The University of Wollongong

Calendar 1982

ARMS OF THE UNIVERSITY

The principal elements incorporated in the arms of the University are the blue of the sea, the gold of the sand and the red of the Illawarra flame tree. The open book often used for educational institutions has also been included.

The blazon is: "Azure an open book proper bound gold on a chief wavy or three cinquefoils gules."

Volume IV

Annual Report 1981

ISSN 0313-6906
The University of Wollongong Calendar 1982

There are 5 volumes of the Calendar:

The University of Wollongong Calendar 1982 Volume I
Legislation

The University of Wollongong Calendar 1982 Volume II
Undergraduate Handbook

The University of Wollongong Calendar 1982 Volume III
Postgraduate Handbook

The University of Wollongong Calendar 1982 Volume IV
Annual Report - 1981

The University of Wollongong Calendar 1982 Volume V
Statistics Report
The Honourable R.J. Mulock, M.P., 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, 1981.

Deputy Chancellor

Vice-Chancellor
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INTRODUCTION

THE VICE-CHANCELLOR'S STATEMENT

1981 was a year of transition for the University of Wollongong. I replaced the foundation Vice-Chancellor Professor Michael Birt in August. At this time, negotiations directed towards federation of the University and the Institute were nearing conclusion. The Councils of the two institutions had agreed on the basic shape and mode of operation of the proposed federation and were seeking State government concurrence to their proposal. Separately, the federal government had decided that several tertiary institutions ought to be merged into fewer larger institutions, a decision which was strongly opposed by several of the institutions affected and by some governments. My immediate tasks were, on the one hand, to ensure that the resulting complicated political responses which emerged did not interfere in unacceptable ways with Wollongong plans, and on the other to implement the process of amalgamation by tapping the University’s resources for imaginative action. The early development of the new institution must set it on a course which will allow it to grow and to enhance its national and international reputation.

During the year, discussion of change concentrated on possibilities for cross-registration of subjects, and the combining of library and administrative activities. The combination of the two institutions under one governing council, began to take visible form in December 1981, in advance of authorising legislation, when the two Councils decided to meet and take decisions jointly, in preparation for the legal change of status.

Academic and administrative staff from both institutions were involved in special committees and in detailed discussion of legislative changes needed to establish the combined institution. This willing staff commitment is all the more significant when viewed in a context of the University’s economic situation. The financial stresses that led to the Government’s national decisions on amalgamation were felt increasingly on this campus, as on all university campuses, in 1981.

With growing student enrolments, particularly in areas such as Commerce and Computing Science, the University’s teaching effort during the year was carried on in the face of several pressures. Departments were hindered by staffing constraints and by the lack of space: the prospect of alleviating the space problems disappeared with the cessation of funding for the capital works programme (this point is made in more detail in Appendix 5 of this Report). The University needs staff and building space to continue the work it is doing in, for example, areas directly associated with the nature and the control of technological change. This type of scholarship and research can result in an effective combination of our special knowledge and skills: it draws on the theory and applications of departments such as Mathematics, Computing Science and Engineering, and on the interpretative skills of the Humanities disciplines. In such pursuits, the University fulfils one of its roles as a leader in the community, particularly a community like that of the Illawarra, which needs assistance in coping with massive changes in its social environment.

In 1981, the University’s research effort included, together with the wide range of departmental research activity detailed later in this Report, the fostering of a special research centre entitled TASC (Technology and Social Change), whose programme is obviously directed towards the area of technological change.

The concept of TASC is that of an “organic” organisation. It has grown out of existing interests and competencies within the University. Its development relies on enhancing the integration of researchers within and between areas of scholarship, by assisting projects to expand into wider areas of application, and by developing new research approaches. The major project for 1981 has been the preparation of a book on the subject of technological change. The book, entitled Future Tense? Technological Change in Australia, is being edited by Professors Stephen Hill and Ron Johnston, and is to be published by Queensland University.
Press in 1982. The members of TASC met frequently to develop a coherent and co-ordinated approach to an analysis of the future of Australia and the part that technological change will play in determining that future.

The achievements of a centre like TASC, like the achievement of a different model of tertiary education, have helped to show that innovation can be generated in the Illawarra area.

Another such development has involved the further growth of the "Friends of the University" - an organisation intended to enrich the two-way traffic between institution and community. The "Friends" organization has two aims: one is the support of University projects. Members of the Friends donated $5,000 during 1981 to various projects; the current amount of gifts in cash, kind or service is valued at $93,000. The Friends are also pursuing their other major aim - providing a mechanism whereby the University can serve the local community more effectively. It is in this area that some of the most important work of the Friends will take place. The organization has made an excellent start, enrolling in its first year 200 individuals and organizations who have accepted a commitment to specific action in support of the organization's activities.

The research contracting arm of the Friends - Uniadvice - has also achieved initial success: it began operations in August 1981 and achieved a turnover of approximately $11,000 in its first five months. It has since negotiated a variety of research contracts involving academic staff with consultants chiefly from the Faculties of Engineering, Science and Social Sciences. The contracts included such matters as tensile testing, solar heating testing, analysis of various failures, and environmental assessments.

A modern University's contact with its surrounding community is made in these specialized, very conscious ways. It also works in more traditional ways to make an impact on those living around it. It does this chiefly by playing its role at the third level of education, particularly as the prospective source of advice, education and training for school leavers. In 1981, this activity was seen in another successful Schools Day organized in May to assist the 550 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.

The University's traditions and ceremonies are less tangible in effect but important nonetheless for giving an opportunity for scholarship and informed opinion to be heard; for giving recognition for academic achievement and for adding colour and dignity to the immediate scene. A University's formal and ceremonial occasions offer the greatest opportunity for such display and in 1981 there were two major events of this kind - the 1981 Graduation ceremonies and the University Day.

On Thursday 7th and Friday 8th May, three Graduation ceremonies were held in the University Union Hall. A total of 378 degrees were conferred. Three distinguished guests delivered the occasional addresses at the 1981 ceremonies. The Honourable Mr Justice Michael Kirby, Chairman of the Australian Law Reform Commission, Professor Leonie Kramer, Professor of Australian Literature at the University of Sydney and Dr J.P. Wild, Chairman of the C.S.I.R.O. All attracted the interest and admiration of the Graduation congregations with their words of inspiration, knowledge and wit.

The University also conferred the honorary degree of Doctor of Letters upon the University's Vice-Chancellor, Professor L.M. Birt, C.B.E. at the second 1981 Graduation ceremony. The honorary degree was conferred in recognition of Professor Birt's outstanding service to the University, and to higher education and learning throughout Australia.
Later in the year, on 14th August, the University celebrated University Day, the anniversary of the first meeting of the Chancellor's Council. The successful series of lectures which have been given to mark this occasion was continued when Sir Lennox Hewitt, O.B.E., addressed an evening gathering on the subject "The Changing Nature of Government Attitudes to Tertiary Education".

In its public role, therefore, as in its research effort and in the teaching activities which are reported in the following pages, the University in 1981 continued to work towards the achievement of its major goals. We were able also to finish the year with a sense of having achieved a great deal towards establishing a new type of Australian university, combining the courses and disciplines of traditional universities with the scholarship and enquiring characteristic of the advanced education sector.

1981 was the year in which the University's capacity, imagination and flexibility were tested and stood the strain. Our aim for the future is to further strengthen ourselves in various ways so that the University can move ahead in teaching, scholarship and research and give support and leadership to the wider society. Our task is to achieve all this in the face of economic difficulties that threaten at times to overwhelm the country's essential educational and social enterprises.

Ken McKinnon
Vice-Chancellor
THE VICE-CHANCELLORSHIP

Professor Michael Birt

In August 1981 Emeritus Professor Michael Birt, C.B.E., left the University to take up his appointment as Vice-Chancellor of the University of New South Wales.

Professor Birt came to The Wollongong University College as its Vice-Chancellor Designate in November 1973, and in January 1975 he became the Foundation Vice-Chancellor of The University of Wollongong. In the preceding years, Professor Birt had established an impressive reputation as both scholar and researcher and during his time at Wollongong he became known as a concerned and forward-thinking leader in university education.

At Wollongong, Professor Birt worked towards the realisation of true university status for the new institution. He encouraged the strengthening of the University’s teaching and research activities whilst always refusing to compromise the aspirations and standards of excellence which he believes basic to university education.

It was a fitting tribute to his contribution to this University and to university education in general that Professor Birt achieved, before leaving for the north, the acceptance of the federation model which would bring university and advanced education together at Wollongong in a mutually rewarding relationship.

Professor Birt also furthered contact between the University and its region, remaining a stalwart supporter of both in other places. He was a founding member of The Friends of the University and retains his membership. The University and the Illawarra were both fortunate to have had such an advocate during the eight years of Professor Birt’s Vice-Chancellorship.

Appointment of Dr Ken McKinnon

The Chancellor, Mr Justice Hope, announced in July 1981 the appointment of Dr Ken McKinnon as Vice-Chancellor and Professor of The University of Wollongong in succession to Professor Michael Birt.

Dr McKinnon was, until his appointment, Chairman of the Australian Schools Commission. His distinguished career has involved him in all levels of the education system. At the University level he has taught at Harvard University and, as Director of Education in Papua New Guinea, he was deeply involved in the founding and early years of two universities in that country.

Between 1974 and 1981 Dr McKinnon was the founding Chairman of The Australian Schools Commission, in which capacity he established The Commonwealth Government’s programme of grants to government and non-government schools, including programmes for disadvantaged schools, special education, migrant and multicultural education and innovations. He has been responsible for several major reports and documents on Australian education.

Dr McKinnon has been prominently associated with the arts. He was a member of the Australia Council, 1974-1978, and was its Deputy-Chairman for some time. He has chaired national enquiries into education and the arts, the future of opera in Australia and Australia’s international arts commitments.

Dr McKinnon has positive ideas about the development of the University. Amongst these ideas are his strong interest in the development of new disciplines and areas of scholarship, in strengthening the university’s international reputation, in strong regional ties, in university research, in realising the potential in the federation of the University and the Institute of Advanced Education and in student activities on campus.
THE UNIVERSITY COUNCIL AND ACADEMIC SENATE

The Council

Council held six meetings in 1981, and as at 31st December its membership comprised:

Ex Officio

The Hon. Justice Mr R.M. Hope, Chancellor
Dr K.R. McKinnon, Vice-Chancellor

Elected by the Legislative Assembly

The Hon. P.F. Watkins

Elected by the Legislative Assembly

The Hon. L.B. Kelly

Appointed by the Minister for Education

Mr B.S. Gillett
Mr C. Denley
Ms L. Rist
Professor P.D. Rousch

Elected by the Students of the University

Mr J. Whithead
Ms S.A. Nixon

Elected by Convocation

Mr C.P. Hollis
Mr J. Dombroski
Mr M.J. Robinson

Elected by the Full-Time Academic Staff of the University

Professor R. Johnston
Professor B.H. Smith
Mr R.G. Castle
Professor R.B. Leal

Elected by the Full-Time General Staff of the University

Mrs E.A. Hilton

Elected by the Members of Council

Senator S. Ryan
Dr E.A. Kernohan
The Hon. Sir Richard Kirby

The Academic Senate

The Academic Senate met seven times in 1981 and examined a wide range of academic matters, including the course and subject proposals for 1982, limited term appointments in the University and guidelines for subject offerings. Senate also recommended to Council on issues arising from the Departmental Reviews which the University had continued to conduct as part of its planning and ongoing evaluation of activities.
ACADEMIC ACTIVITIES

FACULTY OF ENGINEERING

CIVIL AND MINING ENGINEERING

The name of the Department was changed from the Department of Civil Engineering to the Department of Civil and Mining Engineering. The name now reflects the fact that the department has, for several years, offered full-time and part-time degrees in both Civil and Mining Engineering.

There were no major course changes during the year, however several subjects were renamed, amalgamated or revised.

The number of incoming undergraduate students has increased in both Civil and Mining Engineering. Attrition rates were considered satisfactory.

Equipment

Major equipment purchases during the year included the following:

- Hydraulics laboratory equipment
- Soil Mechanics laboratory equipment
- Concrete laboratory equipment
- Constant temperature/humidity chamber
- Radar speed measuring equipment
- Photogrammetry equipment
- Vibration testing equipment
- Computing equipment

Research Theses in Progress

Ph.D.

A technique to resolve road accident problems.
Progressive failure in slope stability analysis.
Foundation and earthwork evaluation.
Analysis of excavated slopes-multi-stage finite element approach.
Hydrodynamic forces on off-shore structures by laboratory study and numerical method.
High strength roof bolting techniques.
Subsidence and strata control in the Sydney Coal Basin.
Analysis of urban transport system.
Non-linear analysis of box-type structures.
Behaviour of cracked concrete multi-cellular bridges under repeated loading.

M.E.

Ventilation and explosions.
Underground coal transportation.
Urban drainage systems.
Computer simulations of rock extractions.
Time variable rainfall-runoff modelling.
Methane drainage in long wall mining.
Properties of catchment unit hydrographs.
Retarding basin design for urban drainage.
Noise characteristics on roads.
Gas removal prior to mining.
Materials in road construction.
Longwall shearer picks.
A study of some structural vibration problems.
Earthquake energy absorbers.
Analysis of mine roof problems.
Computer graphics.
Re-use of industrial and domestic wastewater.
The permeability of coal.
Control of gas in coal seams.
Effects of storm temporal patterns on flood hydrographs.
Hydraulics of road culverts.
Coal waste in road construction.
Delays at railway level crossings.
Structures in underground mining.

ELECTRICAL AND COMPUTER ENGINEERING

In order to indicate more clearly to prospective students and to the public generally, the range of courses offered by the Department, a change of name from Electrical Engineering to Electrical and Computer Engineering was proposed and approved by Council during 1981.

Two new courses were approved for introduction in 1982. Firstly, to provide an opportunity for those electrical engineering students who have a particular interest in computers and digital systems, the Department offers a course leading to a B.E. in Computer Engineering. Secondly, the degree in BMath/BE in Electrical Engineering will be offered in 1982. The course offers the opportunity for students to combine additional mathematics or computing science with their studies in electrical engineering. It is likely to be of particular interest to those students who wish to undertake a career in research.

Some minor re-arrangement of the Electrical Engineering course has enabled a number of subjects within the course to be made available, in a slightly amended form, to other than electrical engineering students. Those most likely to take advantage of these new subjects will be students of Computing Science.

Equipment

Brief details of the equipment purchased during the year from funds provided by the University and from external sources are set out below:

- 4 AIM Microcomputers
- 1 Hewlett Packard Logic Development System with two emulation stations and printer
- 1 Spectrum Analyser Plug-in Unit
- 1 AM/FM Signal Generator
- 5 Cathode Ray Oscilloscopes
- 1 Hewlett Packard Personal Computer
- 1 Real Time Emulator for 6800
- 1 Norda FET Amplifier
- Microwave hardware

Research Theses in Progress

Ph.D.

Single frame cascade induction machines: analysis and design.
Twin rotor disc type induction machines.
Identification and experimental design of linear and distributed parameter systems.

M.E.

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.
A computer controlled infra-red sensing system.
Automatic adaptive drafting programme for a universal slabbing mill.
Motor speed control through a microprocessor controlled thyristor convertor.
Electrical characteristics of a pilot scale electrostatic precipitator.
Photographic measurements of stratospheric aerosols.
A study of harmonic generation by, and fault occurrence in, static convertors.
High bite rate microwave data link.
Modulation techniques for variable speed a.c. motors.
Effect of time delays on control system stability.

MECHANICAL ENGINEERING

Once again the Department offered a fully prescribed four year undergraduate degree course together with masters and Ph.D. programmes even though it was understaffed and suffered from a serious shortage of space.

The number of students graduating in 1981 to the B.E. degree in Mechanical Engineering was 11. One M.E. and one Ph.D. student also graduated.

There were no fundamental changes in the direction or structure of the teaching programme. However, a new development, approved for offer in 1982, was the introduction of two undergraduate and two postgraduate subjects in Coal Technology. These subjects reflect the growing research being undertaken within the department related to bulk handling and processing relating to the coal industry.

The Department conducted its Annual Creative Design Competition during Session II, 1981. The design problem set to first year students was "A technical aid for the disabled". A great deal of interest was generated during the competition and the four top designs are to be considered by UNIADVICE in 1982. One of the working models, a child transporter trolley, has been donated to Para Meadows, a local Specialist School.

Research Theses in Progress

Ph.D.

Flow properties of bulk solids.
The optimum design of spur and helical gears to BS 436.
The study of flow separation in aerodynamics.
On self-tuning regulators.
Development of numerical technique for two dimensional fluid flow with flexible boundary.
Pneumatic conveying of pulverized bulk solids.

M.E.

Dust collection in the refractories industry.
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 multi-dimensional heat conduction with non-linear boundary conditions.
Factors affecting the recovery of benzene from coke ovens gas.
Some aspects of shaft design.
The prediction of bin wall loads.
The edge effects of hot-dip metallic coatings on steel strip.
The design and performance of gravitational thickeners and clarifiers.
A comparison of non-linear and linear models of a steam generator.
Vibrational problems.
There was a marked increase in new enrolments - 55 compared with 34 in 1980. The majority of Metallurgy students are enrolled in mixed full-time/part-time courses but there is now a clearly discernable trend towards a higher proportion of full-time study, a tendency strongly supported by local industries. The steel industry has continued its generous financial support for Departmental projects which has allowed further recruitment of postgraduate students from overseas. This assistance is especially welcome at present, when it is almost impossible to attract good metallurgy graduates from Australian universities to postgraduate study.

Research Theses in Progress

Ph.D.
- On line dynamic process computer modelling of a blast furnace.
- The effect of rapid thermal cycling on structure and properties of low-carbon steels.
- The structure and properties of hot deformed high strength low alloy (HSLA) steels.

M.E.
- Segregation in packed beds.
- A metallographic study of some aspect of metal joining.
- Some aspects of metal forming operations.
- Structural aspects of metal forming operations.
- Structural aspects of high strength low alloy steels.
- Modelling of Metallurgical processes.
- Fluid flow in sinter beds.
- The structure and properties of metallic coatings on steel.
- The mechanical behaviour of copper alloys.
The University Council agreed to set up a Committee of Inquiry into the English Department in October, 1981. At Council's December meeting they accepted a recommendation that the English Department be divided into two separate departments, a Department of English Language and a Department of English Literature and Drama, to become operative in 1982.

Enrolment in honours was strong in 1981 and six students completed honours degrees. The increase in the number of honours students is resulting in an increased number of students enrolling for higher degrees.

Attrition rates in 100- and 200-level English subjects were higher than the University average. This may be because the use of continuous assessment means that students who are performing badly tend to withdraw before completing the course. Pass rates in English were rather higher than the University average.

The drama courses have continued to involve both students and staff in various forms of practical activity related to their work on these courses. Amongst this activity were "Please Wait Till Your Number Is Called", a collective creation written and presented by third year students and "The Breasts of Tiresias" by Apollinaire, presented by second year students - the first performance of the play ever given in English.

The English Department's association with Theatre South continued through the company's first full season of three plays for adults including Alan Ayckbourne, "Might as Well Talk to Yourself", and J. Synge, "The Playboy of the Western World", and two for young people.

The Department assisted in the publications of two issues of "First Draught", a literary magazine. The magazine published poetry, prose and line drawings, and while it seeks to provide a vehicle for publication for members of the University, it encourages manuscripts from the Illawarra region and further afield. Mr. Rod. McConchie of the Department published two poems in 1981 in "First Draught". They were entitled: 'Wyperfeld' and 'Sale Day at Wonthaggi'.

The world premiere performances of "The Little Mermaid", an opera for children by Australian composer Ann Boyd, were staged at the Wollongong Technical College. Performers were drawn from local schools, the University, the Wollongong Institute of Education and the general community.

Research Theses in Progress

Ph.D.

Commitment and two modern British dramatists: Trevor Griffiths and David Hare.

M.A.

Disraeli's scope as a novelist.
Literary texts set by Benjamin Britten.
Nineteenth Century Australian Women Writers.
The novels of Martin Boyd.
Comitatus relationships in Old English literature.
The structure of Chaucer's 'Canterbury Tales'.

EUROPEAN LANGUAGES

The Department is moving to encourage enrolment of students particularly at the postgraduate Master of Studies and the Diploma levels. It is anticipated that enrolments in these areas will increase from 1982.

Video tapes are fast developing into a normal teaching tool. The French Embassy in Canberra has an extensive range of tapes which are utilised. A new audio-lingual introductory French course, "Intercodes", was introduced in 1981. A joint course with the Department of English was presented in first session. It covered aspects of the Renaissance in Italy, France and England.

The Italian Government’s support for the employment of a teaching assistant has made it possible to plan for the introduction of Italian honours in 1982.

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.

M.A.

Recurring Themes in the narrative work of Grazia Deledda.

HISTORY

In addition to seeking an understanding of historical processes, the kind of self-awareness that comes from that understanding and a sense of the complexity of human affairs, the Department is concerned with the inculcation of those skills that come from historical study.

In 1981, following discussions with the Committee of Review, the Department resolved to introduce a new course into first year - "Australia before 1900".

First year enrolments in 1981 were slightly higher than those of 1980. There was also a substantial increase in postgraduate enrolments.

Research Theses in Progress

Ph.D.

The first Cavalry Army 1918-1920.

The revolutionary intellectual as war leader: Lenin and Sovoborony, 1918-1920.

The historian as moralist: A study of Edward Gibbon and ‘The Decline and Fall of the Roman Empire’.

Technological change in the coalmines of New South Wales 1930-1965.

Capital and labour in the Illawarra Coalfield 1880-1900.


M.A.


A study of the Trade Union Movement in New South Wales during the Great Depression 1929-1935.

Redundant women in the Promised Land: English middle class women's migration to Australia 1861-1881.

Development of public education in Wollongong 1848-1914.
HISTORY AND PHILOSOPHY OF SCIENCE

The discipline of history and philosophy of science has undergone a considerable transformation in the past ten years. There are a number of reasons for this. Historical studies of science have been radically influenced by models developed within the sociology of knowledge. A new breed of social historians of science; trained in modern historiography, have breathed new life into the history of science. A change has occurred in the popular view of scientific knowledge and technological change, such that science is becoming less an example of objective truth and a guarantor of spiritual progress and more a source of problems and uncertain troubling knowledge; this has led to renewed interest in science and technology as cultural products. Finally, awareness of the relationship between science and the state has necessitated drawing on the concepts and methods of the economist and the political scientist.

This shift does not mean that traditional history of science and philosophy of science do not, or will not, continue to exist. They are both valid areas of intellectual inquiry, from which HPS should draw. But this new field of HPS, marked by its problem focus on the origin, nature, development and effects of science and technology, is much broader in scope, draws on a wider range of humanities and social science disciplines, and is truly interdisciplinary. Further, it provides a basis for the increasing demands on the discipline to contribute to the understanding and resolution of contemporary problems which have a scientific or technological component.

Hence, the objective of the HPS 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, with a full understanding of their strengths and limitations, and to communicate their understanding effectively. Courses 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 an expertise in dealing with it.

With the major restructuring of the courses for 1980, only relatively minor amendments were necessary. The range of subjects offered under the Masters programme was extended by the addition of “Science, Technics and Technology”. In addition a new course on “The Management of Technology” designed for students enrolled in the Diploma or Masters Degrees in Management, was introduced.

Research Theses in Progress

Ph.D.

The plant variety rights issue.
An examination of the effects of information technology on Australian organisations.
Towards a philosophy of technology.
The role of TAFE in technological change.
Industrial policy and industrial performance.
The social, political and economic impact of resource depletion in a resource-dependent region.
Australian R & D and technology transfer.
A study of social science in action: Role and limitations of contemporary research into domestic inequality.

M.A.

Political decision making in situations of technical uncertainty - the case of 2, 4, 5-T.
The impact of technology on the employment of professional chemists.
Total enrolments, which rose dramatically for one year in 1978, have shown a slight upward trend in the last two years, 1980 being 3% above 1979 and 1981 5% above 1980.

Enrolments at 200- and 300-level vary considerably from year to year for no firmly identifiable causes. The high 300-level enrolment in 1980 may have been a flow-on from the very high 100-level enrolment in 1978.

Professor Chipman was appointed jointly, Visiting Professor in the Department of Jurisprudence, University of Sydney and Professor of Philosophy, University of Wollongong, by the concurrent actions of the University of Sydney Senate and the University of Wollongong Council: effective January, 1982. Dr. Harry Beran was appointed Chairman of the Department for three years.

Research Theses in Progress

Ph.D.

Luigi Pirandello: Existentialist avant la lettre.
Epistemology, reference and existence.

M.A.

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

Due to a rapid and sustained growth in student load, the resource position, in terms of staff, space and housekeeping, has become unacceptably low.

The structural changes in the Department's teaching programme initiated in 1980 were consolidated and extended in 1981. Essays were introduced into some of the undergraduate subjects as part of assessment, to give students experience in library skills, technical writing, and in the study of some specialisation in computing.

A new system for visible program execution in single step mode was developed for use by first and second year students. A display system that prints user program statements stepwise, as they are executed was also developed. These tools are expected to greatly assist beginners in mastering basic computer concepts.

The development of second and third year laboratories has been suspended, while rapidly increasing student numbers require the concentration of all the Department's inadequate staff, space and financial resources on the provision of a general purpose time-sharing terminal laboratory of sufficient capacity and quality.


With the success of the Department's previous summer schools in computing, a six-day summer school was organised, in collaboration with the Regional Office of the Department of Education, for Year 11 students from the south coast region. In staging the summer school, members of the department were assisted by members of local industry, by senior Computing Science students and other members of the University. It should be noted that in 1982 there were 16 students enrolling in first year Computing Science who had attended one of the summer schools.

Research Theses in Progress

Ph.D.

Portability of operating system software.
Performances of portable operating systems.
Student/machine interaction in microcomputer assisted teaching.

M.Sc

An automatic program description system.

MATHEMATICS

Subject and course changes which had been proposed in 1980, were implemented in 1981. This involved running some transition courses for students who were part way through certain combinations of subjects, but all the changes were introduced in a smooth manner.

Mathematics IA students completed the FORTRAN segment of their course on terminals connected to the Computer Centre UNIVAC for the first time in 1981. Better access to the computer contributed to a significantly better performance in this segment of the course.

With the cooperation of the Department of Psychology, the Department of Mathematics presented special remedial mathematics lectures for students doing
Statistics courses. It also provided statistical advice to staff members and students from other Social Science departments.

Research Theses in Progress

Ph.D.

Numerical solutions of 3 reactor kinetic equations.
Rate limiting mechanisms of pyritic oxidation in overburden dumps.
A problem in sequential analysis.
Mathematical models of the lung.
Solution of sparse matrix eigenvalue problems arising in the applications of the finite element method.
Non classical diffusion.
Random walk models.
Boundary integral methods for problems in hydrodynamics.
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.
A new 200-level subject, "Plant and Animal Diversity" was offered in 1981 only, pending restructuring of the Biology syllabus in 1982. Enrolments for 100-level were up by 24% on 1980 figures. Pre-recorded video tapes for supplementary tutorial material were obtained from Monash University and introduced for "Neurobiology".

Equipment

The largest item of equipment acquired in 1981 was a Cary 210 spectrophotometer.

Research Theses in Progress

Ph.D.

Effect of pollution on larval settlement and community structure of sessile invertebrates.
Studies in the evolution of energy metabolism;
Osmoregulation in cyanobacteria.

M.Sc

Antibiotic production by marine chromobacteria.
Numerical taxonomy of dermatophyte yeasts.

CHEMISTRY

First year enrolments were slightly higher than in 1980, with a similar ratio of science to engineering students. The 200- and 300-level enrolments were very similar to 1980; 400-level enrolments (nine students) were the highest ever recorded in the Chemistry Department.

Attrition rates in first year and especially withdrawals during the first few weeks, were much lower than usual. Attrition rates in higher years continued to be very low.

The remedial chemistry course continued to be offered to assist students who enrol in CHEM101 having little background in Chemistry.

The department also issued a document to all new honours students which set out the aims of the honours programme, the general factors taken into account when arriving at an honours grading, the requirements of the thesis and a list of books giving advice on written expression.

The department introduced CHEM425 Chemistry Joint Honours which will operate from 1982 and enable a student to take an honours degree in chemistry plus one other discipline (usually a member department of the Faculty of Science).

Equipment

Most of the 1981 equipment purchases were used to upgrade our facilities for gas chromatography (element-selective detectors for nitrogen, phosphorus and sulphur) and atomic absorption analysis (I.L. Model 551 microprocessor spectrophotometer with Model 254 electrothermal atomisation facilities). All of this instrumentation attracted heavy use as a result of the large increase in research student numbers in the oil shale and environmental chemistry areas. The expanded analytical capability is making it possible to undertake new contract research activities.
The Department purchased the following items of equipment:

- Varian pyroprobe for pyrolysis gas chromatography
- Specific detectors for nitrogen, phosphorus and for sulphur (attachments for gas chromatograph)
- Reporting integrator for use with gas chromatograph
- Fischer Assay retort
- Spinning band distillation apparatus
- Nova 4 computer + disc system
- I.L. Atomic absorption spectrophotometer with electrothermal atomisation facility
- Omniscribe dual pen flat bed recorder
- UV/visible spectrophotometer
- Deuterium lamp housing
- Oven
- Slimline air conditioner

Research Theses in Progress

Ph.D.

- Hydrolysis of metal ions.
- Analytical studies on Australian shale oils.
- Ring closure reactions of substituted aminomethylarenes.
- Characterisation of components in shale oil.
- Analytical studies on shale oil.
- An investigation of the chemical composition and mutagenicity of welding fume.

M.Sc.

- Studies in molecular interactions.
- Spectrophotometric analysis.
- An investigation of environmental effects of dredging in Lake Illawarra.

GEOLOGY

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 the major areas of Geology. To give a course with a narrower base would make graduates much less acceptable to industry and to other employing organisations. Graduates from this programme have found employment in a wide range of companies, government instrumentalities, universities and the teaching profession.

The honours year contains some formal coursework but is intended primarily to develop a capacity for independent work. Specific support for the teaching programme of the Department was provided by a major company in 1981. This company has specifically recognised deficiencies in the support provided for teaching geology in Australian universities.

The postgraduate programme in Geology has historically been oriented towards Ph.D. programmes, chiefly 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. 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.

The small academic staff available to the Department has resulted in a policy commenced in 1973 to reduce the class contact hours. The first revision was able to maintain some flexibility by rotating many of the courses over a three year cycle. The latest revision, implemented in 1981, lost this flexibility and any
further cuts would seriously affect the professional standing of a Geology-oriented degree from the University of Wollongong.

Equipment

The Image Analyser and the XRF equipment are still not fully operational. A link system in the Quantimet continues to give problems.

The Zeiss universal microscope was completed and received some use, especially after a water filter was "designed" to stop the oil boiling in the excitation beam. 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 organic petrology of oil shales.
Studies in coal-bearing sequences in New Zealand.
Igneous rocks of the southern Sydney Basin.
Geochemistry of recent sediments in Lake Illawarra.
Directional properties of vitrinite reflectance and their relationship to stress conditions in coal seams.
Volcanic rocks in Central Western New South Wales.
Relationship between coals and associated hydrocarbon source rocks.
Aspects of sedimentology of coal measure sequences.

M.Sc.

Coal quality in the Gunnedah Basin.
A study of the Bald Hill Claystone.
Aspects of igneous intrusions in the Southern Coalfield.
Coal type and quality in the Latrobe Valley coals.
Coal facies relationships to sedimentary environments.
Heat-altered coals in the Collinsville area.
Magnetic studies in the Cudgegong-Rylstone district.
Organic matter in oil shales.
Mineralogical composition of Illawarra beach sands.
Coal resource assessment in the Gunnedah Basin.

PHYSICS

No changes in the teaching programme were initiated in 1981. However, substantial alterations were approved for the 1982 offering. A two subject sequence was designed in collaboration with the Department of Biology for offering at 100-level to meet the needs of less mathematically inclined students. The two subjects are, PHYS131 and 132 - Physics for the Life and Environmental Sciences A and B respectively.

A significant increase in enrolments occurred in 1981. This increase was due mainly to the large enrolment in engineering. The percentage of science students enrolling in physics is still low. It is anticipated that this will improve with the introduction of the new first year strand in 1982.

The Department provided a one-day in-service programme for South Coast High School Teachers of Physics. This programme was entitled "Optical Instruments and Applications". In addition, a meeting was held in November with the regional high school science teachers to discuss the concept of a diploma in physics for High School Science Teachers.
Equipment

A general overall improvement in the facilities was made with the acquisition of several significant pieces of equipment. Also, improvements were made in the versatility of the equipment in the compressor compound.

The following equipment was purchased during 1981:

- Spectra Physics ring dye laser
- SPEX 1 metre monochromator
- Motorization of observatory dome
- Apple Computer with peripherals
- Equipment from Purdue University
- Sixty litre liquid helium storage vessel
- TRIO oscilloscopes
- Abbey Crane
- BWD function generators
- Kuroka universal facing and boring head
- Portable gasoline generator
- Liquid helium transfer tube
- Sony Camera

Research Theses in Progress

Ph.D.

Study of neutron capture in the magic nuclides at N=50 and N=82.
Piezospectroscopy of neutral copper impurities in germanium.

M.Sc.

The measurement of fission neutron spectrum of $^{252}$Cf and to determine the average neutron energy.
An infrared wavelength modulation spectrometer for the study of impurity 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$\beta$ photometry of bright UV stars.
During 1981, first year accounting and law were converted to annual subjects and the specialisation in Management Studies was introduced.

The Master of Studies in Accountancy degree was introduced in 1981 to help meet the needs of professional accounting students for relevant education at postgraduate level. The main purpose of the degree is to provide graduate students who have completed the accountancy specialisation for the Bachelor of Commerce degree, with the opportunity of further in-depth study of advanced topics in accounting and commercial law.

Following the strong demand for, and the support of, the graduate programme in management introduced in 1980 it was felt appropriate to advance to the next stage of a "Master of Business Administration" type masters degree and Council approved this initiative.

The main objective of the Master of Management degree is to enable graduates over a period of three years part-time study, undertaken whilst working, to be introduced to the main functional areas of management and the concepts needed by management in order to be able to manage effectively and efficiently. Other departments with academic staff possessing appropriate skills or experience in management are encouraged to participate.

It should be noted that the graduate programme in management is directed at graduates from disciplines other than those of management studies, Engineers comprising the largest single graduate group.

Professor Ken Blakey retired in July 1981 and was subsequently appointed as Professor Emeritus.

Three new second-year subjects in the quantitative stream were introduced in 1981. They replaced two subjects covering the same area. The new subjects allow for an expanded coverage of operations research and national income accounting. They also provide a logical and coherent division of the topics covered.

The introduction of a new subject - Labour Managed Systems reflects the Departments expanding teaching and research interest in the field of labour economics. In addition, two third-year subjects in Industrial Relations were taught for the first time. This was significant, as it meant that students could take a coherent stream of subjects in Industrial Relations from first-year through third-year. Consequently, both a Bachelor of Arts and a Bachelor of Commerce with a specialisation in Industrial Relations were introduced in 1981. The Industrial Relations programme has proven to be very popular with students and enrolment in this area has grown steadily.

The pass rates for the Department at all subject levels are near the average for both the University and the Faculty of Social Sciences.

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.
Economic thought and public measurement: Studies in political arithmetic.
M.Com.

Sugar cane 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.

EDUCATION

In 1981, the Department, for the first time in Wollongong, taught a 100-level subject: "Learning: The individual and institutions", which now completes a full sequence of studies in Education. The introduction of this subject was offered jointly by the University and the Wollongong Institute of Education to students of both institutions, and was taught by staff from both institutions.

In 1982, collaboration with the Institute will extend to the graduate Diploma in Education offered by the University. Joint teaching of foundation subjects will be introduced, the extent of collaboration depending upon appropriate staff being available.

Enrolments for 1981 again stretched the resources of the Department. Pass rates have tended to move above the University average, a fact which was almost certainly due to the use of follow-up procedures adopted by staff when assignments submitted by students for assessment were marginal.

Research Theses in Progress

Ph.D.

The relationship between psycho-social variables, and music traditions and education in the Philippines and Australian cultures.
Analysis of teacher belief systems and their attitudes to drama as factors in student performance on selected educational outcomes.
Decision-making in the secondary school: a study of the constructs of the teacher, using the repertory grid.

M.Ed.

The adolescent in the middle school.
Curriculum development in New South Wales schools 1880-1920.
Retrospective analysis: a methodology for curriculum development.
Bilingual education: a study of some attitudes and expectations in Australia.
The utility of play in the pre-school child.
Compensatory education.
A theory of curriculum: the Catholic agenda.
Education and the technological revolution.
A new methodology for history teaching: empathetic reconstruct.
Professional development of teachers.

GEOGRAPHY

The departmental programme has been reviewed for 1982, so as to allow students the opportunity to achieve not only a relevant and satisfying educational experience, but also to obtain the skills and concepts of real-world problem solving.
In effect, the proposed changes in direction and structure of the teaching programme for 1982 are subtle rather than major. They involve the streamlining of subject offerings so that, particularly in the undergraduate programme, a more cohesive, relevant and theme-oriented programme has emerged. Emphasis has been placed on subjects related to aspects of environment and environmental planning, development and management.

Close contact with schools has been maintained in 1981 and a series of formal activities are planned for 1982 - including a Teacher Forum Series, a Teacher Field Trip Series and continuing publication of the Wollongong Studies in Geography, a number of which were published and widely distributed through the State's secondary schools.

Equipment

The Department purchased a 'Citation' computerised laser beam survey instrument and several automatic Dumpy levels for use in the teaching and research programmes.

To further upgrade photographic facilities and provide better servicing for the teaching programme, the Department added a Panager slide copying unit to existing reprographic facilities.

Research Theses in Progress

Ph.D.

Upland swamps developed on Hawkesbury sandstones.
Vegetation of Morton National Park.

M.A.

Labour migration in Fiji.
Soils of Illawarra rainforests.
Vegetation communities of the Budawang Ranges.

PSYCHOLOGY

The five year plan which was implemented in 1980, has been functioning at an acceptable level. The plans objectives are to rationalize available staff resources and yet maintain a viable range of choices for students. The addition of several new subjects reflects the input of new members of staff to the Department.

In 1981 the Department offered a Master of Arts in Applied Psychology degree for the first time.

Equipment

During 1981 the Department's equipment purchases consisted of a Beehive terminal, a DEC, LS111/23 minicomputer and an airconditioner for the equipment. The addition of these computing facilities is expected to greatly enhance the Department's research capabilities. The writing of, and modification of existing software remains to be completed before its potential is fully realized.

Research Theses in Progress

Ph.D.

Gestalt therapy.
A Psychological analysis of therapists treatment philosophies.
Transpersonal approaches to healing.
Individual differences in mental imagery.
In 1981, no new courses were introduced in the Department of Sociology but the Department did move to further foster the development of practical skills of direct use to students in their future employment. Firstly, it is now mandatory for students majoring in Sociology to complete both core research methods and social research statistics courses at SOC 200- or SOC 300-level. Secondly, SOC 100 and 200 programmes involve a new SOC 100 structure which emphasises both empirical data on Australian society and sociological theory as well as a core theory course at SOC 200-level and options which deal with industrial society. Following this coursework balance has been introduced in our SOC 300 programme between courses which deal more directly with vocational concerns - for example, on social policy, science technology and society, and industrial sociology, and courses which deal more with the background knowledge of the discipline of sociology, for example, "Sociology of Knowledge".

New enrolments for SOC 100 and SOC 300 courses in 1981 have dropped compared to the 1980 figure, but the Department increased in enrolments at SOC 200-level.

As a reflection of a continuing trend over the last three years, the number of students who major in Sociology has increased. This is a signal that students are now seeing Sociology as a discipline which provides good employment opportunities.

Employment tends to reflect the pattern of employment for Sociology graduates in general across Australia, that is the majority of graduates are employed in the public sector in fields related to community social service.

The Chairman initiated contact toward the end of 1981 with each of the government or semi-government instrumentalities located in Wollongong specifically to encourage enrolment of students in the Graduate Diploma in Sociology. To facilitate study by government employers, the Department also arranged approval of Wollongong's Graduate Diploma in Sociology by the Public Service Board to allow government employees time off for study purposes. As a direct result of this contact, the Department has attracted 5 Graduate Diploma students to the University in 1982.

Contact was established by the Chairman of Department with the Regional Director of the Department of Education who agreed to actively promote the Graduate Diploma in Sociology for use by school administrators and by social science teachers.

One of the key openings for attracting students into Sociology at a tertiary level lies in present considerations within the Department of Education to introduce a new HSC social science subject entitled "Society and Culture". Presently Sociology provides a base for subjects only to the School Certificate level, so
there is no sociology sequence from which students could continue into tertiary studies and there is little incentive for intending teachers to train in Sociology. Therefore the introduction of the new HSC course is of potential use in advantageous consequences for attracting social science students. The Department has arranged for two members of its staff to be members of the State curriculum committee which is designing the "Society and Culture" course.

Research Theses in Progress

Ph.D.

Scientific communications in the field of international relations.
The historical determination of ideologies.
The formation of social change movements.
Culture and ideology in action - owner driver truckies in New South Wales.

M.A.

Women and work.
The effects of social and economic development on religious belief systems.
Dynamics of change in marginal situations.
The social construction of identity focusing on the disabled.
The Ethnic Press in Australia.
CENTRE FOR MULTICULTURAL STUDIES

The Centre offers a Graduate Diploma in Applied Multicultural Studies and for the first time in 1981 provided coursework programmes for students pursuing graduate degrees in some University Departments.

A Teaching English as a Second Language workshop-based programme, was made available as part of the first year of the Diploma.

The introduction of Serbo-Croatian language studies in 1981, continued the policy for rotation of languages, and marked the introduction of the first teaching of a non-Romance language in the University.

A national conference on ethnicity and class was held over three days in August. Interest was shown from all levels of government, industry, welfare and universities and colleges in Australia. The success of the conference and the demonstration of the viability of the social policy perspective of the Centre’s work, provides an indication of the future role and direction of the Centre.

GENERAL STUDIES

The aims of General Studies are to provide undergraduate students with a richer and more varied subject offering than this university could otherwise afford. This is done by means of interdisciplinary subjects where General Studies co-ordinates and services the presentation of subjects based on a single department but offered also under a General Studies number and aiming to attract students who might not otherwise look under the science schedule, for example, when enrolling or re-enrolling; and subjects which larger universities offer but for which there is no departmental establishment at Wollongong. A further important function of General Studies has been the launching and testing out of new subjects, which if successful can then be attached to the appropriate subject department. Such a set of subjects is the Industrial Relations group which was incorporated in the Department of Economics at the beginning of 1981.
ACADEMIC SERVICES

UNIVERSITY LIBRARY

During 1981 collection growth continued at an acceptable pace with the addition of 19,731 volumes of monographs and serials. After adjustments for volumes in microformat not previously counted, there is a total of 223,114 volumes in the collection.

The Working Party on a single Library for the Combined Institution - the Federation of the University of Wollongong and the Wollongong Institute of Education - reported in early December. The report projected a physical merger of the two libraries by mid-April, 1982. When material from the Institute Library is fully integrated figures will change significantly.

Statistics of Library use show that overall borrowing rose by about 4% over 1981. Greatest increases were recorded for postgraduate students, up 38.03% and for serials, up 19.29%. Reserve lending dropped again over 1981, down 19.67%, reflecting perhaps less need to provide a special collection to cater for titles in high demand. Interlibrary lending may have reached a plateau, with almost no change in the level of items lent to other libraries. However, the level of requests to other libraries rose by 6.34%, showing an increasing demand for material not held at Wollongong.

Within the Archives Division the amount of records relating to the University increased by 16.66%. The number of items retrieved from these records rose from 275 in 1980 to 412 in 1981. Almost every administrative and academic department has now used the facilities offered by the Archives.

Co-operation with Macquarie University Library in a joint automated cataloguing system continued. Implementation of standards of coding including AUSMARC (Australian Machine Readable Catalogue) and AACR2 (Anglo American Cataloguing Rules) dominated co-operative discussions and activities.

COMPUTER CENTRE

With the most necessary system upgrades and network expansion established in the previous year, 1981 afforded the opportunity to consolidate software and hardware stability. One major hardware acquisition was that of high speed CACHE memory on the Univac 1100/60, facilitating improved performance in general throughput and in scientific research work, and satisfying initial contractual expectations.

To ascertain the real value of successive enhancements, a comprehensive suite of benchmarks were staged, revealing that overall throughput increased threefold. Of special interest, well received papers were presented at conferences, national and international (viz. Brisbane, Toronto and Monte Carlo), detailing the nature of the benchmarks.

The increased throughput afforded by the more powerful Univac 1100/60 resulted not only from an acceleration in processing batch work but also from the ability to service a greater number of active terminals at any given time. To this end, continued addition to the Perkin-Elmer 3220 communications interfaces enabled improved user accessibility to the mainframe computer.

Perhaps the highlight of the year was the introduction of the MAPPER system to cater for speedy on line program development, a factor critical to current and prospective external customers, not to mention a plethora of local applications system requirements.
The appointment of three new members of staff, foreshadowed in the 1980 Report, proved extremely worthwhile. The University’s first Graphic Designer demonstrated rapidly that there had been a hidden need for art services within the institution and, by the end of the year, had shown that a further appointment in this area will soon be necessary. The Research Officer, working in conjunction with the Vice-Chancellor’s Working Party on Computer Aided Learning, not only evaluated CAL systems on campus and around Australia, but set out the basis for future rational development of CAL in the University. Finally, the work of the new Audio-visual Attendant has been instrumental in relieving other staff from routine duties enabling them to concentrate on their professional responsibilities.

Partly as a consequence of the dramatic improvement in staffing and partly as the outcome of steady planning in previous years, the Centre was able to contribute directly to the improvement of teaching in 1981. Hitherto, staff were assisted indirectly by the provision of advice on teaching methods, the production of well-designed instructional materials and the provision of an efficient audio-visual service. In 1981, it became possible to respond to requests for evaluations of teaching, and a number were carried out, leading to significant improvements in the relevant subjects.

The Centre continued to assist many community organizations during the year with advice, technical services and the loan of equipment when available.
STUDENT ACTIVITIES

THE STUDENTS' REPRESENTATIVE COUNCIL

The S.R.C., during 1981, made certain changes to its Constitution, simplifying it, and eliminating some ambiguities. The childcare subsidy system initiated in 1980 was maintained.

A great deal of the S.R.C.'s energies were directed toward co-ordinating Wollongong's contribution to the A.U.S. Education Fightback Campaign. This work included raising education issues among students and in the community generally, especially in relation to tertiary tuition fees.

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.

1981 was a successful year for the Union, marked by a significant increase in usage of all the main service-outlets in the Union Building. The Union's programme of activities was also well supported and events staged during the year included: lunchtime and evening concerts, featuring outstanding classical music and jazz performers; a varied range of arts and crafts exhibitions; a series of recreational classes in subjects such as yoga, dance and movement, photography, typing, guitar, speed-reading and study-techniques; a number of public debates on current affairs, as well as regular film shows and social entertainments. Union clubs and societies provided a further range of activities and two new societies - Wine Appreciation and Amateur Radio - affiliated during the year.

"Kids' Uni" - the Parents' Club Childcare Centre - had an extremely busy year and such was the demand for places that an annexe had to be established for part of the year utilising accommodation in the Sports Pavilion. Another feature of the year was the development of a highly innovative pre-school educational programme for the Centre.

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 1981 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:

- Athletics
- Australian Rules Football
- Badminton
- Basketball
- Cricket
- Hockey (Men's)
- Hockey (Women's)
- Judo
- Motor Cycle
- Netball
- Rugby Union
- Sailing
- Skiing
- Soccer
- Squash
- Sub Aqua
- Surf-Riders
- Table Tennis
- Tae Kwon Do
- Tennis
- Touch Football
- Volleyball
During 1981 the Sports Association, in conjunction with the Union, appointed a Recreation and Activities Assistant to develop a programme of recreational activities on campus. Intra-mural competitions and coaching courses for beginners in a variety of sports have already been developed and wider participation in leisure activities has been encouraged.

Towards the end of the year work commenced on the preparation of a major new oval near the Sports Pavilion.

COUNSELLING CENTRE

During 1981 the University Counsellor provided a counselling service for students and staff. A total of 440 people utilised the service. Group programmes, designed to assist first year students in their transition to university, were conducted in first session. The groups provided an opportunity to meet other students, learn about the university system and develop an effective approach to university study. A number of people participated in Assertiveness training groups which were offered in sessions one and two.

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 277 persons consulted the Medical Service's personnel during 1981 while 40 availed themselves of the Family Planning Clinic.

INTERNATIONAL HOUSE

During 1980 the University acquired from the District Y.M.C.A. Youth Clubs, the residential college known as International House.

At the commencement of first session, 1981, 300 applications were received for the 202 places offered. The occupancy rate dropped slightly during session as students withdrew from courses. The average occupancy rate for Session 1 was 97% and for Session 2 was 90%. The lower Session 2 figure was largely attributed to the departure of U.S.A. exchange students.

The financial statement for the year ended 31st December, 1981, shows an operating surplus of $3,009. This surplus is due mainly to the higher than anticipated occupancy rate. It should be noted that despite major upgrading work this year, which included the completion of the access road, carpeting corridors and stairs and painting of kitchen and dining areas, International House has now accumulated a total operating surplus of $14,297 and a total accumulated provisional fund of $63,120.
RESEARCH INTERESTS & PUBLICATIONS

FACULTY OF ENGINEERING

CIVIL AND MINING ENGINEERING

Research Interests and Major Topics of Investigation

Flood hydrograph modelling using linear and non-linear models.
Flood frequency analysis using regional relations between flood statistics and catchment physical and climatic characteristics.
Urban drainage hydraulics, use of detention basins for flood reduction, and energy losses in urban drainage pipe systems.
Coastal engineering studies of the interaction of waves and structures.
Development of earthquake energy absorbers for large structures. Non-linear finite strip analysis of plate and box type structures and the behaviour of cracked multi-cellular concrete bridge decks under repeated loads.
Geotechnical stability and probabilistic studies in geomechanics.
Structural analysis of storage bins.
Elasticity methods for orthotropic plate systems.
Experimental dynamic identification of structural systems.
Analysis and design of unreinforced cellular brick walls and columns under axial and lateral loads.
Experimental determination of the behaviour of timber beams reinforced with metal plates.
Development of a low cost building material.
The behaviour of fly ash, granulated blast furnace slag and the rejects from the fluidised bed-combustion of coal wastes when these materials are incorporated into concrete mixes.
Rolled concrete applications.
Fatigue properties of ferrocement.
The use of waste or low-grade materials currently considered unsuitable for use.
The study of road accidents, environmental problems and vehicle design in connection with road traffic.
Roof bolting, ventilation, planning, rock mechanics, coal stockpiling and gas in mines.
Computer simulation of mining operations.
Assessment and prediction of transportation noise.
The use of a wind tunnel in testing coal particles at different wind speeds and moisture contents.
Variable boundary problems on the base of both linear and non-linear theories.
Development of the mathematical description of the consolidation process with consideration of some of the physical phenomena.
Application of the numerical solutions in engineering computation and prediction of settlement process.

Refereed Publications


Conference Papers


Research and Departmental Reports


**ELECTRICAL AND COMPUTER ENGINEERING**

*Research Interests and Major Topics of Investigation*

Methods of improving the efficiency of electrostatic precipitators collecting fly ash from the combustion of low sulphur coals.

System identification, modelling, optimisation and control.

Digital systems, interfacing techniques and microprocessors.

Energy conversion; variable speed machines and power electronics.

Development of a technical aid for the blind.

Development of microwave holography techniques and high speed microwave data links.

Microwave systems.

System analysis with reference to the reliability of control and protective systems for nuclear reactors.

The estimation of Aquifer water levels and maximum water flow rates at different pumping stations.

*Refereed Publications*


**Conference Papers**


**Reports**


**MECHANICAL ENGINEERING**

**Research Interests and Major Topics of Investigation**

Control of large scale systems.
Solar energy/data capture and analysis.
Stirling cycle.
Flow properties of coal for storage bin design.
Flow properties and handling of precipitator dust.
Dense phase pneumatic conveying of pulverized coal and flyash.
Structural analysis of storage bins.
Flow of fine powder from mass-flow bins.
Computer-aided bin design.
Feeder design.
Environmental engineering.
Machine element design.
Vorticity and flow separation.
Numerical studies of nonlinear water waves.
Self-tuning regulators.
Coal technology.
Industrial application of computer aided design.
Tribology - bearings, friction and wear.
Interdepartmental research project.
Vibration problems in magneto-elasticity.

Refereed Publications


Conference Papers


METALLURGY

Research Interests and Major Topics of Investigation

The aerodynamic behaviour of the iron blast furnace.
Solidification.
Recovery and recrystallization.
Cold rolling and annealing.
Ultra high-speed annealing.
Restoration under hot working conditions.
Thermomechanical processing of microalloyed steels.
Cold working of metals.
Shape memory effect.

Referred Publications


Conference Papers


FACULTY OF HUMANITIES

ENGLISH

Research Interests and Major Topics of Investigation

Scottish literature.
Process and development of theatre productions by Theatre South.
Attitudes to landscape in Australian fiction.
Attitudes to feminine beauty in sixteenth century poetry.
Analysis of the Women's Studies course in relation to those taught in other Australian tertiary institutions.
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 treatment of personal relationships in Anglo-Saxon poetry.
Investigation into the place names of Suffolk.
A study of Shakespeare's Henry IV.
The art and literature of the industrial revolution.

Referred Publications


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 Occitanie and to medieval history.
Aspects of the work of the 20th century French writer Pierre Drieu la Rochelle.
A study of the effects of oral reading on intonation acquisition in learning French as a foreign language.
Italo-Australian literature.
Multilingual broadcasting in Australia.
Italian lexicography.
Folklore among primitive peoples.
Contrastive linguistics.
A comparative study of Pierre Drieu la Rochelle and Aldous Huxley.
Refereed Publications


Conference Papers

G.J. Ianziti. "The Revival of City and Dynastic History in the Time of Lodovico il Moro (1480-1500)" at the Sixth Conference of Australian Historians of Medieval and Early Modern Europe. La Trobe University, (May, 1981).


Reports

V.J. Cincotta (ed). Eucaliptus, 5th annual number of the magazine of the Italian section of the Department of European Languages, (December, 1981).

G. Rando. "L'insegnamento dell’Italiano in Australia", La Fiamma, XXXIV, 22 (1981), 44.


HISTORY

Research Interests and Major Topics of Investigation

History of the Australian Council of Trade Unions.
Rules of the Italian political game.
Mount Kembla disaster, 1902.
E.P. Thompson's assessment of the role of Methodism.
Work experience of Aborigines.
History of aborigines on the mid-North Coast, New South Wales.
Negotiation of "social contracts" between Labor governments and the trade
union movements in the United Kingdom and Australia.
Britain, the U.S. and the Korean War.
Colonial administration of Papua New Guinea.
A comparative study of political corruption in France and Italy towards the end
of the nineteenth century.
David Low, political cartoonist.

Refereed Publications
F.S. Piggin. "Religion and Disaster: Popular Religious Attitudes to Disaster and
Death with special reference to the Mt. Kembla and Appin Mine Dis­
F.S. Piggin. "Fleming, William Montgomerie", Australian Dictionary of Biography,

Conference Papers
assessment of the role of Methodism in an age of Revolution", ch.18 in
J.S. Udy and E.G. Clancy (eds.). Dig or Die: Papers given at the World

Reports
Report of Consultative Committee, chaired by Associate Professor Hagan, which
advised the Minister of Education on the amalgamation of Goulburn and
Riverina Colleges of Advanced Education.
Report on Devolution of Decision Making in Schools and Colleges, by Associate
Professor Hagan, for the Education Commission of N.S.W.

HISTORY AND PHILOSOPHY OF SCIENCE

Research Interests and Major Topics of Investigation
Ethical and legal questions associated with biotechnology.
The process of theory discovery.
Technological applications of Mendelism in Australia.
The impact of computer technology in the Australian environment.
Implications of trends in coal and aluminium demand for Australian energy policy.
Sociology and political economy of technological development: the nuclear
energy debate.
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 1980's.
An evaluation of the effectiveness of the Commonwealth Postgraduate Awards
Scheme.
Sir John Herschel's philosophy of science.
The sociology of scientific controversy: Vitamin C megatherapy.
The social construction of Darwin's theory of sexual selection.
The scientific revolution and the seventeenth century.
The historical anthropology of doctrines of scientific method 1600-1900.
The "crisis" of the seventeenth century and the origins of modern science 1610-
1650.
Refereed Publications


Conference Papers


Reports


PHILOSOPHY

Research Interests and Major Topics of Investigation

The logic of secessionist arguments.
Applied aesthetics, particularly in relation to art from the Massim region of Papua New Guinea.
Philosophical psychology and philosophical logic.
Applied social philosophy, with particular reference to the importance of rehabilitating the traditional family as the primary vehicle for the delivery of social services.
Special problems involved in reference to the non-existent.
History of human rights movements in Australia and the work of the Australian Human Rights Commission studied, in conjunction with, the concept of an extra legal right.
Development of adequate validity testing procedures for some systems of modal logic.
The nature of belief.
The relationship between logic and dialogue of the sort which figures in interpersonal communication.
Application of essentialism and natural kinds problems in the philosophy of biology.
Interpretation, validity and relevance of the Principle of Double Effect.

Refereed Publications


Conference Papers


Research Interests and Major Topics of Investigation

Visible program execution.
A program understanding system - OPUS.
Algorithm design.
External sorting.
Internal sorting.
Parallel computation approach to digraph traversal.
Language design and compiler construction.
Gray codes and their applications.
Generation of ordered trees.
Graphics.
Artificial intelligence.
Programming aids.
Combinatorial algorithms.
Data concentrator for a digitizer.
Common sub-expression elimination.
Development of microcomputer laboratory.
Performance evaluation of operating systems.
Microcomputer applications.
Robotics.
Enrolment patterns in First Year Computing.
Text formatting.
Automatic arrays.
Operating systems.
Logo for Apple microcomputers.
A new screen Editor - EDIT.
MODULA interpreter.
SIGMA implementation.

Conference Papers


External Reports


I.G. Pirie. "Courses in Computing", Catalogues of all courses in the area of computing available in Australia, Produced for A.C.S.


Reports - Preprint Series

1-81 R.G. Dromey, "On Implementation of the Binary Search".

2-81 P.K. Tuang, "On s-transform Predicate Transformer, Semantics and Program Correctness".

FACULTY OF MATHEMATICS
COMPUTING SCIENCE
3-81 M.C. Er. "The Theory and Practice of Constructing an Optimal Polyphase Sort".

4-81 P.J. McKerrow. "Evaluation of Interrupt Handling Routines with a Logic State Analyser".

5-81 P.J. McKerrow. "A Hybrid Real-Time Performance Analyser".


7-81 M.C. Er. "Generation of the N-ary Reflected Gray Codes".

8-81 M.C. Er. "A Representation Approach to the Tower of Hanoi Problem".

9-81 M.C. Er. "The Relations of the Computation of Fibonacci numbers with the polyphase sort".

10-81 M.C. Er. "Matrices of Fibonacci Numbers".

MATHEMATICS

Research Interests and Major Topics of Investigation

Biological fluid mechanics.
Low Reynolds number fluid mechanics.
High frequency ventilation in the lung, suspensions and flotation processes.
Illegitimate combinatorial logic.
Two-dimensional water table variations due to tide, mean sea level shifts and beach front geometry.
Computation of vibrational levels in small molecules.
Quantum theoretical search for potential high energy molecular lasers.
Viscous fluid dynamics.
Biological fluid dynamics.
Variations of the secretary problem.
Sequential design of experiments.
Generalization of random walk models.
Diffusion in media with two diffusivities.
Diffusion and moving boundaries.
Solution of differential equations by means of one-parameter groups.
Chebyshev polynomials in evaluating functions and solving ordinary and partial differential equations.
Numerical linear algebra.
Computer assisted learning.
Special mean periodic functions of several complex variables and a transform for such functions.
Translation invariant and dilation invariant subspaces of certain spaces of continuous functions of several real variables.
Systems of linear functional equations and equivalent finite systems of linear partial differential equations.
Mathematics as applied to energy systems.
Factorization of differential and difference operators.
Invariant means on topological groups.
Development of a theory of convergence in neighbourhood lattices.
Introduction to a theory of dual continuity in topological spaces.
Continuous multi-functions with applications to differential equations.
Random coefficient autoregressions.
Investigation of effects of time dependent changes in demographic parameters on populations.
Growth models for various age and position dependent cell communities.
Dynamics of cavitation damage to turbo-machinery.
Behaviour of populations subjected to time dependent maternity behaviour.
Refereed Publications


Reports


"Special entire mean periodic functions of several variables", Research Paper No. 484, Department of Mathematics and Statistics, University of Calgary, Alberta, Canada.


Departmental Preprint Series

1-81 J.R. Blake and G.R. Fulford. "Force Distribution on a Slender Body Close to an Interface".

2-81 P. Cerone and K.P. Tognetti. "The Asymptotic Behaviour due to a Piecewise Time Dependent Net Maternity Function".

3-81 M.W. Bunder. "A Characterization of Inconsistency Proofs in Illative Combinatory Logic".

4-81 J.R. Blake and P. Cerone. "A Note on the Impulse due to a Vapour Bubble near a Boundary".

5-81 I.G. Eliot and D.J. Clarke. "Seasonal and Biennial Fluctuation in Subaerial Beach Sediment Volume on Warilla Beach, New South Wales".

6-81 J.A. Lanyon, I.G. Eliot and D.J. Clarke. "Observations of Shelf Waves and Bay Seiches from Tidal and Beach Groundwater Level Records".

7-81 G.B. Davis and J.M. Hill. "On Some Theoretical Aspects of Oil Recovery from a Fractured Reservoir".

8-81 M.W. Bunder. "Ideals in Positive Implicative BCK-algebras".

10-81 G.R. Fulford and J.R. Blake. "On the Motion of a Slender Body near an Interface Between Two Immiscible Liquids at Very Low Reynolds Numbers".


12-81 J.A. Lanyon, I.G. Eliot and D.J. Clarke. "Groundwater Level Variation during Semi-Diurnal Spring Tidal Cycles on a Sandy Beach".

13-81 J.R. Blake, P. Vann and H. Winet. "Ovum Transport: A Fluid Dynamical Model".


18-81 P.G. Vann and J.R. Blake. "Ovum Transport: Effect of Secretion and Variable Ciliary Activity".

19-81 "Department of Mathematics Annual Report 1980".

20-81 A.L. Worthy. "Wind Generated High Frequency Edge Waves".

21-81 G. Doherty. "ICCG Applied to Ax = \lambda Bx".


29-81 I.G. Eliot, D.J. Clarke and A. Rhodes. "Beach Width Variation at Scarborough, Western Australia".

30-81 M.W. Bunder. "Category Theory Based on Combinatory Logic".

31-81 G. Winley and K. Tognetti. "Solution of the Renewal Equation".

Research Interests and Major Topics of Investigation

Plant Biochemistry
Aspects of chloroplast function in the leaves of higher plants and in red algae.
Photosynthesis with special reference to interactions between photosynthetic metabolism in mitochondria.
Amino acid metabolism in developing legume seeds.
Comparative studies of seed protein composition in legumes.
Chemotaxonomic studies of Australian native legumes.

Microbial Physiology
Osmoregulation in yeast and salt-tolerant unicellular green algae with special reference to the control of glycerol metabolism.

Animal Physiology
Nature of chemical neurotransmitters in the mammalian hippocampus.
Animal physiology, behaviour and ecology - role of the thyroid gland in energy metabolism and temperature regulation.
An investigation of the brain's control of body temperature in the echidna.
Factors affecting the spatial distribution of the field cricket.
Environmental physiology of the platypus.

Refereed Publications


Conference Papers


Reports


CHEMISTRY

Research Interests and Major Topics of Investigation

Oil Shale
Analysis of the components of shale oils from Rundle, Green River, Condor, Duaringa and Julia Creek deposits, Queensland.

Environmental and Analytical Chemistry

Physical Chemistry
Solvent effects on the thermodynamic functions of proton disassociation of acids and bases.
Inorganic Chemistry
Synthesis and investigation of transition metal complexes as models of biologically important sites.

Theoretical Chemistry
Molecular hydrogen in interstellar space.
Development of techniques for the assessment of vibrational effects in the ground and excited electronic states of small molecules.
Development of computer graphic techniques for NMR imaging and disease analysis in humans.

Synthetic Organic Chemistry
Synthesis of anti-cancer drugs.

Computers and Chemistry
Development of a hybrid mass spectrometer, a combined quadrupole magnetic sector instrument.
The use of charge transfer ionization mass spectrometry as an analytical aid.
Development of software for computerisation of laboratory instrumentation, especially the Department's gas chromatography/mass spectrometry system.
Development of self-paced computer-aided instruction material for use by students enrolled in the Department.

Refereed Publications


**Conference Papers**


**Reports**

P.T. Crisp. "Chemical and physical analysis of atmospheric aerosol particles in the Wollongong-Port Kembla region", Annual Report to the State Pollution Control Commission of N.S.W.

**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, palaeomagnetic 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 Ngalia 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.
Mineralogy of industrial materials.
Geology of the Windellama-Marulan region, New South Wales.
Sedimentological studies in the Illawarra Region.

Refereed Publications


Conference Papers


PHYSICS

Research Interests and Major Topics of Investigation

Astronomy
Atomic and molecular physics
Musical acoustics
Nuclear physics - nuclear reactor physics and nuclear fission physics
Solid state physics
Spectrophotometry
Refereed Publications


Conference Papers


FACULTY OF SOCIAL SCIENCES

ACCOUNTANCY

Research Interests and Major Topics of Investigation

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

Refereed Publications


ECONOMICS

Research Interests and Major Topics of Investigation

Regional Economic Research
Analysis of safety statistics and procedures at Australian Iron and Steel.
Consumer perceptions of the Wollongong Central Business District.
Decentralisation in Australia.
Factors affecting the extraction rate in coal mining.
Impacts of the Port Kembla coal loading facility expansion on the regional traffic programme.
Methodology of estimating regional input/output tables.
The choice between bus and car transportation in the Wollongong region.
Labour Economics and Industrial Relations

Aborigines in the workforce.
An Australian social contract.
Designing unemployment statistics in New Zealand.
Industrial relations aspects of the Myers recommendation.
Labour market implications of changing patterns of work and education.
Manpower management for the individual or organisation.
New technology and union bargaining procedures.
Occupational and industrial segregation of women.
Theory and measurement of labour hoarding.

Economics of Developing Countries

Agricultural co-operatives in Papua New Guinea.
Employment and production in plantation agriculture in Papua New Guinea.
Overseas investment in Fiji.
Productivity in Indian agriculture.
The role of natural resources in economic development.
Turnpike optimality in input/output systems.

Refereed Publications


Conference Papers


Reports and other Publications


EDUCATION

Research Interests and Major Topics of Investigation

Classificatory ability in Australian children.
Cognitive development of minority groups.
Convergent, divergent and operational thinking among white and Aboriginal children.
Curriculum studies and development.
Effects of mass media on children.
Enrichment programmes for disadvantaged pre-schoolers.
Schooling and social class.
Socialization of children, migrants and minority groups.
Educational administration.
Organisational behaviour.
Open education.
Work preparation of the mildly mentally retarded.
Migrant education through the media.
Curriculum theory and development.
Instructional design.
Politics in education.
Learning: how and why it occurs.

Referred Publications


Conference Papers


Reports

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.
Australian decentralisation policies and programmes.
Patterns of outward population movement from small rural towns and from larger urban centres in Australia.
Ancient flood plain deposits in Tasmania.
Predictive model for river channel erosion and migration.
Impact studies of stream flooding and erosion resulting from river gravel mining on the Nepean River.
Erosional and tectonic evolution of the Eastern Highlands.
Impact of underground mining on the landforms of the South Coast.
Problems of port development in developing countries.
Aspects of the movement patterns in foreign trade shipping along the Australian coast.
Changing levels and patterns of birth rates in N.S.W. over the period 1966-76.
Relationship between systems of rural production and age structure variations in New Zealand.
Investigations of river channel morphology and alluvial stratigraphy in coastal New South Wales.
Contemporary environmental change in the Illawarra.
Special characteristics of the diffusion of high yielding rice varieties in India.

Referred Publications


Conference Papers


Research Interests and Major Topics of Investigation

Ergonomic analysis of industrial injuries.
Organizational communication and problem solving.
Drug rehabilitation and community action.
Automaticity in visual perception.
The application of "automaticity" to the understanding of Dyslexia.
Individual differences in mental imagery.
The application of evoked cortical responses in the investigation of children with minimal brain dysfunction.
Gestalt therapy.
Holistic health.
Transpersonal psychology and consciousness.
T-wave amplitude and heart rate changes as a function of cognitive stress in individuals differentially sensitive to such stress.
Bronchial asthma.
Imagery and disease.
A theory of actors.
On behaviour (chiefly human).
Limits on certainty.
Coping with chronic illness.
An evaluation of crisis intervention counselling with hospitalized patients.
Men in transition.
The psychological effects of unemployment.
Women's studies courses in Australia.
An exploration of traits in situational contexts.

Refereed Publications


Conference Papers


Reports
L.L. Viney. A Social Systems Approach to Counselling: A Report Prepared at the Request of the Regional Guidance Officer, South Coast Region, N.S.W. Department of Education.

**SOCIOMETRY**

**Research Interests and Major Topics of Investigation**

Community and ethnic affairs in the local region.
Effects of the present crisis in the steel industry, and of the coal production and transportation industries.
The impact of technological change on theories of organization, especially in relation to motivation of the workforce.
The impact of computers and micro-electronics technology on Australian society.
The media in Australia.
Technology's relationship to underdevelopment.
The strategy and policy implications of knowledge about technology and under-development.
Social construction of scientific knowledge.
Epistemological problems in sociology and issues raised in the study of emergent social movements.
Sociology of conflict and the military.

**Refereed Publications**


Conference Papers


Reports


CENTRE FOR MULTICULTURAL STUDIES

Research Interests and Major Topics of Investigation

Adult migrant education in the Illawarra.
Ethnicity, class and education.
Ethnicity, class and social policy.
Community welfare services to ethnic minorities.
Occupational health and safety in the steel industry.

Refereed Publications


Conference Papers


Reports

## ENROLMENT SUMMARY 1981

### HIGHER DEGREE

<table>
<thead>
<tr>
<th>Degree</th>
<th>Arts</th>
<th>Commerce</th>
<th>Engineering</th>
<th>Mathematics</th>
<th>Metallurgy</th>
<th>Science</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters - Research</td>
<td>F</td>
<td>P</td>
<td>T</td>
<td>F</td>
<td>P</td>
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<td>F</td>
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<td>Coursework</td>
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<td>62</td>
<td>0</td>
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<td>2</td>
<td>35</td>
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<tr>
<td>Ph.D.</td>
<td>20</td>
<td>13</td>
<td>33</td>
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<td>56</td>
<td>95</td>
<td>2</td>
<td>10</td>
<td>12</td>
<td>41</td>
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### OTHER THAN HIGHER DEGREE POSTGRADUATE

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<tr>
<th>Degree</th>
<th>Arts</th>
<th>Commerce</th>
<th>Engineering</th>
<th>Mathematics</th>
<th>Metallurgy</th>
<th>Science</th>
<th>Total</th>
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</thead>
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<tr>
<td>Master - 96 credit points</td>
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<td>4</td>
<td>0</td>
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<td>9</td>
<td>2</td>
<td>5</td>
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<tr>
<td>Postgraduate Bachelor</td>
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<td>8</td>
<td>8</td>
<td>2</td>
<td>13</td>
<td>14</td>
<td>1</td>
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<tr>
<td>Diploma</td>
<td>70</td>
<td>26</td>
<td>96</td>
<td>4</td>
<td>50</td>
<td>54</td>
<td>1</td>
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<tr>
<td>Sub Total Postgraduate OTHD</td>
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<td>40</td>
<td>117</td>
<td>6</td>
<td>56</td>
<td>62</td>
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### UNDERGRADUATE

<table>
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<th>Degree</th>
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<th>Commerce</th>
<th>Engineering</th>
<th>Mathematics</th>
<th>Metallurgy</th>
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</thead>
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<td>Bachelor - New Pass</td>
<td>152</td>
<td>216</td>
<td>368</td>
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<td>Honours</td>
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<td>Re-enrolling - Pass</td>
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<td>589</td>
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<td>1</td>
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<td>1</td>
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<td>0</td>
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<tr>
<td>Sub Total Bachelor</td>
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<td>535</td>
<td>1009</td>
<td>205</td>
<td>250</td>
<td>455</td>
<td>312</td>
</tr>
</tbody>
</table>

### NON-DEGREE

| Miscellaneous             | 1 | 83 | 84 |
| Total Other than Higher Degree | 1339 | 1504 | 2643 |
| Grand Total Enrolments    | 1450 | 1654 | 3104 |

### STUDENT LOAD

| Other than Higher Degree | 1959 |
| Higher Degree            | 364  |
| Total Student Load       | 2323 |
DEGREES CONFERRED

The following candidates were admitted to degrees of the University of Wollongong by the Chancellor at Graduation Ceremonies held on Thursday, 7th May and Friday, 8th May, 1981.

BACHELOR OF ARTS

Graham Adra
Vasiliki Arvantis
Ingegerd Atkinson
Joan Murial Ausburn
Mournir M. Bahsoun
Lynn Mary Barker
David Patrick Joseph Bateman
Kim Diane Beeley
Wendy Anne Berzевичy
Barbara Lynette Bicego
Michelle Ruth Brook
Maureen Ellen Brooks
Robert William Brown
Richard James Bull
Chris John Bullock
Phyllis Catherine Burrows
Catherine Maureen Byrnes
Peter James Calder
Patrick John Callan
Janice Campbell
Maxim James Carling, BCom N.S.W.
Bernadine Carvalho
Michael George Cassoff
Glenda Charlton
Ruth Church
Giovanna Cipriani
Anne Helen Clarke
Bruce Peter Coghill
Sharlene Glenda Collins
Leanne Joy Connaughton
Michael Patrick Connolly
Helen Costi
Helen Anne Craig
Susan Mary Cribb
Erica Ann Crittenden
Narelle Crux
Ann Regina Cullen
Christopher Philip Cullen
Patricia Irene Deller-Smith
Kim Annette Desborough
Ross William Dill
Assunta Di Puglia
Enola Donda
Kim Draisma
Neil Ronald Dwyer
Glenda Enid Evans
Lynn Margaret Fahey
Louise Anne Fantinel
Joanne Fish
Yvonne Bernadette Fox
Rosanna Chiarina Ganassin
Carmen Cherie Gannon
Lorraine Edith Gass

Lorraine George
John Antonio Gonzalez Rondan
Gerald Russell Greene
Patricia Kathleen Grew
Jeffrey Alan Grindrod
Jerry Gulpers
Neville Hall
Patricia Ann Hannah
Mary Josephine Harley
Liliane Heininger
Kathryn Elaine Hoffman
Brian Thomas Horan
Sylvia Huntley-Moore
Frances Alexandra Jardine
Judith Anne Jeffery
Christopher Robert Johnson
John Homer Johnson
Julie-ann Johnston
Kathleen Joyce Jones
Patricia Marilyn Jones
Suellen Jousys
Julian Jordan, BSc(Tech) N.S.W.
June Helen Kalokerinos
Victoria Jane Kater
Kathleen Frances Keane
Jill Catherine Kelly
Meli Kotamanidis
Barry Wayne Lake
Patricia Constance Macquarie
Trevor Gordon Maher
Christopher Charles Marshall
Glenn William Martin
Maria Mazzola
Kate Clara McGregor
Janice Elaine McLauchlan
Jennie Maree McLean
Helen Anne McMahon
Margaret McMaster
Peta-Anne McNally
William James McQueen, BSc DipEd Syd.
Ludmilla Adelaide Menzies
Kevin Gibson Mills
Daniel Pitman Moody
Lucilia Ferreira Mota
Dennis John Murphy
Darline Myrrylowicz
Mohini Laurie Nair
Alan Nash
Craig Neilson
Sarah Karen Newman
Patricia Noske
Lynne Orchard
Eileen Therese O'Sullivan
BACHELOR OF ARTS (Continued)

Dianne Joy Parker  
Marie Louise Paterson  
Anne Elizabeth Peedom  
Joan Melva Phillips  
Suellen Phillips  
Norma Edith Pickering  
Andrew Walter Pinkerton  
Patrizia Mary Caterina Poletti  
Stephen Pomfrett  
Melville Ralph Pope  
Mark Stuart Potts  
Marianna Radovic  
Fiona Marie Raymond  
Paul Andre Reichhart  
Leonie Restell Ross  
Joseph Anthony Russo, BCom N.S.W.  
Maree Kerrie Ryan  
David Sanchez  
James Edward Sanders  
Nicholas James Saphin  
Andrew William Scally  
Donald Charles Schaefer  
Maria Rosa Scola  
Sylvana Sebben  
Robyn Thelma Slater  
Michael Bryan Smart  
Garrielle Patricia Smith  
Rosemary Therese Smith  
Maria Dolores Spohr  
Julia Merle Stafford  
Giuseppe Stanizzo  
Martin David Stanley  
Paul Harold Stanton  
George Stafanovic  
Maureen Anne Stephenson  
Irene Stewart  
Dirk Stuber  
Russell Arthur Keith Swanson  
Deidre Anne Swindles  
Wayne Thomas  
Kathy Anne Tobin  
Judith Lorraine Tyne  
Eftehia Varayanis  
Concetta Elizabeth Villano  
Ian Douglass Wallace  
Anne Maree Walsh  
Harald Waither  
Alice-Mary Weber  
John Edward Webster  
Martin William Whitcher  
Kerry Maree White  
Kim Hunter White  
Helen Margaret Whiteley  
Joan Patricia Whiting  
Jennifer Frances Wiggins  
Gina Ann Wilke  
Narelle Gail Wilson  
Helen Joan Wiltshire  
George Ioannou Zachariou

BACHELOR OF ARTS - HONOURS

Isabel McCance Brown, BA - (Honours Class II, Division 2)  
Donald Pierre Dingsdag (Honours Class II, Division 1)  
Anthony Owen Dwyer, BA - (Honours Class II, Division 2)  
Stephen William Fleming, BA - (Honours Class 1)  
Lorraine Gibson, BA - (Honours Class II, Division 1)  
Garry John Giffith (Honours Class II, Division 1)  
Alison Louise Harman, BA - (Honours Class II, Division 1)  
Phillip James Heath, BA - (Honours Class 1)  
Joy Holland, BA DipEd - (Honours Class II, Division 1)  
(The Marjory Brown Prize)  
Michael Austin John, BA - (Honours Class II, Division 1)  
Keith Thomas Johns, BA - (Honours Class II, Division 2)  
Lorraine Anne McIntyre, BA - (Honours Class II, Division 1)  
George James Porteous (Honours Class II, Division 2)  
Maureen Kaye Postma (Honours Class II, Division 1)  
Susan Joy Westwood, BA - (Honours Class II, Division 1)
BACHELOR OF COMMERCE

Russell Lee Affleck
John Valention Apolloni
Patrick Joseph Atkinson
Stephen Desmond Matthew Beacham
(with Merit)
Franco Benedet
Gabriella Helen Anne Borsi
Rodney William Boyce
Rosemary Bresolin
Leslie John Bugden (with Merit)
Paul Douglas Butts
Michael James Byrne
Douglas John Carvalho
Stephen John Constable
Gregory Bruce Davies
William Thomas Davies, BSc(Tech) N.S.W.
Ric John Delaney
Allan Francis Dwyer
William Ernest Eggers
Joseph Henry Fields
Gerardo Frino
Warwick Norman Funnell, BA DipEd N.S.W.
Graeme Keith Gardiner
Neale Reuben Greenway
Lynda Ann Guthrie
Kevin Ian Hamilton
Edward John Hinge
Desmond Alexander Houlihan
Christopher John Hurley
Keith Idle, BSc(Tech) N.S.W.
Lauren Gai Jones (with Merit)
Christopher Knoblanche
Ian Stuart Knox (with Merit)
Dennis Lagopodis
David John Laming (with Merit)
Colin Peter Marley
Ian Geoffrey May
Joe Narciso Ornelas
Richard John O’Brien
Louise Mary O’Connor
Harry Papadopoulos
George James Pappas (with Merit)
Robert Henry Pearce
Domenico Pensiero (with Merit)
Italo Ruggero Petrucci (with Merit)
Peter Anthony Rogers
Peter John Ryan (with Merit)
Stuart John Sargent
Gregory Peter Simpson (with Merit)
Joseph Solano
Jeffery Wasyl Sowiak
Nigel Martin Sterry
Tan Khoe Kian Wan
Christopher Stephen Tant
Ezio Trenga
Mark James Walster
Peter Frank White
John Arthur Williams
Brian Michael Wood
BACHELOR OF COMMERCE - HONOURS
Malcolm James Pye, BCom - (Honours Class II, Division 1)

BACHELOR OF ENGINEERING

Civil Engineering
Leigh William Ashford
Arthur Paul Kirk
Geoffrey James McKinnirey
Outhong Phongsavath
Bambang Sumantri
Colin John Woods

Electrical Engineering
John Hong Theam Lim
Peter Leslie Logue
Lee Alan Mathieson
William Neville Paine
Paul Francis Tobin

Mechanical Engineering
David John Hooper
Raymond Joachim Janowicz
Andrew Ronald Mullan
Peter Charles Murphy
Eian Andrew Poustie
David Burgess Wright
Ian Keith Young

BACHELOR OF ENGINEERING - HONOURS

Civil Engineering
Stephen Gordon Craig (Honours Class III)
Eric Ralph De Rooy (Honours Class I)
(The Institute of Engineers, Australia, Award)
Michael Robert Patrick Hanrahan (Honours Class II, Division 2)
Ian David Hine (Honours Class II, Division 2)
Ken Hope (Honours Class II, Division 1)
Agus Kurniawan (Honours Class II, Division 2)
Peter Ledwos (Honours Class III)
Harri Rainer Levanen (Honours Class II, Division 2)
Man Tung Lie (Honours Class II, Division 2)
Robert Charles Lundie (Honours Class III)
David Anthony Macquart (Honours Class II, Division 2)
Bernard Paul O'Connor, BSurv. N.S.W. - (Honours Class II, Division 2)
Francis Gordon Sirc (Honours Class II, Division 2)
Trevor Ross Unicomb (Honours Class II, Division 2)

Mechanical Engineering
Frank Cornelis Jansen (Honours Class II, Division 1)
Michael Lopez (Honours Class I)
Mark Daniel Wheatstone (Honours Class II, Division 2)
Peter Wilhelm Wypych (Honours Class I)

Mining Engineering
Kevin Joseph Cooney (Honours Class III)
Denis William Kent (Honours Class II, Division 2)
(Western Mining Corporation Prize for the Mining Engineering Thesis)
Robert Wayne Kirkwood (Honours Class II, Division 2)
(Western Mining Corporation Prize for the Mining Engineering Course)
Martin Littler (Honours Class II, Division 2)
BACHELOR OF METALLURGY

David Anthony Bendeich
Christopher John Dawson
Lubi Dimitrovska
Robert John Doherty
Jeffrey John Jones
Werner Peter Kanitz
Philip James Leyshon
Paul McGuinness
Phillip Raymond Nichols
Warren Edward Simpson
Gregory Allan Smith
(John Lysaght (Australia) Ltd. Prize)
Peter John Tolhurst
Allan James Woollard

BACHELOR OF METALLURGY – HONOURS

Ross McDowall Smith (Honours Class I)
(Western Mining Corporation Prizes (2))
(Metal Manufactures Prize)
(Commonwealth Banking Corporation Prize)
(Australian Institute of Metals (Port Kembla Branch) Metallurgy Prize)

BACHELOR OF MATHEMATICS

Edward Blackwood
Kerrianne Brennan
Ashraf El-Sayed Kandil
Kevin James Linnett
Milan Pahor
Ronald Michael Piatek
Paul Grahame Taylor
Russell William Turner
Tony Peter van Ravenstein
Miguel Angelo Velez
Lawrence Andrew Wilson

BACHELOR OF MATHEMATICS – HONOURS

Jagoda Cergovska, BMath - (Honours Class I and University Medal)
(Austin Keane Memorial Prize (shared))
Meng Wai Fong, BSc Melb. - (Honours Class II, Division 1)
Joanna Maria Goard (Honours Class I)
(Austin Keane Memorial Prize (shared))
Roslyn McCann (Honours Class I)
Denis John O’Hara, BSc - (Honours Class II, Division 2)
Manfred Friedrich Wilhelm Rentz (Honours Class II, Division 1)

BACHELOR OF SCIENCE

Michael David Adams
Susan Margaret Anstey
Margaret Joyce P. Baker
Julian Baumann
Ann Clifford
Arthur Edwin Cooper
Anthony Robert Fahey
Peter Donald Gray
Philip Andrew Hazell
Delwyn Gloria Jones
Hermann Kalinin
Frank William Kellendonk
Kylie Frances Mackenzie
Andris Imants Marcinkus
Bernadette Mary McCosker
Christofer Charles McGavock
Elsina Johanna Meijer
Garry James Mulheron
Denise Julie Mutch
Matthew Paul Nicholls
Geoffrey Richard Peters
Robert Stephen Powrie
Daniela Reverberi
Stephen John Rodwell
Kevin Antony Rooney
Julie Ann Silburn
Peter Godrey Tallent
Tan Kernah
Gregory John Tobin
Franklin Vairinhos
Sonja Karen Irene van’t Zelfde
(The Biology Prize)
Edward Warcaba
James Whitehead
Rowan Keith Whiteman
Gregory Norman Young
BACHELOR OF SCIENCE – HONOURS

Roslyn Joy Atkins, Bsc - (Honours Class I and University Medal)
(The Gina Savage Prize)
(The Peter Beckmann Memorial Prize)
Paul Leslie Brown, BSc - (Honours Class I)
Terence John Bunn, BSc - (Honours Class II, Division 1)
John Christopher Campbell (Honours Class II, Division 2)
James David Dawson, BSc DipEd - (Honours Class II, Division 2)
Kenneth John Grant, BSc - (Honours Class II, Division 1)
Dawn Elizabeth Lindsay, BSc - (Honours Class II, Division 1)
Claudio Ennio Rovere, BSc - (Honours Class I)
Mario Sanguineti, BSc - (Honours Class I)
Ulrich Erich Senff, BSc - (Honours Class I)
Craig Anthony Williams, BSc - (Honours Class II, Division 1)

HIGHER DEGREES

BACHELOR OF EDUCATION

Robert Maxwell Aitken
Muriel Ann Limon

MASTER OF COMMERCE

John Llewellyn Clarke, BE Melb.
John William Curry, BA N.S.W.
Gerald Ian Fliedner, BA
Steward Martin, BA DipEd N.S.W.

MASTER OF STUDIES IN EDUCATION

Terence Richard Burke, BA N.E.
Owen Kenneth Davies, BA N.E.
Peter Joseph Houweling, BA
Rosslyn Mavis Kennedy, BA N.S.W. DipEd
Irene Amy McGrath, BSc
Kathryn Miles, BA Syd.
Nerrida Jan Miller
Helen Mary Murphy, BA
Kerry Stratton, BA
Judith Anne Wheway, BA
Edd Bruce Young

MASTER OF EDUCATION – HONOURS

Harvey Waddington Newman, BA N.E.

MASTER OF ENGINEERING

Max Emil Boenisch, BE
Philip John Evans, BSc(Eng) N.S.W.
Ian Kenneth Foreman, BSc(Eng) N.S.W.
Hilton Adam Solyom
Thomas Sanvitale, BSc(Eng) N.S.W.

MASTER OF SCIENCE – HONOURS

Antonio Lenzo, BSc
Joseph Shing Fung Leung, BSc N.E.
Thesis: "Analysis of Zinc in Biological Fluids: Determinations of Serum Zinc Levels in Normals and Patients Suffering from Myocardial Infarction and Deep Vein Thrombosis."

Massimo Mazzilli, Laurea in Chimica Perugia
Reino Eddie Milander, BSc N.S.W.
MASTER OF SCIENCE – HONOURS (Continued)

Rodney Arthur Coleshill, BSc DipEd N.S.W. DipMath

DOCTOR OF PHILOSOPHY

Margaret Edgley, BSc N.S.W.
Thesis: "Osmoregulation in Xerotolerant and Non-tolerant Yeasts."

Michael John Garrett, BSc Lond., MSc Melb.
Thesis: "Silurian to Early Devonian Stratigraphy, Faunas and Depositional History of Central Victoria."

Frank Peter Prokop, BSc MA Detroit.

Christopher John Pullin, MSc DipEd N’cle. (N.S.W.)
Thesis: "The Analysis of Biological Fluids for Antenatal and Perinatal Diagnosis of Metabolic Disorders."

Stewart Whittlestone, BSc Syd., MSc N.S.W.
Thesis: "The Energy Spectrum of Neutrons in a Pulsed Fast Assembly."

HONORARY DEGREE

DOCTOR OF LETTERS (HONORIS CAUSA):

Lindsay Michael Birt, CBE, BAgSc BSc PhD Melb., DPhil Oxf.

UNIVERSITY OF WOLLONGONG DIPLOMATES

The Council of the University awarded Diplomas as follows:

Diploma in Accountancy

Blagoja Mitrevski, BCom
Gerald James Sullivan, BCom

Diploma in Applied Multicultural Studies

Beth Lynne Cavallari
Audrey May Jones, BA
Marie Anne McKay
Elizabeth Therese McMahon
Hatice Ozcan
Zoe Smith
Rhonda Ann Sullivan, BA DipEd N.E.

Diploma in Computing Science

Bruce Stanley Hammond, BSc N.S.W.
Christopher Reginald William Pengelly
Michael Robinson, BSc Qld
Peter William Wilson, BMet
Diploma in Education

Michael William James Atfield, BMath
Jan Barrett, BA
James Edward Bennett, BSc
James Dewar Black, BA
Susanne Jane Blackstock, BA
Colin Roy Brown, LLB Syd.
Brian Eric Cantor, BA
Therese Mary Chard, BA
Margaret Lesley Chellew, BA Macq.
Cheryl Magdalene Chenery, BA
Annabelle Ciufo, BA
Patricia Rae Cooper, BA
Susan Josephine Dennison, BA
Neville John Erskine, BA
Julie Dorothy Evans, BA
Rodney Clive Evans, BA N.S.W.
Wendy Faricy, BA
Paul Dominic Fazzolare, BA
Deborah Joy Foreman, BA
Colin Anthony Fraser, BA
Narelle Gai Furlong, BA
Belinda Jane Gannon, BA Syd.
Tania Tatiana Gluvchinsky, BA
Sandra Lynne Goodie, BA
Darrell Bruce Hayes, BSc N.E.
John Peter Heininger, BA
Joy Holland, BA
Peter William Houghton, BCom
Sonia Maree Jurgens, BA
Brenda Carol Keaveny, BA
Karen Maree Kelly, BMath
Christine Robyn Langley, BA
John Leonard Larkin, BA
Patricia Anne Lee, BA
Michael Peter Long, BA
Graeme Roderick Macdonnell, BSc
Carolyn Maddeford, BA
Penelope Jane Mills, BA
Josephine Maria Mizzi, BA
Janet Ruth Morris, BA Syd.
Roger Philip Murray, BA
Rhonda Lyn Neaves, BSc
Lina Niko, BA
Leslee Ann O'Grady, BMath
Enrichetta Antonia Parolin, BA
Michael John Petre, BMath
Peter Allan Riordan, BSc N.S.W.
Kerry Hazel Robinson, BA
Emilio Robles, BA
Michael Hartwell Robson, BSc
Jane Michelle Rodgers, BA
Kathryn Grace Rogers, BA
Michael Salani, BSc
Linda Elizabeth Schmidt, BA
Peter William Sims, BSc
Jacqueline Carmel Schmidt, BA
Catherine Winifred Sloan, BA
John Gregory Thompson, BA
Judith Louise van de Ven, BA
Bryan Walker, BA
Janet Wilson, BA
Annette Kathleen Woods, BA

Diploma in Mathematics

John Bernard Denison, BSc

Diploma in Philosophy

Graeme Kennedy Butler, BA Murd.
Anne Leonie Bywater, BA DipEd

Annette Frances Evans, BSW N.S.W.
Brian Patrick Long, BA DipEd Macq.
# APPENDIX 3

## APPOINTMENTS, RESIGNATIONS AND PROMOTIONS

### APPOINTMENTS

<table>
<thead>
<tr>
<th>Name</th>
<th>Designations</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. R.F. Hille</td>
<td>Lecturer</td>
<td>Computing Science</td>
</tr>
<tr>
<td>Mr. J.E. Mangan</td>
<td>Lecturer</td>
<td>Economics</td>
</tr>
<tr>
<td>Mr. P. McKerrow</td>
<td>Lecturer</td>
<td>Computing Science</td>
</tr>
<tr>
<td>Mr. B.G. Quinn</td>
<td>Lecturer</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Dr. D.L. Mixon</td>
<td>Senior Lecturer</td>
<td>Psychology</td>
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<tr>
<td>Mr. J. Thampapillai</td>
<td>Lecturer</td>
<td>Economics</td>
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<td>Mr. A.M. Endres</td>
<td>Lecturer</td>
<td>Computing Science</td>
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<tr>
<td>Mr. J.G. Jackson</td>
<td>Lecturer</td>
<td>Economics</td>
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<tr>
<td>Mr. P.F. Carr</td>
<td>Lecturer</td>
<td>Accounting</td>
</tr>
<tr>
<td>Ms. M.M. Greenwell</td>
<td>Tutor</td>
<td>Biology</td>
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<tr>
<td>Dr. M. Edgley</td>
<td>Research Associate</td>
<td>Accountancy</td>
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<tr>
<td>Mr. W.N. Funnell</td>
<td>Tutor</td>
<td>Economics</td>
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<td>Mr. T.M. Alchin</td>
<td>Tutor</td>
<td>Accounting</td>
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<td>Mrs. J. Hiddlestone</td>
<td>Tutor</td>
<td>Economics</td>
</tr>
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<td>Mrs. D. Tober</td>
<td>Tutor</td>
<td>Psychology</td>
</tr>
<tr>
<td>Mr. M. Duffy</td>
<td>Tutor</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Mr. D. Platt</td>
<td>Tutor</td>
<td>Electrical &amp; Computer Eng.</td>
</tr>
<tr>
<td>Mr. G.R. Fulford</td>
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<td>Mr. G.R. Concannon</td>
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<td>Mr. J.W. Pemberton</td>
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<td>Dr. E.B. Ramel</td>
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<td>Computing Science</td>
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<td>Mr. K.E. Windschuttle</td>
<td>Lecturer</td>
<td>Civil &amp; Mining Eng.</td>
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<tr>
<td>Mr. H.Y. Toeh</td>
<td>Senior Lecturer</td>
<td>Sociology</td>
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<tr>
<td>Dr. C.A. Freeth</td>
<td>Research Associate</td>
<td>Philosophy</td>
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<tr>
<td>Dr. A. Basu</td>
<td>Lecturer</td>
<td>History &amp; Philosophy of</td>
</tr>
<tr>
<td>Mrs. M. Campbell</td>
<td>Lecturer</td>
<td>Science</td>
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<td>Dr. N.I. Aziz</td>
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<tr>
<td>Dr. R. Arenicz</td>
<td>Lecturer</td>
<td>Geography</td>
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<tr>
<td>Dr. F.P. Prokop</td>
<td>Lecturer</td>
<td>Philosophy</td>
</tr>
<tr>
<td>Dr. P. Hamilton</td>
<td>Lecturer</td>
<td>Accountancy</td>
</tr>
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### RESIGNATIONS

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<tr>
<th>Name</th>
<th>Designation</th>
<th>Department</th>
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<tbody>
<tr>
<td>Mr. J. Crabb</td>
<td>Lecturer</td>
<td>Accountancy</td>
</tr>
<tr>
<td>Dr. H.W. Faulkner</td>
<td>Lecturer</td>
<td>Geography</td>
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<td>Dr. G.E. Sherington</td>
<td>Lecturer</td>
<td>Education</td>
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<tr>
<td>Dr. J.C. Bishop</td>
<td>Lecturer</td>
<td>Philosophy</td>
</tr>
<tr>
<td>Mr. I.L. Dunn</td>
<td>Senior Lecturer</td>
<td>Accountancy</td>
</tr>
<tr>
<td>Professor K.A. Blakey</td>
<td>Lecturer</td>
<td>Economics (retired)</td>
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<tr>
<td>Mr. J.A. Land</td>
<td>Lecturer</td>
<td>Chemistry</td>
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<tr>
<td>Dr. A. Basu</td>
<td>Senior Tutor</td>
<td>Civil &amp; Mining Eng.</td>
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<td>Dr. J. Kontoleon</td>
<td>Senior Tutor</td>
<td>Electrical &amp; Computer Eng.</td>
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<tr>
<td>Dr. P. Van der Werf</td>
<td>Lecturer</td>
<td>Mechanical Eng. (retired)</td>
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<td>Dr. T.R. Grant</td>
<td>Lecturer</td>
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<td>Electrical &amp; Computer Eng.</td>
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<td>Assoc. Prof. W. Charlton</td>
<td>Associate Professor</td>
<td>Electrical &amp; Computer Eng. (retired)</td>
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<td>Dr. J. Ellis</td>
<td>Chemistry</td>
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<td>Dr. A.J. Wright</td>
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<td>Mr. B.H. Andrew</td>
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<td>Dr. T. Chandra</td>
<td>Metallurgy</td>
<td>Reader</td>
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<td>Dr. A.J. Hulbert</td>
<td>Biology</td>
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<td>Dr. W.J. Mitchell</td>
<td>History</td>
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<td>Dr. A.M. McGregor</td>
<td>Economics</td>
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<td>Dr. F.J. Paoloni</td>
<td>Elect. &amp; Computer Engineering</td>
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<tr>
<td>Mrs. F.E. Roberts</td>
<td>History</td>
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## STUDY LEAVE 1981

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Duration (weeks)</th>
<th>Principal Location</th>
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<tbody>
<tr>
<td>Bolton, Assoc. Pro. P.</td>
<td>Chemistry</td>
<td>24</td>
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<td>Hall, Dr. F.</td>
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<td>UK/Italy</td>
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<td>Dayal, Dr. E.</td>
<td>Geography</td>
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<td>India/USA</td>
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<td>Kontoleon, Dr. J.</td>
<td>Elect. &amp; Comp. Eng.</td>
<td>22</td>
<td>UK/Europe</td>
</tr>
<tr>
<td>Uniacke, Ms. S.</td>
<td>Philosophy</td>
<td>26</td>
<td>UK</td>
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<tr>
<td>Boyd, Dr. M.J.</td>
<td>Civil &amp; Mining Eng.</td>
<td>5</td>
<td>USA</td>
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<tr>
<td>Davidson, Dr. B.</td>
<td>Philosophy</td>
<td>26</td>
<td>Australia/USA</td>
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<tr>
<td>Jagtenberg, Mr. T.</td>
<td>Sociology</td>
<td>26</td>
<td>UK/Europe/India</td>
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<tr>
<td>Ng, Dr. T.S.</td>
<td>Elect. &amp; Comp. Eng.</td>
<td>22</td>
<td>Europe/S.E. Asia</td>
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<tr>
<td>Montagner, Dr. G.J.</td>
<td>Mechanical Eng.</td>
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<td>UK</td>
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<tr>
<td>Chandra, Dr. T.</td>
<td>Metallurgy</td>
<td>23</td>
<td>Canada/UK/Germany</td>
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<tr>
<td>Cook, Prof. A.C.</td>
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<td>11</td>
<td>UK/USA</td>
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<td>Prokop, Dr. F.</td>
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<td>26</td>
<td>USA/Canada</td>
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<tr>
<td>Coote, Mr. A.</td>
<td>Accountancy</td>
<td>22</td>
<td>Western Aust.</td>
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<tr>
<td>de Lacey, Dr. P.</td>
<td>Education</td>
<td>26</td>
<td>Canada</td>
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<tr>
<td>Young, Dr. R.W.</td>
<td>Geography</td>
<td>26</td>
<td>Australia</td>
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<tr>
<td>Viney, Assoc. Pro. L.L.</td>
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<td>Wilson, Prof. M.G.A.</td>
<td>Geography</td>
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<td>NZ/USA</td>
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<td>Diespecker, Dr. D.</td>
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<tr>
<td>Smith, Dr. L.</td>
<td>Physics</td>
<td>3</td>
<td>Mexico</td>
</tr>
</tbody>
</table>
BUILDINGS AND SITE DEVELOPMENT

No major buildings were authorised for construction in 1981. A Science II building has been designed and is ready to go to tender but it has not been included by the government in the approved programme for 1982. The Commonwealth Tertiary Education Commission has recognised the need for this building, in its report for the 1982-84 triennium, and it is hoped construction can commence in 1983.

The Minor Building Projects programme for 1981 comprised:

- Completion of the Gardeners' Section of the Central Services Complex $38,000
- Construction of a Geology Annexe $55,000
- Purchase and Installation of a demountable building for Electrical Engineering Laboratory $54,000
- Enclosure of space in the Science I Building, to provide a Faculty Workshop $39,000
- Replacement and Upgrading of Air Conditioning for the Computer Centre $42,000

Total $228,000

These works enabled the most pressing needs of the sections concerned to be relieved, but made negligible contribution to the major deficiencies in available space for present numbers of staff and students; and no contribution to the completion of landscaping or extension of services at the periphery of the presently developed campus.

Investigation of ways in which the physical facilities of the Wollongong Institute of Education can most effectively and economically be integrated into the combined campus commenced. The majority of the minor building works needed could not be determined in time for the 1982 programme and will probably form the core of the 1983 programme.


## FINANCIAL STATEMENT

### RECURRENT FUNDS

#### 1981 RECURRENT INCOME AND EXPENDITURE

<table>
<thead>
<tr>
<th>Source of Income</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Government Grants</td>
<td>15,739,000</td>
<td>99.81</td>
</tr>
<tr>
<td>Other General Income</td>
<td>28,502</td>
<td>0.19</td>
</tr>
<tr>
<td></td>
<td>15,767,502</td>
<td>100.00</td>
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<table>
<thead>
<tr>
<th>Expenditure Headings</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and Staff Charges</td>
<td>13,074,298</td>
<td>82.49</td>
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<tr>
<td>Maintenance Expenses</td>
<td>2,140,531</td>
<td>13.51</td>
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<tr>
<td>Furniture and Library Books</td>
<td>634,401</td>
<td>4.00</td>
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<tr>
<td></td>
<td>15,849,230</td>
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</table>

### AGGREGATE FUNDS

During 1981 income received from all sources totalled $19,238,265 while aggregate expenditure amounted to $18,852,543.

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>15,739,000</td>
<td>-</td>
</tr>
<tr>
<td>Recurrent</td>
<td>15,739,000</td>
<td>-</td>
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<tr>
<td>Building Projects</td>
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<tr>
<td>Equipment</td>
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<tr>
<td>Special Research</td>
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<td>16,804,000</td>
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### Source of Income

<table>
<thead>
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<th>1980 Comparisons</th>
<th>Source of Income</th>
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</thead>
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<tr>
<td></td>
<td>Special Purpose Funds</td>
<td></td>
<td></td>
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<tr>
<td>521,493</td>
<td>Research</td>
<td>792,456</td>
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<tr>
<td>19,024</td>
<td>Scholarships, Prizes, etc.</td>
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<tr>
<td>1,432,854</td>
<td>Other</td>
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<tr>
<td>1,973,371</td>
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<td>2,405,763</td>
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<td></td>
<td>Other General Income</td>
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<tr>
<td>31,460</td>
<td>Recurrent</td>
<td>28,502</td>
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<tr>
<td>17,863,809</td>
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<td>19,238,265</td>
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### Expenditure Headings

#### Salaries and Staff Charges

<table>
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<th>Expenditure Headings</th>
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<th>%</th>
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</thead>
<tbody>
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<td>Recurrent</td>
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<td>11,061,387</td>
<td>Special Research</td>
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<td>58,330</td>
<td>Special Purpose - Research</td>
<td>470,658</td>
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<tr>
<td>253,202</td>
<td>Special Purposes - Other</td>
<td>491,723</td>
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<tr>
<td>202,007</td>
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<td>14,116,610</td>
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#### New Buildings (Including Sites)

<table>
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<th>1980 Comparisons</th>
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</thead>
<tbody>
<tr>
<td>1,271,754</td>
<td>Grants for Building Projects etc.</td>
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<td></td>
<td>Under States Grants (Tertiary</td>
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<tr>
<td></td>
<td>Education Assistance) Acts</td>
<td></td>
<td></td>
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<tr>
<td>191,835</td>
<td>Special Purposes - Other</td>
<td>31,029</td>
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<tr>
<td>1,463,589</td>
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<td>359,029</td>
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<tr>
<td>1980 Comparisons</td>
<td>Expenditure Headings</td>
<td>Amount</td>
<td>%</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------</td>
<td>--------</td>
<td>---</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Recurrent</td>
<td>2,140,531</td>
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<tr>
<td>1,830,788</td>
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<tr>
<td>16,750</td>
<td>Special Purposes - Research</td>
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<tr>
<td>99,097</td>
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<td>372,809</td>
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<table>
<thead>
<tr>
<th>Expenditure Headings</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment, Furniture &amp; Library Books</td>
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<td></td>
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<tr>
<td>Recurrent</td>
<td>634,401</td>
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<tr>
<td>Special Research</td>
<td>1,060</td>
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<tr>
<td>Grants for Equipment</td>
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<tr>
<td>Special Purposes - Research</td>
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<tr>
<td>Special Purposes - Other</td>
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<tr>
<td>1,824,047</td>
<td>1,801,224</td>
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<td>17,182,006</td>
<td>18,852,543</td>
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**AGGREGATE FUND BALANCES**

**FUNDS**

<table>
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<th>Funds</th>
<th>Amount</th>
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<tr>
<td>Recurrent Funds</td>
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<td>Grants for Equipment Under State Grants (Tertiary Education Assistance) Act</td>
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<tr>
<td>Special Purpose Funds (Research)</td>
<td>239,011</td>
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<tr>
<td>Special Purpose Funds (Scholarships, Bursaries, Prizes, etc.)</td>
<td>13,141</td>
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<tr>
<td>Special Purpose Funds (Other Purposes)</td>
<td>2,296,112</td>
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<tr>
<td>Australian Research Grants Committee Projects</td>
<td>13,482</td>
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<td>Sundry Suspense Accounts</td>
<td>117,838</td>
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<tr>
<td>Sundry Creditors</td>
<td>5,261,220</td>
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<tr>
<td>Bank of NSW Loan (International House)</td>
<td>211,203</td>
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$ 7,805,065
GRANTS AND DONATIONS

AUSTRALIAN RESEARCH GRANTS COMMITTEE PROJECTS

Australian Science Policy - The State of University Research 10,654
Britain, The United States and The Korean War 5,225
Detoxification of Phenolic Effluents by Oxidation/Precipitation 6,500
Devonian Biostratigraphy of the Capertee Geanticline 2050
Experimental Investigation of the Shedding of the Vorticity by Sharp Edges and the Computation of Axisymmetric Vortex Sheets 16,480
Fast Photo-Electric Photometry of Astronomical Sources 9,600
Metabolite Fluxes across Pea Chloroplast Envelope Membranes and the Regulation of Photosynthesis 3,500
Microwave Wavefront Reconstruction 3,100
Nature of Chemical Bonds to Metals - Precise Theoretical Studies 6,000
Performance Evaluation of a Portable Operating System 1,000
Photosynthesis and Osmoregulation in Marine Algae 20,748
Properties and Applications of Shape Memory Alloys 9,000
Quantum Chemical Potential Surfaces Implementation of Data Base for Chemical Substructure Searching Implementation of C and Unix on New Architecture System 46,597
Solid State Spectroscopy Electronic and Vibrational Spectra of Solids 15,000
Studies of the Enviromental Biology of the Platypus, with Special Regard to Feeding, Habitat Utilisation and Environmental Physiology 5,460
Transitions: A Study of Men Experiencing Change in Retirement 11,000
Vitamin C Megatheraphy. The Sociology of Scientific Controversy 6,300

SPECIAL PURPOSE FUNDS (RESEARCH)

Australian Institute of Nuclear Science and Engineering - Post Doctoral Fellowships 18,283
Aerosol Research Fund (Chemistry) 1,640
Australian Accounting Research Foundation (Accountancy) 3,600
Australian Iron and Steel Pty. Ltd. - Assoc. Prof. N. Standish (Metallurgy) 11,022
Australian Welding Research Association - Post Graduate Award (Chemistry) 11,790
Colonial Sugar Refining Company - Julia Creek Oil Shales Analysis (Chemistry) 38,667

Department of Health (Australia)
- Counselling of Patients (Psychology) 14,641

Department of Education (Australia)
- Prof. R. Johnston (History and Philosophy of Science) and Prof. S. Hill (Sociology) 24,300

Department of Youth and Community Services
- Services to Ethnic Minorities (Centre for Multicultural Studies) 10,000
- Aboriginal Welfare (History and Economics) 6,000

Department of Science and Technology
- Prof. R. Johnston (History and Philosophy of Science) 7,620
- Prof. S. Hill (Sociology) 710

Department of Immigration and Ethnic Affairs
(centre for Multicultural Studies) 25,969

Diespecker Research Fund
(Psychology) 5,630

Economic and Financial Research Fund - Reserve Bank
- R. Markey (Economics) 3,520
- J. Steinke (Economics) 4,500

Electricity Commission of New South Wales
- Flow Properties of Precipitator Dust - Dr. P. Arnold (Mechanical Engineering) 12,603

Electrical Research Board
- Control of Large Scale Systems (Mechanical Engineering) 1,250

Environmental Research Donations
- Dr. R. Young (Geography) 1,500

Educational Research and Development Committee
- Analysis of French and Italian Programs - Dr. D. Hawley (European Languages) 30,500
- Ethnicity and Education - Dr. A. Jakubowicz and Dr. E. Wolf (Centre for Multicultural Studies) 13,678
- Growing Up in Illawarra - Dr. W. Mitchell (History) 7,500

Esso Australia -
Rundle Oil Shale Analysis - Prof. A. Cook (Geology) 16,254

Flora and Fauna Bureau - Australian Native Legumes - Dr. D. Murray (Biology) 8,500

Geology Fuel Research (Geology) 6,423

Geology and Petrophysics Research (Geology) 7,381

Lake Illawarra Sediment Study (Geography) 190

Learning Environmental Research (Education) 1,032

Mass Spectrometer Interface-Dr. P. Bolton and Dr. G. Trott (Chemistry) 8,211

Mechanical Engineering Research and Development -
(Mechanical Engineering) 2,924
<table>
<thead>
<tr>
<th>National Health and Medical Research Council</th>
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<tbody>
<tr>
<td>Application of GC-MS - Prof. B. Halpern (Chemistry) 30,518</td>
</tr>
<tr>
<td>Spectrographic Analysis - Dr. H. Spencer (Biology) 8,804</td>
</tr>
<tr>
<td>Ovum Transport - Prof. J. Blake (Mathematics) 20,724</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>National Energy Research Development &amp; Demonstration Council</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal Storage Bin Design - Dr. P. Arnold and Dr. A. McLean (Mechanical Engineering) 21,530</td>
</tr>
<tr>
<td>Electrostatic Precipitators - Dr. K. McLean (Electrical Engineering) 13,156</td>
</tr>
<tr>
<td>Pneumatic Conveying of Coal - Dr. P. Arnold and Dr. A. McLean (Mechanical Engineering) 4,850</td>
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<tr>
<td>Low Rank Oil Shale - Prof. A. Cook (Geology) 74,217</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>New South Wales Teachers Federation Postgraduate Award - (History)</th>
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</thead>
<tbody>
<tr>
<td>Population Research (Geography) 55</td>
</tr>
<tr>
<td>Port Kembla Hospital Health Program - Prof. R. King (Education) 3,000</td>
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</tbody>
</table>

<table>
<thead>
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<th>Postgraduate Scholarships Account</th>
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<tbody>
<tr>
<td>Department of Biology 1,000</td>
</tr>
<tr>
<td>Department of Chemistry 1,500</td>
</tr>
<tr>
<td>Department of Civil and Mining Engineering 1,000</td>
</tr>
<tr>
<td>Department of Education 500</td>
</tr>
<tr>
<td>Department of European Languages 500</td>
</tr>
<tr>
<td>Department of Geography 750</td>
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<tr>
<td>Department of Geology 500</td>
</tr>
<tr>
<td>Department of History 1,500</td>
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<tr>
<td>Department of History and Philosophy of Science 250</td>
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<tr>
<td>Department of Mathematics 1,000</td>
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<tr>
<td>Department of Metallurgy 500</td>
</tr>
<tr>
<td>Department of Psychology 1,000</td>
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<tr>
<td>Department of Sociology 2,500</td>
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<table>
<thead>
<tr>
<th>Ramaciotti Foundation - Application of GC-MS (Chemistry)</th>
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</thead>
<tbody>
<tr>
<td>Radio Research Board - Microwave and Holographic Wave Reconstruction - Dr. F. Paoloni (Electrical Engineering) 1,450</td>
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<table>
<thead>
<tr>
<th>Research and Development in Mining Engineering</th>
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<tbody>
<tr>
<td>Civil and Mining Engineering 1,680</td>
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| Rheem Australia Ltd. - Commercial Solar Project - Prof. S. Marshall (Mechanical Engineering) 3,825 |

<table>
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<th>Social Welfare Resources Centre - Ethnicity and Class - (Centre for Multicultural Studies)</th>
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<tbody>
<tr>
<td>Special Research (Biology) 3,078</td>
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<tr>
<td>South Coast Research - Dr. R. Young (Geography) 3,444</td>
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<table>
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<th>State Pollution Control Commission</th>
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<tbody>
<tr>
<td>Port Kembla Project - Dr. P. Crisp (Chemistry) 500</td>
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<tr>
<td>Transport Noise - Dr. D. Pearson-Kirk (Civil &amp; Mining Engineering) 6,000</td>
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<table>
<thead>
<tr>
<th>State Planning and Environment Commission</th>
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</thead>
<tbody>
<tr>
<td>Air Analysis (Chemistry) 5,997</td>
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</tbody>
</table>
Sundry Donations for Research
- Department of Accountancy 1,566
- Department of Chemistry 1,571
- Department of Civil and Mining Engineering 91
- Department of Electrical and Computer Engineering 12,178
- Department of Metallurgy 1,375
- Department of Physics 1,317

Tertiary Education Commission - Prof. R. King (Education) 6,000
UNESCO - Literature Search - Prof. S. Hill (Sociology) 6,515
L. Viney Research Fund - Psychology 2,735

Department of Science and Technology
- Australian Industrial Research and Development - Prof. R. Johnson (History and Philosophy of Science) 9,510

SPECIAL PURPOSE FUNDS
(SCHOLARSHIPS, BURSARIES, PRIZES, ETC.)

Australian Institute of Nuclear Science and Engineering
Studentships
- Mathematics 7,845
- Chemistry 6,672

Australian Institute of Metals (Port Kembla) Prize 40
Australian Institute of Mining and Metallurgy (Illawarra) Prize 300
Peter Beckman Memorial Prize in Physical Chemistry 44
Biology Prize 55
Darryl Condon Memorial Prize 22
Foundation Prize in Geology 66
Bert Halpern Memorial Prize 858
Austin Keane Memorial Prize 105
Mathematics Prize Fund 444
Evan Phillips Memorial Prize 222
A.J. & J. Waters Geology Prize 165
Wollongong University Prize Fund 340
Australian Society of Accountants Prize 150
Blue Circle Cement Prize 25
Illawarra County Council Award 500
Corporate Affairs Commission Prize 100
Western Mining Prize 450
# SPECIAL PURPOSE FUNDS (OTHER)

<table>
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<tr>
<th>Organization/Program</th>
<th>Amount</th>
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<tr>
<td>- History of the A.C.T.U.</td>
<td>2,097</td>
</tr>
<tr>
<td>Australian Institute of Management</td>
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<tr>
<td>- Autonomy Donation for Improvement of Managerial Techniques</td>
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<tr>
<td>Donations to English</td>
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<td>Donations to Geology</td>
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<tr>
<td>Donations to Geography</td>
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<tr>
<td>The Illawarra Credit Union Employment Scholarship</td>
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<tr>
<td>Wollongong University Sundry Donations</td>
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<tr>
<td>Designation</td>
<td>Males</td>
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<td>------------------------------------------------</td>
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<td><strong>Academic Activities</strong></td>
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<td>Teaching-and-research staff</td>
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<tr>
<td>Professor</td>
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<td>Lecturer</td>
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<td>Senior Demonstrator, Senior Tutor</td>
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<td>Demonstrator, Tutor, Teaching Fellow</td>
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<td><strong>TOTAL</strong></td>
<td>170</td>
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<td><strong>Research Only Staff</strong></td>
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<tr>
<td>Professor</td>
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<tr>
<td>Professorial Fellow, Reader, Senior Fellow</td>
<td>6.97</td>
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<td><strong>TOTAL</strong></td>
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<tr>
<td><strong>Non-Academic Administrative Staff</strong></td>
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<tr>
<td>Supporting Academic Activities</td>
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<tr>
<td>Technical Staff</td>
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<td>Technical Assistant</td>
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<tr>
<td>Professional</td>
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<tr>
<td>Other</td>
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<td><strong>Administrative Staff</strong></td>
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<td>Senior Administrative Officer</td>
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<td>Clerk, Typist, etc.</td>
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<td>Other</td>
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<td><strong>Building Planning and Maintenance Staff</strong></td>
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<td>Tradesmen</td>
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<td>Other</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>Other Services</strong></td>
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<td>Independent Operations</td>
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<td><strong>TOTAL STAFF</strong></td>
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<td>Designation</td>
<td>Males</td>
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<tr>
<td>Professor</td>
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<tr>
<td>Associate Professor, Reader</td>
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<tr>
<td>Senior Lecturer</td>
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<td>Senior Tutors, Senior Demonstrators</td>
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<td>Demonstrator, Tutor</td>
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<tr>
<td><strong>Total</strong></td>
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</table>

**Teaching and Research Staff**

**Academic Activities**

| General Studies               |       |         |       |
| Faculty of Humanities        | 5     | 1       | 39.5  |
| Faculty of Engineering       | 3     | 9       | 35    |
| Faculty of Mathematics       | 2     | 3       | 23    |
| Faculty of Science           | 3     | 4       | 33.5  |
| Faculty of Social Sciences   | 5     | 3       | 59.5  |

**TOTAL TEACHING—AND—RESEARCH**

|       | 18 | 20 | 49.5 | 74.5 | 15 | 14.5 | 191.5 |
PUBLICATIONS

MONOGRAPHS

BIOLOGY


EDUCATION


ELECTRICAL AND COMPUTER ENGINEERING


ENGLISH


EUROPEAN LANGUAGES


GEOGRAPHY


HISTORY


HISTORY AND PHILOSOPHY OF SCIENCE


MATHEMATICS


PHILOSOPHY


PSYCHOLOGY


SOCIOPY


