diploma in Computing Science programme.

The principal development within the Department's academic programme was the re-structuring of the subject CSCI 101 Computing Science 1 with a view to eventually offering the course as two single session subjects. The long-term plan is to provide a course structure to better meet the needs both of students seeking an introductory course in computing science and those seeking a foundation course to their major study in the subject.

One regret is that the number of projects available to 300-level students was limited due to staff shortages.

During the year the Department continued to be actively involved in schools liaison activities.

Facilities and Equipment

The year commenced with a major expansion in equipment, laboratory space and office space. This considerably relieved the overcrowding experienced in 1979. One of the existing terminal laboratories was restructured to bring it up to standard and to increase the number of terminals. All three terminal laboratories were painted, carpeted, re-furnished and air-conditioned. Two smaller laboratories were also developed, one housing computer-aided instruction and graphics equipment used for research and graduate courses, while the other is a microcomputer laboratory.

However, by the end of 1980 a number of problems became apparent. Considerable work remains to be done to complete development of both the microcomputer laboratory and the departmental seminar room, while a small laboratory is required specifically for housing high quality word-processing equipment. Also, the Computing Science workshop is housed in an 11 square metre office and, with up to three staff members working in this office, the arrangement becomes extremely cramped and unsafe, especially when extra high voltage video equipment is in use.

The following equipment purchases were made during 1980:

1. Perkin-Elmer 3220 with 0.75 megabytes of memory, cache, hardware floating point unit, writeable control store and 167 megabyte disk drive

28. VC 404 Video Display terminals
3 Printers
   1 Qume Sprint high quality printer
   1 Sanders high quality printer
   1 Siemens ink jet printer

2 Upgrades to the 3220
   1 67 megabyte disk
   1 Synchronous multiplexer ($4,000 towards link paid by Computer Centre)
   1 Synchronous modem

3 Microcomputers
   1 Apple microcomputer
   1 disk for Apple microcomputer
   1 Motorola 68000
   1 Zilog Z8000

   1 Interface for state analyzer (IEEE) on ARGC grant.

Research Theses in Progress

Ph.D. -

"Portability of Operating Systems Software."

"Performance of Portable Operating Systems."

Department of Mathematics

General

During 1980, restructuring of 100, 200, and 300-level subjects taught within the Department took place. At 100-level, two additional subjects were introduced. These were Mathematics IC, designed primarily for commerce students, to allow progression through to higher level statistics subjects, and Mathematics ID - a terminating subject incorporating elementary calculus, algebra and statistics.

At 300-level a number of statistics subjects were introduced, allowing students to major in statistics. The new arrangement provides students with greater flexibility in their choice of subjects, and enables the Department to more closely define the substantial and coherent study at the 300-level. Consequent upon the 300-level changes it was necessary to make adjustments at 200-level to give a smoother sequencing of material.

Facilities and Equipment

By the end of 1980 the Departmental Microprocessor Laboratory was equipped with 2 Apple II and 1 TRS80 microcomputers. Facilities available include dual disc drive, printer and serial communication to the University
mainframe computer. Software includes the languages Basic, Pascal, Fortran, and Assembler. Work in progress includes use of microcomputers in CAI, general computing, graphics, and animation. During the year 1 new windgauge was purchased.

The Department's facilities for maintenance of equipment are inadequate, and heavy dependence is placed upon the services of the science workshop.

Research Theses in Progress

Ph.D. -

"Numerical Solutions of 3 Reactor Kinetics Equations."

"Rate Limiting Mechanisms of Pyritic Oxidation in Overburden Dumps."

"A Problem in Sequential Analysis."

"Solution of Sparse Matrix Eigenvalue Problems Arising in the Application of the Finite Element Method."

"Non Classical Diffusion."

"Random Walk Models."

"Mean Value Properties and Differential Equations."

"Boundary Effects of Shelf Waves."

"Application of the Finite Element Method to the Design of Gas Slider Bearings."

"Some Problems Associated with Roll Forming."

M.A. -

One 24 credit point thesis is being undertaken with the Department.
FACULTY OF SCIENCE

Department of Biology

General

Enrolments in 100- and 200-level subjects were lower than in 1979, the fall at 100-level being largely attributable to the reduction in the number of available teacher training scholarships. However, enrolments at the 300-level rose by 36% on the 1979 figure.

Facilities and Equipment

The Department continues to be acutely short of space, and split between two buildings (ACS and Metallurgy). Major items of new equipment purchased during the year included 3 balances, 2 chart recorders, 7 stereomicroscopes, a refrigerator, a refrigerated orbital incubator, a laboratory steamer, an atomic absorption spectrophotometer, and a graphics computer terminal.

Research Theses in Progress

Ph.D. -

"Effect of Pollution on Larval Settlement and Community Structure of Sessile Invertebrates."


M.Sc. -

"Antibiotic Production by Marine Chromobacteria."

"Osmoregulation in Cyanobacteria."

"Numerical Taxonomy of Dermatophyte Yeasts."

Department of Chemistry

General

Total enrolments in chemistry (undergraduate plus higher degree) in 1980 were very similar to 1979. The enrolment of honours students (6) was up, and one of these students was awarded a University Medal. Total 300-level enrolments were very satisfactory, though unevenly distributed across the units, ranging from 8 to 33. Second year enrolments were lower than in 1979, by as much as 20% in some units. The stage and rate of progress of the increasing proportion of part-time students are partly responsible. In first year, the final enrolment of students taking a science degree was lower than in 1979 but there are indications that this trend will be reversed in 1981.

The overall pass rate of 84% in 1980 is in the middle of the range of the three previous years (79-87%). The total subject pass figure of 355 is below the previous year and largely reflects a decline in undergraduate enrolments. Pass rates in individual units ranged from 78-100%, with all but two units being about 80%. 
Attrition rates for all chemistry units were close to the Faculty of Science and University averages for 100, 200 and 300-levels respectively and were comparable with previous years.

The major change in the teaching programme was the offering of a new 300-level unit - CHEM 327 "Chemistry and the Environment". This unit has an interdisciplinary character and attracted an enrolment of 35 students. Because of its ready acceptance, it is being offered again in 1981. A second innovation in 1980 was the new subject - CHEM 150 "The Art of Chemistry". This unit does not require any background in chemistry and was designed to complement the Physics Department unit "Art of Physics". "The Art of Chemistry" is also available as a General Studies subject - GENE 150.

In recognition of the increasing numbers of students enrolling in first year chemistry with a very limited background of chemistry, the department is putting special effort into the remedial chemistry classes offered 2 hours per week in Session 1.

Facilities and Equipment

All rooms and laboratories were fully occupied in 1980 and no further laboratory space will be available until the enclosure of the ground floor at the eastern end of the Science Building is completed.

A memory typewriter was installed in the Departmental Secretary's office and has improved the throughput of manuscripts and other departmental typing. The machine is shared by the Departments of Chemistry, Physics, Geology, Mathematics and Computing Science.

A major and continuing increase in departmental materials cost was caused by an increase of 25-30% in the prices of all chemicals late in the year.

The Department purchased the following items of equipment:

- H.P.L.C.
- Vapor Generation Access. & Multi Element
- Model 303 Static Mercury Electrode Vacuum Pumps
- Mettler Analytical Balance
- H.M.L. Temperature Jump System
- Omniscrite Recorders
- Varian 3700 Gas Chromatography System
- Beehive Visual Display Unit etc.
- Kelvinator Refrigerator
- Electron Multiplier & Amplifier
- Oscilloscope Model BWD 804
- 63 N.I. ECD Detector
- Dohrman Bypass Column Assembly
- Phenyl Column
- Platinum Gauze Electrodes
- "Dataram" Add-in Core Memory for Nova 1200
- A.W.A. Model ADM 3A+ Graphics Terminal
- Direct Drive Edwards Vacuum Pump
- Computer Board
- Paratronics Analyser
- Edwards Thermocouple Vacuum Gauge
- Buchi Rotovapour with Stand
- Centrifuge
Research Theses in Progress

Ph.D. -

"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."

"Biomedical Mass Spectrometry."

"Spectrophotometric Analysis."

"Application of Mass Spectrometry to the Study of Heat Induced Reactions."

"Ring Closure Reactions of Substituted Aminomethylorenes."

"Chemical Studies on the Use of Peroxides for the Treatment of Industrial Wastewater."

"Characterisation of Components in Shale Oil."

"Synthesis of Dihydroisoindole Derivatives."

M.Sc. -

"An Investigation of Environmental Effects of Dredging in Lake Illawarra."

"Development of a Computerised Magnetic Mass Spectrometer System."

Department of Geology

General

The undergraduate teaching programme is directed at producing graduates who can be employed as professional geologists. This demands a broadly-based course giving at least familiarity with, if not expertise in, all of the major areas of Geology. To give a course with a narrow base would make graduates less acceptable to industry and to other employing organisations. The honours year is of an end-as type. Typically only 50-60% of students expressing interest in taking the honours year are recommended for admission, recommendations being based upon performance in Geology subjects in the first three years of the course. The honours year contains some formal course-work but it is intended primarily to develop a capacity for independent work.

The postgraduate programme in Geology has historically been oriented towards Ph.D. programmes pursued chiefly by full-time students, but with a significant number of part-time students from outside the Wollongong area taking programmes which relate to some of the areas of expertise of the academic staff. The buoyancy of employment in Geology suggests that
it may be some years before significant numbers of students could be expected to be interested in undertaking full-time postgraduate studies. For these reasons, part-time postgraduate students are likely to become a more significant element in postgraduate teaching. Such students bring advantages in terms of experience and expertise to the University and commonly make available facilities and information which would not otherwise be readily accessible.

During the year a major course revision was undertaken to try to reduce contact hours for staff, but at the same time to retain adequate breadth of coverage. Student choice has, however, been reduced and the staffing needs are now less flexible in relation to staff absence due to study leave, resignation, illness or other reasons.

As noted in this Report's opening statement, the death occurred in May of Associate Professor Evan Phillips. Although he had been ill for some years, Associate Professor Phillips had made a full contribution to the Department and the University right up to the time of his death. From 1981 the E.R. Phillips Memorial Prize will be awarded for excellence in practical work in Geology.

Facilities and Equipment

The Quantimet Image Analyser was delivered in mid-year. Commissioning has been hindered by poor documentation and lack of support by the manufacturers in making sure the link systems are compatible and functioning. The United Scientific XRF equipment was installed in early 1980 but it is only partly operational due to difficulties in obtaining an adequate set of standards for calibration.

Utilisation of major research facilities was as follows:

<table>
<thead>
<tr>
<th>Facility</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantimet</td>
<td>445</td>
</tr>
<tr>
<td>XRF</td>
<td>170</td>
</tr>
<tr>
<td>XRD Unit (University Facility)</td>
<td>400</td>
</tr>
<tr>
<td>MPV1 Photometer</td>
<td>2687</td>
</tr>
<tr>
<td>MPV2 Photometer/fluorescence unit</td>
<td>2444</td>
</tr>
</tbody>
</table>

A Zeiss universal microscope was delivered in November but a number of essential parts have not yet been supplied. This unit will form the basis of a high precision photometer with facilities for spectral fluorescence photometry when the unit is complete.

The programme of replacement of student microscopes was continued.

Research Theses in Progress

Ph.D. -

"The geology of oil shales."

"Volcanic rocks in Central Western New South Wales."
"Studies in coal-bearing sequences in New Zealand."
"A study of a base metal ore deposit in the Mt. Isa region."
"Igneous rocks of the southern Sydney basin."
"Geochemistry of recent sediments in Lake Illawarra."
"Thermal regimes in Australian sedimentary basins."
"Low grade metamorphism in sedimentary sequences."
"Relationship between coals and associated hydrocarbon source rocks."
"Aspects of sedimentology of coal measure sequences."

M.Sc. -

"A study of the Bald Hill claystone."
"Aspects of igeous intrusions in the Southern Coalfield."
"Studies of Queensland coal basins."
"Magnetic studies in the Cudgegong-Rylstone district."
"Organic matter in oil shales."
"The geology of the Ardrossan dolomite and its development as a refractory in the steel industry."
A principal change in the 1980 teaching programme was that the subject MATH 101 Mathematics IA was eliminated as a co-requisite for PHYS 141 and 142. The change was made on a trial basis to enable students (such as those "majoring" in Biology) to acquire the Physics essential for a science degree without having to study Mathematics. However, the arrangement has not been a success, and the co-requisite will be re-introduced for 1982, together with a new 100-level Physics sequence having less emphasis on the use of higher Mathematics.

The need for a good background in Mathematics to obtain maximum benefit from existing Physics subjects is believed to account for the small percentage of B.Sc. students enrolling in Physics subjects. This is especially the case at 100-level.

Throughout 1980 members of the Department remained active in seminar and conference organisation, particularly in the areas of acoustics and astronomy.

Facilities and Equipment

Essentially, no changes were made to the available facilities other than the installation of an air-drying system in the Physics compound. Facilities at the University have always been particularly primitive for a Department of Physics. They have been inadequate in terms of services (e.g. sinks, gas and electrical outlets and drawer space in laboratories), while the ceiling heights of all laboratories are particularly restrictive.

The following items of equipment were purchased during 1980:

- Lathe
- Final payment on Ar⁺ laser
- Air-dryer and compressor
- Infrared germanium bolometer detector
- Payment to Purdue University
- Precision gaussmeter
- Recording potentiometer
- Proving Ring
- Photoacoustic cell
- Final payment on monochromator
- Liquid Nitrogen storage vessel

Research Theses Being Undertaken Within the Department

Ph.D. -

"Study of Neutron Capture in the Magic Nuclides at N=50 and N=82."

"Piezospectroscopy of Neutral Copper and Zinc Impurities in Germanium."
"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 Infrared Astronomical Objects."

"A Study of Some Infrared Detectors."

"An Encoder System for the 18" Telescope and UVBYH\O Photometry of Bright UV Stars."
FACULTY OF SOCIAL SCIENCES

Department of Accountancy

General

The 1980 academic year saw a review of and a number of consequent changes in the Department's teaching programme. With effect from 1981 the current first year sessional subjects Accounting and Financial Management IA and IB, Law in Society and Business Law I will be taught on an annual basis. It is hoped that the revised arrangements will provide an improved preparation for students intending to specialise in Accountancy. It is also believed that the previous relatively early assessment in accounting and law - subjects not taught at secondary school - was one reason for the relatively high attrition rate of first year students, and that the reorganisation will result in a better introduction for advancing students, and that the overall pass rate for first year subjects will improve.

The Department has been aware for some time of student interest in management studies. Accordingly, arrangements were made in 1980 for a new specialisation for the B.Com degree in Management Studies to be offered from 1981.

At graduate level subjects leading to the Diploma in Management Studies were available for the first time in 1980. The strong local demand for management education was demonstrated by the 32 applications received for 15 places in the course. The two-year part-time Diploma has as one of its objectives the teaching of management theory with an applied emphasis. The purpose of restricting numbers is to enable students to draw on their work experience in the seminars.

Facilities and Equipment

Space

Early in the academic year the Department moved into the Northern Wing of the Social Science building extensions. The more extensive facilities provided were appreciated.

With the location of the equipment listed hereunder in the Departmental Seminar Room, the Department currently does not have its own seminar room. The Technical Room is used substantially for the major research projects Australian Company Financial Reporting and New Zealand Company Financial Reporting. The question of alleviating the heat problem experienced in one of the Department's other rooms has been under investigation for several months.

Accounting Laboratory

The use of the Accounting Laboratory continues to expand, with a weekly average of 100 students using it during session for first year workshops and audio aids, and generally for reference and study purposes.
Equipment

The following additional equipment was purchased later 1980:

Terminal - Beehive Visual Display Unit, Model DM10 without auxiliary port or function keys from Datatel Pty. Ltd., Melbourne.

Printer - Lear Siegler Model 310 Ballistic Printer, with Serial RS232C Interface from A.W.A. Ltd., Sydney.

A UBIX copying machine has also been installed in Room 2039.

An Olivetti Word Processor (TES501), hired from Kass Office Equipment from April to July 1980, was used in producing the text for Australian Company Financial Reporting: 1980. In December 1980 it was agreed to house an IBM Word Processor within the Department on the understanding that it could be used by several other departments of the Social Sciences faculty.

Research Theses in Progress

M.Com. -

"Taxation of Companies and Concept of Source."

Department of Economics

General

During 1980 a number of changes were made to the Department's teaching programme, although the overall emphasis on the application of economic theory was retained. A new subject, ECON 308, Labour Economics, was introduced, and proved the most popular third year subject ever offered by the Department, attracting over 50 enrolments.

Departmental proposals for the introduction of two third year subjects in Industrial Relations, and for a graduate course leading to a Diploma in Industrial Relations, were approved for implementation in 1981. Other graduate level subjects approved for implementation in 1981 were three subjects to form the Economics strand of the pass Masters Degree in Management and the Diploma in Management Studies.

The Department was satisfied to note that in 1980 its pass and attrition rates at each subject level were comparable to those of other Social Science departments and to the University as a whole.

Facilities and Equipment

These are quite adequate. However, it became obvious to members of the Department that our effective utilisation of the Social Science computer terminals has been restricted by the excessive work load on the Social Science programmer. In addition to servicing all Social Science departments, the programmer performs substantial duties for Humanities departments, the Computer Centre, Administration, and the Illawarra Regional Information Service. Appointment of a second programmer is essential if departmental research is not to be severely retarded.
Research Theses in Progress

Ph.D. -

"The Application of Linear Programming to Economic Problems."

"The Investment Decision in Changing Industrial Conditions."

"The Impact of Education on Agricultural Productivity in Developing Nations."

"The Investment Decision in Electricity Generation."


M.Com. -

"Sugarcane as an Energy Source: Implications for World Sugar and Molasses Markets."

"An Inquiry into Factors Affecting the Extraction Rate in Coal Mining."

"The Political Economy of Government Expenditure."

"Decision Making for Macroeconomic Policy."

"The Impact of Voluntary Aid on Economic Development."

"Impacts of the Port Kembla Coal Loading Facility Expansion on the Regional Traffic Programme."

"Australian Investment in Southeast Asia and the South Pacific."

"Mining and Economic Development."

Department of Education

General

In 1980 the Department of Education reviewed the teaching programme and decided to offer a course at first year undergraduate level. The subject to be offered, Learning: The Individual and the Institution, will be a course taught jointly by the University and the Wollongong Institute of Education. The new subject also represents an important step in a plan to develop a coherent alternative pathway for students wishing to undertake research in Education at Honours and higher degree levels.

Enrolments in the Department continued to place pressure on staff resources, with the attrition rate among Education students being lower than the University average (7.4% against 9.3%) and considerably lower than the average for the Faculty of Social Sciences (7.4% against 11.7%). Pass-rates are higher than the average for the University or the Faculty of Social Sciences because of the high proportion of students who are already graduates.
The workload upon staff proved to be an increasing and troublesome problem during 1980. The Department carried the equivalent of 130 full-time students, an increasing number of whom required postgraduate supervision, with a full-time academic staff of seven. The Department relied heavily upon and wishes to acknowledge its gratitude to more than fifty part-time staff members. It should be noted, however, that this results in, and even creates, markedly heavy demands on full-time teachers.

Facilities and Equipment

During the year the Department moved into the new North Wing of the Social Science Building. Its facilities are adequate for the time being.

Research Theses in Progress

Ph.D.

"Teachers' Role Perceptions Related to School Functions: A Repertory Study."

"Social Influences on the Cognitive Development of Children from Different Ethnic Groups."

M.A.

"The History of Curriculum Development."

"Bilingual Education: A study of some attitudes and expectations in Australia."

"Techniques for Evaluation and Assessment of Drama as a Contributor to the Personal Development of the Participant."

"Compensatory Education." - In the area of cumulative deficits amongst minority groups.

"The Technological Revolution."

"Teacher Development."

M.Ed.

"The Kiama School and the Community, 1850-1914."

Department of Geography

General

The broad aims and directions of the departmental programmes have been under review for some time, in part because of the need to respond to a massively changed external environment (specifically, the near disappearance of demand for secondary teachers of Geography) but also because of changes - in part consequential upon this - in the likely size and composition of the teaching staff. While precise details have yet to be finalised it would seem likely that the environmental strand will be given greater emphasis.
Pass and attrition rates for subjects taught within the Department are in all cases either close to or better than those obtaining in the Faculty of Sciences and/or throughout the University.

The Department was, as usual, active in schools liaison work during the year. A Schools Day for Higher School Certificate Geography students attracted over 300 school students, together with a number of teachers. The members of the academic staff participated in a Far South Coast Schools Geography Conference, while others maintained contact with secondary schools in the Illawarra region.

Facilities and Equipment

For the 1980 academic year the teaching of Physical Geography was greatly facilitated by the availability of new laboratory space thereby overcoming the longstanding problem of combining undergraduate teaching with postgraduate and staff research in one small, cramped laboratory.

The following new equipment was purchased:

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Kyowa Stereo Binocular Microscopes</td>
<td>$1920</td>
</tr>
<tr>
<td>150 mm lens for Durst CE1000 Enlarger</td>
<td>$350</td>
</tr>
<tr>
<td>Durst RCP Print Processor</td>
<td>$800</td>
</tr>
<tr>
<td>Kyowa Trinocular 200m Microscope</td>
<td>$1487</td>
</tr>
<tr>
<td>Gossen Fibre Optic Light Source</td>
<td>$557</td>
</tr>
<tr>
<td>Olympus Polarising Microscope System</td>
<td>$2000</td>
</tr>
<tr>
<td>Strip Chart Recorder</td>
<td>$730</td>
</tr>
</tbody>
</table>

As a result the Department's capacity to undertake sedimentological analyses of various kinds is now at a high level (being one of the best equipped in any Australian University Department of Geography).

Research Theses in Progress

Ph.D. -

"Upland Swamps on the Hawkesbury Sandstone Plateau."

M.A. -

"Soil Nutrients and other Environmental Factors Controlling the Distribution of Rainforest in the Illawarra."

"Environmental Impact of Sand Mining in the Illawarra."

"Indo-Fijian Migration to New Zealand."

Department of Psychology

General

In an attempt to rationalise available staff resources and yet maintain a range of choices for students, a five year plan was formulated during 1980. The plan will involve the retention or occasional resting of several 300-level subjects offered by the Department. Students have been informed of the specific rotations.
No major changes have taken place in course content or structure at the undergraduate level. Teaching methods within the Department differ widely after 100-level, and students can, to some extent, suit their own developing style and interests. As the Department retains a relatively large percentage of its students it seems that both teaching methods and course content are generally acceptable to students.

The Department is pleased to announce that its first successful postgraduate student met the requirements for degree of Doctor of Philosophy in 1980. Dr. Robin Rowland is now employed as a Lecturer in Psychology at Deakin University in Geelong, Victoria.

As well as participating in the University's Schools Day, the Department invited school students in the Illawarra, and interested residents in the Campbelltown area to inspect the Psychology Department. Prospective students were given information regarding various aspects of Psychology, including career prospects, necessary training, and the particular areas that make up Psychology as an area of study. Some members of the Department have also been involved in the teaching of Workers' Education Association courses.

Facilities and Equipment

Major purchases used primarily for research but also for teaching included a spiroanalyzer ($4,998), a tachistoscope ($1,595) and data logging equipment ($4,779). An oscilloscope ($2,350) was purchased for the Department's workshop. Dictation machines ($1,369), cassette copier ($1,249), videocassette recorder ($1,387) with administrative, teaching and research functions were also purchased.

During 1980 inadequate space continued to be a problem, and seems likely to become severe in 1981.

Research Theses in Progress

Ph.D. -

"Gestalt therapy."

"Biofeedback mediated behavioural treatment."

"A psychological analysis of therapists' treatment philosophies."

"Transition to university."

"The relationship between mother and infant."

M.A. -

"Differential treatment in residential care of committed preadolescent and adolescent school refusers."

"Determinants of job satisfaction among health workers."

"Sources of stress on management positions in organisations."
"Subject's perceptions of and responses to punishment: A study of perceived severity of the punishing stimulus, perceived locus of control, and perceived control over the punishing stimulus."

"A re-assessment of achievement motivation theory."

"Lesbianism and ideology."

"Effects of parental death on adults."

"The relationship between taste preferences and taste sensitivity."

**Department of Sociology**

**General**

In 1980 the Department introduced the following two new subjects at the second year level: Practical Introduction to Social Research, and Social Research Statistics. Both of these subjects are aimed at providing students with practical skills immediately applicable in potential areas of employment. The same line of thought, i.e. vocational orientation, led to the introduction of a descriptive course on Australian society in first year. The aim of the course is to heighten awareness of the probable working environment, and to act as a foil to the more abstract perspective of theoretical sociology.

**Facilities and Equipment**

These are presently adequate for teaching and research.

**Research Theses in Progress**

**Ph.D.** -

"The Social Construction of Science."


"Scientific Communications in the Field of International Relations."

"Historical Determination of Ideologies."

**M.A.** -

"The Social Construction of Identity Focussing on the Disabled."

"The Formation of Social Change Movements."
Centre for Multicultural Studies

During 1980 the Centre continued its active policy of attracting students. A course handbook was prepared and circulated through the Department of Education's Regional Office. Newspaper advertisements drawing the attention of potential students to the Diploma course in Applied Multicultural Studies were placed locally and in the Sydney press. Close liaison has also been maintained with the Ethnic Affairs Commission, the N.S.W. Health Commission, and local community organisations.

At the end of 1980 seven students completed the Diploma course, and all are now in employment, either as teachers or as welfare and information officers. The Centre is also an avenue for registration in post-graduate work with relevant academic departments of the University.

The Centre was effectively at full establishment for the first time from the end of February 1980, and was thus able to fully develop a research programme. Particular research interests are as follows:

- Immigrant Parents and Port Kembla Schools
- Evaluation of the Cringila/St. Francis Community Language Programme
- Health and Safety of Migrant Workers in the Steel Industry
- Occupational Health and Safety of Migrant Workers
- Working Lives
- Politics of Ethnicity
- Ethnicity, Class and Social Policy
- Ethnicity, Class and Education
- Adult Migrant Education in the Illawarra.
RESEARCH INTEREST AND PUBLICATIONS

FACULTY OF ENGINEERING

Department of Civil Engineering

Research Interests and Major Topics of Investigation.

- Flood hydrograph computer modelling
- Flood frequency studies for N.S.W. streams
- Urban drainage design
- Erosion of sediment from catchment surfaces and its transport in streams
- Recording of climatological data
- Development of earthquake energy absorbers for bridges
- Effects of cracking on the rigidities of concrete multicellular bridge decks
- Geotechnical stability and probabilistic studies in geomechanics
- Slope and excavation studies
- Mining subsidence
- In Situ testing of soils
- Structural analysis of storage bins
- Analysis of orthotropic plate systems
- Structural dynamics
- Experimental identification techniques
- Fatigue properties of ferrocement
- Rolled concrete applications
- Studies of the microstructure of cementitious pastes, particularly with regard to the incorporation of flyash

✓ The use of waste materials in construction
- Assessment and prediction of transportation noise
- Safety and environmental problems associated with heavy commercial vehicles
- Ventilation in mines

Refereed Publications


Conference Papers


Research and Departmental Reports


Department of Electrical Engineering

Research Interests and Major Topics of Investigation

- Electrostatic precipitation of particulate solids from flue gases.
- System identification, modelling, optimisation and control.
- Digital systems, interfacing techniques and microprocessors.
- Computer-aided system analysis and reliability.
- Microwave systems.
- Energy conversion; variable speed machines and power electronics.

Refereed Publications


Reports


Conference Papers


Other Publications


Department of Mechanical Engineering

Research Interests and Major Topics of Investigation

Data Capture and Analysis.
Control and Reduction Studies.
Coal Liquefaction.
Stirling Cycle.
Flow Properties of Coal for Storage Bin Design.
Flow Properties and Handling of Precipitator Dust.
Dense Phase Pneumatic Conveying of Pulverized Coal.
Structural Analysis of Storage Bins.
Computer-Aided Bin Design.
Feeder Design.
Environmental Engineering.
Machine Element Design.
Hydrodynamics.
Fatigue in Shaft Attachment Devices.

Refereed Articles


Reports


Conference Papers


Department of Metallurgy

Research Interests and Major Topics of Investigation

Investigation of commercially important alloys using the Department's optical, electron optical, and mechanical testing facilities.

The aerodynamic behaviour of packed beds with particular reference to the iron blast furnace.

Refereed Publications


Conference Papers


FACULTY OF HUMANITIES

Department of English

Research Interests and Major Topics of Investigation

Use of computers in English language teaching.
Process and development of theatre productions.
The treatment of personal relationships in Anglo-Saxon poetry.
Attitudes to landscape in Australian fiction.
Attitudes to feminine beauty in sixteenth century poetry.
A study of Shakespeare's Henry IV.
The poetry of Henry Howard, Earl of Surrey.
Evaluation of the critical and discriminatory responses of adolescents to their experiences of television drama.
Commonwealth and Australian literature.
The art and literature of the industrial revolution.

Refereed Publications


Conference Papers


Department of European Languages

Research Interests and Major Topics of Investigation

Aspects of the writings of Federico de Roberto, with particular reference to Spanish influences.
Italian-American theatre of the early 20th century.
Neapolitan operas of the early 18th century.
Foreign language programmes in tertiary institutions: French and Italian.
Eroticism in contemporary French literature.
A study of historical writing in 15th century Milan.
Aspects of French regionalism, with particular reference to the southern region of Occitania.
Aspects of the Work of Pierre Drieu la Rochelle.
A study of the effects of oral reading on intonation acquisition in learning French as a foreign language.
A comparison of two methodologies for teaching French as a foreign language at University level: structure-global audio-visual based vs. audio-lingual explicit-grammar-based.
Preparation of an Italian edition of Raffaello Carboni's Eureka Stockade.
Preparation of part of a multilingual glossary of Social Security terms for the Australian Department of Social Security.
A survey of practices and policies relating to broadcasting in languages other than English.

Refereed Publications

V. J. Cincotto. Federico de Roberto-Commediografo (dalle lettere all'amico Sabatino Lopez), Catania, 1980.

V. J. Cincotto (ed.). Antologia di testi per un corso di civiltà Italiana vista dal cannubio tra letteratura, musica e teatro attraverso i secoli (2 vols.), University of Wollongong, 1980.


B. N. McCarthy. Present Tense ... Future Perfect: a glossary of basic grammatical terms, University of Wollongong, 1980.


Conference Papers

D. S. Hawley. "Foreign languages at the secondary and tertiary levels" (with K. Fairbairn) at MLTA National Conference, Sydney, August, 1980.


Other Papers

V. J. Cincotta (ed.). Eucalyptus, 4th annual number of the magazine of the Italian Section of the Department of European Languages, December, 1980.

Department of History

Research Interests and Major Topics of Investigation

✓ Women's Employment in Australia, 1919-1939.
  History of Wollongong.
  History of the Australian Council of Trades Unions.
  Work Experience of Aborigines.
  Interaction between Western and non-Western societies through modern colonial systems.
  Russian Civil War.
  History of Wollongong.
  J. A. Lyons.
  Italian Immigration to Australia.
  Contemporary Italian politics.
  Communist ideologies.
  Political corruption.

✓ Political terrorism.
  Britain, the U.S. and the Korean War.
  David Low, political cartoonist.
  Growing up in the Illawarra, 1834-1984.
  Mount Kembla Disaster, 1902.
  Birth of the modern missionary movement.

Refereed Publications


Department of History and Philosophy of Science

Research Interests and Major Topics of Investigation

- National policy-making for science and technology.
- The state of university research.
- The impact of technological change on employment in the Wollongong region in the 1980s.
- Review of the effectiveness of government incentives for industrial research and development.
- The development of science and technology indicators.
- Vitamin C Megatherapy: the sociology of scientific controversy.
- The German Romantic concept of embryonic repetition and its role in evolutionary theory in England up to 1859.
- Implications of trends in coal and aluminium demand for Australian energy policy.
- Sociology and political economy of technological development: the nuclear energy debate.
- The Scientific Revolution of the Seventeenth Century.
- The genesis of effective fields of experimental science.
- Explaining scientific change.
- Philosophy of technology.
- The history and social implications of genetics research in Australia.
- The generation of theories of inheritance.
- Sir John Herschel's philosophy of science.

Refereed Publications


Conference Papers


Reports


Research Interests and Major Topics of Investigation

- Portability of Operating Systems.
- Performance Analysis of Operating Systems.
- Computer Aided Learning (CAL).
- Microcomputer Applications.
- Interactive Language - SIGMA
- Text and String Searching
- Graphics.
- Compiler Code Optimisation.

Refereed Publications


Conference Papers


Reports - Preprint Series


Department of Mathematics

Research Interests and Major Topics of Investigation

- Biological Fluid Mechanics.
- Low Reynolds Number Fluid Mechanics.
- Engineering Fluid Mechanics.
- Illative combinatory logic.
- Klop's counterexample to the Church-Rosser Theorem.
- The logic of Aczel and Feferman.
- BCK algebras.
- Implicational logics.
- The "evaluation" notion in Martin-Lof type theory.
- Euclidean rings and their elements.
- Inverse combinatorics.
- Water table variation in the beach matrix due to change in ocean state.
- Methods of solution of $Ax \Rightarrow Bx$ for large sparse $A$ and $B$.
- Composition of vibrational levels in small molecules.
- Large deformation analysis of rubber inner tubes.
- Random walk model of diffusion in a media with two diffusivities.
- Solute concentration profiles in ternary lamellar eutectic growth and determination of random walk probabilities.
- Evaluation of functions in series of Chebyshev polynomials.
- Numerical linear algebra.
- Computer Assisted Instruction (CAI).
- Linear difference equations and their adjoints.
- Invariant means.
- The relationship between neighbourhood lattices and topological spaces.
- Effects of time dependent changes in demographic parameters on populations.
- Growth models for various age and position dependent cell communities.

Refereed Publications


Conference Papers


Reports


Departmental Reprint Series

1/80 A Discrete Random Walk Model for Diffusion in Media with Double Diffusivity.

2/80 A Growth Function for a Column of Cells.

3/80 The Relationship Between the Age-Position Dependent Integral Formulation and the Continuity Equation for One Dimensional Growth.

4/80 A Note on an Alternative Derivation of Random Walk Probabilities.


7/80 A Bibliography on Random Walks.

9/80 General Solutions to the Stokes' Flow Equations.


11/80 Weak Implicational Systems based on Rules for Assertion.
12/80 Modus Ponens Free (Implicational) Logics.
13/80 Professor Austin Keane D.Sc. 1927-1979.
14/80 An Extension of Klop's Counterexample to the Church-Rosser Property to \(\beta\)-calculus with other Ordered Pair Combinators.
15/80 Conjunction without Conditions in Illative Combinatory Logic.
16/80 Some Results in Aczel-Feferman Logic and Set Theory.
17/80 Notes on Some Relationships between the Galerkin's, Papkovich-Neuber's and Naghdi-Hsu's Solutions in Linear Elasticity.
18/80 Growth and Collapse of a Vapour Cavity near a Free Surface.
19/80 Collision Probabilities for Two Random Walking Particles in Terms of Legendre Polynomials.
20/80 Illative Combinatory Logic without Equality as a Primitive Predicate.
21/80 A New Definition of Division in Rings of Quotients of Euclidian Rings.
22/80 One Day Meeting on "Diffusion and Moving Boundary Problems" - Abstracts.
23/80 Simpler Axioms for BCK Algebras and the Connection between the Axioms and the Combinators B, C and K.
24/80 Natural Numbers in Illative Combinatory Logic.
25/80 Cardinal and Natural Numbers in Illative Combinatory Logic.
26/80 Slender Body Theory at Low Reynolds' Numbers.
27/80 Possible forms of Evaluation or reduction in Martin-Löf Type Theory.
28/80 More than 72 Weak Implicational Logics based on Rules for \(\vdash\).
FACULTY OF SCIENCE

Department of Biology

Research Interests and Major Topics of Investigation

Animal Physiology, Behaviour, and Ecology - Role of the thyroid gland in energy metabolism and temperature regulation.
Nature of chemical neurotransmitters in the mammalian hippocampus.
Environmental physiology of the platypus.
Factors affecting the spatial distribution of the field cricket.

Plant Biochemistry -

Photosynthesis, with special reference to interactions between photosynthetic metabolism in mitochondria.
Nitrogen nutrition of developing pea embryos together with comparative analysis of seed protein from legumes.

Microbial Physiology -

Osmoregulation in yeast and salt-tolerant unicellular green algae.

Refereed Publications


Conference Papers


Reports and Other Papers

T. R. Grant. Environmental Impact Assessment report completed for the N.S.W. Electricity Commission on "Platypus populations in the Barnard River, New South Wales. Assessment of the impact of the construction of a) a 7 metre weir and b) a 75 metre dam with recommendations for the mitigation of the effects of these proposed schemes on the resident platypus populations."

Department of Chemistry

Research Interests and Major Topics of Investigation

Oil Shale -

Analysis of the components of shale oil from two seams of the Rundle deposit, Queensland.

Environmental Chemistry -

Analysis of atmospheric aerosol particles in the Wollongong-Port Kembla region, and development of new methods for the analysis of aldehydes and ketones.
Investigation of the detoxification of phenolic effluents with hydrogen peroxide and poly-electrolytes.
Development of sensitive methods for analysis of trace metals.
Investigation of the chemistry of welding fume and possible health implications arising from suspected mutagenic components.
Hydrolysis of indicum III.

Physical Chemistry -

Exploration of the role of solvation on the dissociation of weak acids.

Synthetic Organic Chemistry -

Synthesis of anti-cancer drugs.

Inorganic Chemistry -

Synthesis and investigation of transition metal complexes as models of biologically important sites.

Theoretical Chemistry -

Direct computation of vibrational transition probabilities for the hydrogen laser.
Development of computation techniques for highly accurate and artefact-free representation of the electronic structures and energies of molecules.
Development of completely general techniques for the computation of vibrational wave functions of small molecules.
Electronic distribution in beryllium, magnesium, and calcium oxides to establish the requirements for accurate theoretical modelling of transition metal oxides.

Computers and Chemistry -

Development of a computer software system for evaluation of body images generated by nuclear magnetic resonance spectroscopy.
Development of self-paced computer-aided instruction material for use by students enrolled in the Department.
Development of software for computerisation of laboratory instrumentation, especially the Department's gas chromatography/mass spectrometry system.
Clinical Chemistry -

Development of methods for rapid and quantitative amino acid analysis by direct mass spectrometry.

Application of gas chromatography and mass spectrometry to confirmation and diagnosis of metabolic disorders.
Application of gas chromatography/mass spectrometry and related techniques for study of inborn errors of metabolism.

Refereed Publications

P. G. Burton (ed.) Molecular Physics and Quantum Chemistry: into the 80's, University of Wollongong, 1980.


Conference Papers


Reports


Department of Geology

Research Interests and Major Topics of Investigation

Coal carbonization.
Maturation and source-rock studies in Australian sedimentary basins.
Petrology of low rank oil shales.
Strata control-stress/strain studies in the southern coalfield, New South Wales, using reflectance and anisotropy of magnetic susceptibility.
Thermal studies, palacomagnetic studies, and the structural and thermal history of the Sydney basin.
Thermal properties and distribution of K, Th and U in rocks.
Geophysical studies, University of Wollongong campus studies of uranium-bearing rocks, Amadeus and Ngulia Basins, Northern Territory.
Petrogenesis of gneisses, Broken Hill, New South Wales.
Biostratigraphy of the Capertree High, New South Wales.
Ordovician faunas of New Zealand.
Permian igneous rocks of the southern Sydney Basin.
Geology of the Windellama-Marulan region, New South Wales.
Sedimentological studies in the Illawarra Region.

Refereed Publications


A. J. Wright. "Late Silurian and Early Devonian graptolite, brachiopod and coral faunas from north western and arctic Canada and western and arctic Canadian biostratigraphy", (Review), Alcheringa, 3 (1979), 188.


Department of Physics

Research Interests and Major Topics of Investigation

Astronomy.
Atomic and Molecular Physics.
Musical Acoustics.
Nuclear Physics - Nuclear Reactor Physics and Nuclear Fission Research.
Solid State Physics - Group III Impurities in Germanium
- Neutral Copper in Germanium
- Photoluminescence
- Zeeman and Fourier Spectroscopy.
Spectroscopy.
Refereed Publication


Conference Papers


Reports


FACULTY OF SOCIAL SCIENCES

Department of Accountancy

Research Interests and Major Topics of Investigation

Australian company financial reporting/New Zealand company financial reporting.

Accounting theory construction and verification.

☑ 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.

Computer-aided instruction in accounting.

Constitutional law.

External reporting in the extractive industries.

Funds statements.

History and development of accounting thought.

Learning curve.

☑ Small business management.

Statements on accounting standards by professional bodies, and other means of improving accounting practice.

☑ Taxation.

Use of computers in accounting, auditing and business decision-making.

Trade practices and consumer protection.

Refereed Publications


Conference Papers


Department of Economics

Research Interests and Major Topics of Investigation

Tax Progressivity in Australia.
Methodology of Estimating Regional Input/Output Tables.
Turnpike Optimality in Input/Output Systems.
 Overseas Investment in Fiji.
An Australian Social Contract.
Aborigines in the Work Force.
Medical Insurance.
Designing Unemployment Statistics in New Zealand: A Case History of Political Arithmetic.
History of Political Arithmetic: The Work of William Petty et. al. in the 16th Century and Development of the Notion Thereafter.
Some Key Methodological Issues in the Design/Use of Statistics in the History of Economics.
Statistics for Policy: A Theory of Public Policy Indicators.
The Economics of Quantitative Knowledge: An Exploration into How Decisionmakers Come to "know" Phenomena.
Productivity in Indian Agriculture.
The Economics of Parole.
Occupational Segregation of Women.
Agricultural Co-operatives in Papua-New Guinea.
Australia-Japan Sugar Trade.
An Econometric Model of Predictable World Demand for Sugar.
Development of the Sugar Industry in Barbados.
Theory and Measurement in Labour Hoarding.

✓ Labour Hoarding in Australian Manufacturing.
✓ Manpower Management for the Individual Organisation.
✓ Analysis of Safety Statistics and Procedures at Australian Iron and Steel.
Labour and Politics in New South Wales, 1880-1900.
Social Mobility in Australia at the Turn of the Century.
A Comparison of "New Unionism" in Australia and Britain, 1880-1900.
Industrial Relation Aspects of the Myers Recommendations.
✓ The Effect of the Tax System on the Capital Intensity of New Investment.
✓ Labour Market Implications of Changing Patterns of Work and Education.
✓ Decentralisation in Australia.
The Choice Between Bus and Car in the Wollongong Region.
Optimal Decisions Through Programming of Flood Mitigation.

Refereed Publications


Research Interests and Major Topics of Investigation

Issues in Curriculum: A study of factors affecting curriculum change in Australian schools.
Compilation of a Select Bibliography on the Middle School, for the Committee of Inquiry into Pupil Behaviour and Discipline in Schools in New South Wales.
Computer assisted instruction: application in Chemistry at the University of Wollongong.
Case study methodology in curriculum planning and development.
Role perceptions of secondary school teachers in urban comprehensive schools.
Learning: the development of new theory of how learning occurs.
Growing up in the Illawarra: a study of schooling, childhood and the family in the Illawarra region during the nineteenth and twentieth centuries.
History of Sydney Church of England Grammar School.

Refereed Publications


Conference Papers


Reports


Department of Geography

Research Interests and Major Topics of Investigation

- Sediment movement in the near-shore zone in regard to beach build-up and erosion.
- Changes in Indian agricultural practices and productivity.
- Analysis of the human problems of living on the fringes of the metropolitan area.
- Australian decentralisation policies and programmes.
- Local stream channel characteristics and the process of channel movement.
- Demographic ageing in non-metropolitan urban centres.
- Lake Illawarra sediment movement.
- Erosional and tectonic evolution of the Eastern Highlands.
Refereed Publications


Conference Papers


Department of Psychology

Research Interests and Major Topics of Investigation

- Studies in management development and organisational communication with a number of local and national organisations.
- To what extent is perceptual performance 'automatic'?
- Psychological and nutritional factors influencing the dynamics of gonatrophin secretion.
- Gestalt therapy.
- Neurolinguistic programming.
- Role of orienting reaction recovery (ORR) in human short-interval Pavlovian autonomic conditioning.
- The use of video displays to constitute one factor of a multi-factor "Q" sort of which remaining factors are verbal.
- Bulli Health Service Development Project.
- Affective and Coping Responses to Chronic Illness.
- Mens' Experience of Unemployment.
- Contradictions: psychology, feminism and the psychology of women.
- Warilla Psychopathology Survey.

Refereed Publications


L. L. Viney. Transitions. (Sydney, 1980).


Conference Papers


Department of Sociology

Research Interests and Major Topics of Investigation

- Community and ethnic affairs in the local region.
- Sociology of knowledge, science, and technology.
- Sociology of conflict and the military.
- Sociological theory.
- Education.

Refereed Publications


Conference Papers


Reports


Centre for Multicultural Studies

Refereed Publications


Conference Papers:


Reports


# Recurrent Funds

## 1980 Recurrent Income and Expenditure

### 1979 Comparisons

<table>
<thead>
<tr>
<th>Source of Income</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Government Grants</td>
<td>13,218,000</td>
<td>99.76</td>
</tr>
<tr>
<td>Other General Income</td>
<td>31,460</td>
<td>0.24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,249,460</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

### 1979 Comparisons

<table>
<thead>
<tr>
<th>Expenditure Headings</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and Staff Charges</td>
<td>11,061,387</td>
<td>81.69</td>
</tr>
<tr>
<td>Maintenance Expenses</td>
<td>1,830,788</td>
<td>13.52</td>
</tr>
<tr>
<td>Furniture &amp; Library Books</td>
<td>647,563</td>
<td>4.79</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,539,738</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

### Aggregate Funds

During 1980 income received from all sources totalled $17,863,809 while aggregate expenditure amounted to $17,182,006.

Aggregate income was received from the following sources:

<table>
<thead>
<tr>
<th>Source of Income</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Government Grant</td>
<td>13,218,000</td>
<td>-</td>
</tr>
<tr>
<td>Recurrent</td>
<td>13,218,000</td>
<td>-</td>
</tr>
<tr>
<td>Building Projects</td>
<td>1,853,978</td>
<td>-</td>
</tr>
<tr>
<td>Equipment</td>
<td>709,000</td>
<td>-</td>
</tr>
<tr>
<td>Special Research</td>
<td>78,000</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15,858,978</strong></td>
<td><strong>88.77</strong></td>
</tr>
</tbody>
</table>
### 1979 Comparisons

#### Source of Income

<table>
<thead>
<tr>
<th>Source of Income</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Purpose Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>521,493</td>
<td>-</td>
</tr>
<tr>
<td>Scholarships, Prizes, etc.</td>
<td>19,024</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>1,432,854</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,973,371</td>
<td>11.04</td>
</tr>
<tr>
<td>Other General Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent</td>
<td>31,460</td>
<td>0.19</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17,863,809</td>
<td>100.00</td>
</tr>
</tbody>
</table>

#### Expenditure Headings

**Salaries and Staff Charges**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent</td>
<td>11,061,387</td>
<td>-</td>
</tr>
<tr>
<td>Special Research</td>
<td>58,330</td>
<td>-</td>
</tr>
<tr>
<td>Special Purpose - Research</td>
<td>253,202</td>
<td>-</td>
</tr>
<tr>
<td>Special Purposes - Other</td>
<td>202,007</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>11,574,926</td>
<td>67.36</td>
</tr>
</tbody>
</table>

**New Buildings (Including Sites)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grants for Building Projects etc.</td>
<td>1,271,754</td>
<td>-</td>
</tr>
<tr>
<td>Under States Grants (Tertiary Education Assistance) Acts</td>
<td>191,835</td>
<td>-</td>
</tr>
<tr>
<td>Special Purposes - Other</td>
<td>1,463,589</td>
<td>8.51</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,106,155</td>
<td></td>
</tr>
<tr>
<td>1979 COMPARISONS</td>
<td>EXPENDITURE HEADINGS</td>
<td>AMOUNT</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>1,698,230</td>
<td>Maintenance</td>
<td>1,830,788</td>
</tr>
<tr>
<td>16,165</td>
<td>Recurrent</td>
<td>16,750</td>
</tr>
<tr>
<td>72,047</td>
<td>Special Research</td>
<td>99,097</td>
</tr>
<tr>
<td>185,817</td>
<td>Special Purposes - Research</td>
<td>372,809</td>
</tr>
<tr>
<td>1,972,259</td>
<td></td>
<td>2,319,444</td>
</tr>
<tr>
<td></td>
<td>Equipment, Furniture &amp; Library Books</td>
<td></td>
</tr>
<tr>
<td>608,545</td>
<td>Recurrent</td>
<td>647,563</td>
</tr>
<tr>
<td>1,647</td>
<td>Special Research</td>
<td>2,920</td>
</tr>
<tr>
<td>722,694</td>
<td>Grants for Equipment</td>
<td>694,467</td>
</tr>
<tr>
<td>69,416</td>
<td>Special Purposes - Research</td>
<td>129,143</td>
</tr>
<tr>
<td>75,742</td>
<td>Special Purposes - Other</td>
<td>349,954</td>
</tr>
<tr>
<td>1,478,044</td>
<td></td>
<td>1,824,047</td>
</tr>
<tr>
<td>15,218,359</td>
<td></td>
<td>17,182,006</td>
</tr>
</tbody>
</table>
### AGGREGATE FUND BALANCES

<table>
<thead>
<tr>
<th>FUNDS</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent Funds</td>
<td>410,870 DR</td>
</tr>
<tr>
<td>Grants for Equipment Under State Grants (Tertiary Education Assistance) Act</td>
<td>69,904</td>
</tr>
<tr>
<td>Special Purpose Funds (Research)</td>
<td>255,708</td>
</tr>
<tr>
<td>Special Purpose Funds (Scholarships, Bursaries, Prizes, etc.)</td>
<td>14,791</td>
</tr>
<tr>
<td>Special Purpose Funds (Other Purposes)</td>
<td>1,701,207</td>
</tr>
<tr>
<td>Australian Research Grants Committee Projects</td>
<td>1,883</td>
</tr>
<tr>
<td>Sundry Suspense Accounts</td>
<td>51,490</td>
</tr>
<tr>
<td>Sundry Creditors</td>
<td>320,490</td>
</tr>
<tr>
<td>Bank of NSW Loan (International House)</td>
<td>220,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,223,515</strong></td>
</tr>
</tbody>
</table>
### AUSTRALIAN RESEARCH GRANTS COMMITTEE PROJECTS

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel Migration and the Character of Flow Through Meander Bends</td>
<td>1,675</td>
</tr>
<tr>
<td>Detoxification of Effluents</td>
<td>5,450</td>
</tr>
<tr>
<td>Development of Earthquake Energy Absorbers for Bridges</td>
<td>3,566</td>
</tr>
<tr>
<td>Environmental Biology of the Platypus</td>
<td>3,650</td>
</tr>
<tr>
<td>Fast Photo - Electric Photometry of Astronomical Sources</td>
<td>8,558</td>
</tr>
<tr>
<td>History of the Korean War</td>
<td>7,057</td>
</tr>
<tr>
<td>Microwave Wave Front Reconstruction</td>
<td>1,200</td>
</tr>
<tr>
<td>Nature of Chemical Bonds to Metals - Precise Theoretical Studies</td>
<td>5,375</td>
</tr>
<tr>
<td>Performance Evaluation of a Portable Operating System</td>
<td>7,386</td>
</tr>
<tr>
<td>Photosynthesis and Osmoregulation in Marine Algae. Isolation and Study of Chloroplasts from Dunaliella</td>
<td>8,396</td>
</tr>
<tr>
<td>Properties and Applications of Shape Memory Alloys</td>
<td>8,525</td>
</tr>
<tr>
<td>Rapid and Quantitative Amino Acid Analysis by Direct Mass Spectrometry</td>
<td>16,721</td>
</tr>
<tr>
<td>Soil Stability Problems in Geotechnical Engineering</td>
<td>6,450</td>
</tr>
<tr>
<td>Solid State Spectroscopy: Electronic and Vibrational Spectra of Solids</td>
<td>8,000</td>
</tr>
<tr>
<td>State of University Research</td>
<td>8,047</td>
</tr>
<tr>
<td>Thermal Properties and Thermal History of Rocks from the Southern Sydney Basin, N.S.W.</td>
<td>2,065</td>
</tr>
<tr>
<td>Thermodynamic Studies of Solute Retention and Solute Fluxes in Microorganisms</td>
<td>7,946</td>
</tr>
</tbody>
</table>

### SPECIAL PURPOSE FUNDS (OTHER)

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Study Institute in Molecular Physics &amp; Quantum Chemistry</td>
<td>1,554</td>
</tr>
<tr>
<td>Autonomy Donation for Improvement of Managerial Techniques</td>
<td>600</td>
</tr>
<tr>
<td>Donations to English</td>
<td>994</td>
</tr>
<tr>
<td>Donations to Geography</td>
<td>257</td>
</tr>
</tbody>
</table>

### SPECIAL PURPOSE FUNDS (OTHER)

#### SCHOLARSHIPS, BURSARIES, PRIZES, ETC.

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Institute of Nuclear Science and Engineering Studentship</td>
<td>5,503</td>
</tr>
<tr>
<td>Australian Institute of Management Scholarship in Management</td>
<td>2,000</td>
</tr>
<tr>
<td>Peter Beckman Memorial Prizes in Physical Chemistry Fund</td>
<td>44</td>
</tr>
<tr>
<td>The Biology Prize</td>
<td>55</td>
</tr>
<tr>
<td>Darryl Condon Memorial Prize Fund</td>
<td>22</td>
</tr>
<tr>
<td>Foundation Prize in Geology</td>
<td>66</td>
</tr>
<tr>
<td>Bert Halpern Memorial Prize Fund</td>
<td>844</td>
</tr>
<tr>
<td>Research Group</td>
<td>Amount ($)</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Department of Biology</td>
<td>1,000</td>
</tr>
<tr>
<td>Department of Chemistry</td>
<td>1,000</td>
</tr>
<tr>
<td>Department of Civil Engineering</td>
<td>750</td>
</tr>
<tr>
<td>Department of Education</td>
<td>500</td>
</tr>
<tr>
<td>Department of Electrical Engineering</td>
<td>250</td>
</tr>
<tr>
<td>Department of Geography</td>
<td>250</td>
</tr>
<tr>
<td>Department of Geology</td>
<td>1,500</td>
</tr>
<tr>
<td>Department of History</td>
<td>1,000</td>
</tr>
<tr>
<td>Department of History &amp; Philosophy of Science</td>
<td>1,000</td>
</tr>
<tr>
<td>Department of Mathematics</td>
<td>2,000</td>
</tr>
<tr>
<td>Department of Mechanical Engineering</td>
<td>400</td>
</tr>
<tr>
<td>Department of Metallurgy</td>
<td>500</td>
</tr>
<tr>
<td>Department of Physics</td>
<td>500</td>
</tr>
<tr>
<td>Department of Psychology</td>
<td>500</td>
</tr>
<tr>
<td>Department of Sociology</td>
<td>752</td>
</tr>
<tr>
<td>Application of G.C. &amp; M.S.</td>
<td>20,586</td>
</tr>
<tr>
<td>Micrographic &amp; Holographic Wave Reconstruction</td>
<td>800</td>
</tr>
<tr>
<td>Migrant Safety Report</td>
<td>3,925</td>
</tr>
<tr>
<td>Biology</td>
<td>896</td>
</tr>
<tr>
<td>R.W. Young</td>
<td>2,272</td>
</tr>
<tr>
<td>Port Kembla Project</td>
<td>1,635</td>
</tr>
<tr>
<td>Sand Mining Research</td>
<td>1,750</td>
</tr>
<tr>
<td>Air Analysis</td>
<td>4,461</td>
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**Post Graduate Scholarship Account**

**Ramaciotti Foundation**

**Radio Research Board**

**Social Welfare Res.Centre**

**Special Research**

**South Coast Research**

**State Pollution Commission**

**State Planning & Environment Commission**

**Sundry Donations for Research**

**Sundry Donations for Chemical Water Research**

**L.L.Viney Research Fund**

**Vice-Chancellor's Special Research**

**Water Research Foundation of Australia**

**X.R.D.-Research Fund**
## GRANTS AND DONATIONS

### SPECIAL PURPOSE FUNDS (RESEARCH)

<table>
<thead>
<tr>
<th>Institution/Project</th>
<th>Amount</th>
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<tr>
<td>Australian Institute of Nuclear Science and Engineering</td>
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<td>Aerosol Research Fund</td>
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<td>Australian Iron &amp; Steel Pty.Ltd.</td>
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<td>Bourke Pre-School Research and Support</td>
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<td>Bulk Solids Handling</td>
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<td>Bulli Hospital Research</td>
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<td>Department of Health (Australian)</td>
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<td>Department of Education (N.S.W.)</td>
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<td>Diespecker Research Fund</td>
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<td>Digital Electronics</td>
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<td>Electric Vehicles Research</td>
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<td>Electrical Research Board</td>
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<td>Environmental Research Donations</td>
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<td>Education Research and Development Committee</td>
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<td>Geology Fuel Research</td>
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<td>Geology and Petrophysics Research</td>
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<td>Learning Environmental Research</td>
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<td>The Influence of the Thyroid Hormones on Membrane Lipids</td>
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Austin Keane Memorial Prize
Mathematics Prize Fund
Metal Manufacturers Limited Scholarship
Evan Phillips Memorial Prize
A.J. & J. Waters Geology Prize
University of Wollongong Prizes

- Australasian Institute of Mining and Metallurgy (Illawarra) -
  Australasian Institute of Mining and Metallurgy (Illawarra) -
  Australasian Institute of Mining and Metallurgy (Illawarra) -
  Western Mining Prizes
  Western Mining Prizes
  Australian Institute of Metals (Port Kembla)
  Australian Iron & Steel Pty. Ltd. Prize
  John Lysaght Australia Prize
  Marjory Brown Prize
  Gina Savage Prize
  Staff Prizes in Physics
  Corporate Affairs Commission Prize

Mining 50.
Metallurgy 50.
Geology 50.
Mining 300.
Metallurgy 300.
Metallurgy 40.
Metallurgy 30.
English 71.6
Faculty of Science 100.
Physics 20.
Accountancy 50.

1,043
637
6,000
2,142
165