



THE UNIVERSITY OF WOLLONGONG



ANNUAL REPORT 1980

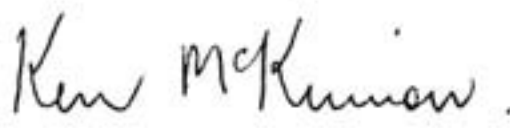
THE UNIVERSITY OF WOLLONGONG

The Honourable David Paul Landa, LL.B., M.L.C., Minister for Education,

In accordance with section 34 of the University of Wollongong Act 1972, the Council of the University has the honour to present to you the Annual Report of the proceedings of the University for the period 1st January to 31st December, 1980.



Chancellor.



Vice-Chancellor.

ANNUAL REPORT 1980

21st August, 1981.

THE UNIVERSITY OF WOLLONGONG

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## THE UNIVERSITY OF WOLLONGONG

### ANNUAL REPORT - 1980

#### Vice-Chancellor's Statement

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

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

- (i) the attraction of more students to the University through improvements in the academic programmes;
- (ii) the fostering of the development of more effective research and postgraduate training;
- (iii) the identification of what needs to be done by the University to give positive encouragement to the development of closer links between the University and the community.

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

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

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

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

#### The Council

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

Ex Officio	The Hon. Justice R. M. Hope, Chancellor Emeritus Professor L. M. Birt, 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. C. Denley Mr. B. S. Gillett Sir Richard Kirby Professor P. D. Rousch
Elected by the Students of the University	Mr. M. Robinson Mr. G. Watchirs
Elected by Convocation	Dr. E. Beale Mr. J. Dombroski Mr. W. E. Parnell
Elected by the Full-time Academic Staff of the University	Associate Professor J. S. Hagan Professor A. D. Brown Professor J. L. C. Chipman Professor R. B. Leal
Elected by the Full-time General Staff of the University	Mrs. E. A. Hilton
Elected by the Members of Council	Dr. E. A. Kernohan Mr. J. R. Lysaght Dr. P. Mowbray.

### The Academic Senate

At its ten meetings held during 1980 the Academic Senate considered all course and subject developments proposed for 1981, as well as a wide range of other issues relating to academic affairs within the University.



The work of the Academic Senate as academic advisory body to the University Council was assisted by the establishment of the Standing Committee of Senate which met for the first time in May, and on a further sixteen occasions throughout the year. The new arrangements have proved highly effective as a means of co-ordinating the academic work of the University.

### Academic Activities

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

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

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

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

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

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

### Enrolments

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

### Building Programme and Site Development

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

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

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

### Conclusion

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

### UNIVERSITY LIBRARY

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

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

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



## THE COMPUTER CENTRE

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

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

## THE UNION

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

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

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

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

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

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

## THE SPORTS ASSOCIATION

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

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

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

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

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

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

## THE COUNSELLING CENTRE

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

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

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



## THE EDUCATION RESOURCES CENTRE

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

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

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

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

## THE STUDENTS' REPRESENTATIVE COUNCIL

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

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

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



# APPOINTMENTS, RESIGNATIONS AND PROMOTIONS

<u>APPOINTMENTS</u>	<u>DESIGNATIONS</u>	<u>DEPARTMENT</u>
Dr. J.E. Falk	Lecturer	History & Philosophy of Science
Dr. A. Dragun	Lecturer	Economics
Miss C. Strauh	Tutor	Sociology
Miss K. Hempsall	Tutor	Geography
Mr. D. Davis	Lecturer	English
Dr. L.L. Viney	Associate Professor	Psychology
Dr. I.G. Pirie	Lecturer	Computing Science
Mr. J.H. Crabb	Lecturer	Accountancy
Mr. G.L. Rando	Lecturer	European Languages
Mr. L. Stokes	Tutor	Economics
Mrs. P. Doyle	Tutor	Economics
Mr. A.J.S. Partridge	Lecturer	Economics
Mr. P.F. Loveday	Lecturer	Civil Engineering
Dr. F.D. Marengo	Lecturer	History
Mr. N.C. Canosa	Tutor	Accountancy
Mr. A.S. Verick	Tutor	Accountancy
Mrs. M. Campbell	Lecturer	History & Philosophy of Science
Dr. S.L. Chow	Lecturer	Psychology
Dr. J.A. Schuster	Lecturer	History & Philosophy of Science
Mr. J.E. Mangan	Lecturer	Economics
Mrs. A.M. Tych	Tutor	Psychology
Mr. P.F. Carr	Lecturer	Geology
Mr. G.H. Kirkpatrick	Lecturer	Economics
Dr. P. Cerone	Research Associate	Mathematics

<u>RESIGNATIONS</u>	<u>DESIGNATION</u>	<u>DEPARTMENT</u>
Mr. P. Lucchiti	Tutor	Accountancy
Professor C.A.M. Gray	Professor	Civil Engineering (retired)
Mr. G.W. Price	Lecturer	History & Philosophy of Science
Mr. L. Ricci	Lecturer	European Languages
Mr. M.J. Ross	Tutor	Economics
Mr. A.J.S. Partridge	Lecturer	Economics
Mr. B.A. Crozier	Tutor	History
Mr. D.J. Johnston	Tutor	Accountancy
Mr. J.C. Forge	Lecturer	History & Philosophy of Science
Associate Professor E.R. Phillips	Associate Professor	Geology (deceased)
Dr. T.A. Bailey	Lecturer	Computing Science
Mr. S.C. Mares	Senior Tutor	Economics
Dr. A. Dragun	Lecturer	Economics
Mr. C.T. Heazlewood	Senior Lecturer	Accountancy
Mr. A.S. Verick	Tutor	Accountancy

RESIGNATIONS (Cont'd.)DESIGNATIONDEPARTMENT

Miss K. Hemsall	Tutor	Geography
Professor B. Halpern	Professor	Chemistry (deceased)
Ms. P.A. Brewer	Lecturer	Sociology
Dr. A.W. McHoul	Lecturer	Education
Dr. A. Salvadori	Lecturer	Computing Science
Miss C. Strauh	Tutor	Sociology
Mrs. A.M. Tych	Tutor	Psychology
Mrs. J. Hiddlestone	Tutor	Psychology
Mr. G.H. Kirkpatrick	Lecturer	Economics

PROMOTIONS

<u>NAME</u>	<u>DEPARTMENT</u>	<u>POSITION</u>	<u>PREVIOUS APPOINTMENT</u>
Dr. J. Kontoleon	Electrical Engineering	Reader	Senior Lecturer
Dr. I.M. McLaine	History	Senior Lecturer	Lecturer
Dr. F.S. Piggin	History	Senior Lecturer	Lecturer
Dr. R.G. Dromey	Computing Science	Senior Lecturer	Lecturer
Dr. P.G. Laird	Mathematics	Senior Lecturer	Lecturer
Dr. R.M. Lilley	Biology	Senior Lecturer	Lecturer
Dr. D.E. Lewis	Economics	Senior Lecturer	Lecturer
Dr. A. Basu	Civil Engineering	Senior Tutor	Tutor
Mrs. C.M. Baker	English	Senior Tutor	Tutor
Mrs. M. Campbell	History & Philosophy of Science	Senior Tutor	Tutor
Mr. P.F. Carr	Geology	Senior Tutor	Tutor
Mr. J.A. Land	Chemistry	Senior Tutor	Tutor

UNIVERSITY STATISTICS

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

DESIGNATION	MALES	FEMALES	TOTAL
Academic Activities			
Teaching-and-research staff			
Professor	19		19
Associate Professor, Reader	18	1	19
Senior Lecturer	44.5	3	47.5
Lecturer	65.5	11	76.5
Senior Demonstrator, Senior Tutor	15	1	16
Demonstrator, Tutor, Teaching Fellow	5.5	6.5	12
TOTAL	167.5	22.5	190
Research Only Staff			
Professor			
Professorial Fellow, Reader, Senior Fellow			
Fellow, Senior Research Fellow, Research Fellow			
Fellow, Senior Research Fellow, Research Fellow	2		2
Junior Research Staff	4	3	7
TOTAL	6	3	9
Non-Academic Administrative Staff			
Supporting Academic Activities			
Technical Staff			
Technical Officer	16	4	20
Technical Assistant	49.5	12.6	62.1
Library Staff			
Professional	8	15	23
Other	9	27	36
TOTAL	17	42	59



DESIGNATION	MALES		FEMALES		TOTAL		
Administrative Staff							
Chief Administrative Officer	5				5		
Senior Administrative Officer	4				4		
Administrative Officer	4				4		
Administrative Assistant	6		1		7		
Clerk, Typist, etc.	13		33		46		
Other			1		1		
TOTAL							
	32		35		67		
Building Planning and Maintenance Staff							
Professional	2				2		
Tradesmen	16				16		
Other	6		2		8		
TOTAL							
	24		2		26		
Other Services							
Independent Operations	353		166.1		519.1		
	8		10		18		
TOTAL STAFF							
	361		176.1		537.1		
	Professor	Associate Professor, Reader	Senior Lecturer	Lecturer	Senior Tutors, Senior Demonstrators	Demonstrator, Tutor	Total
Teaching and Research Staff							
Academic Activities							
General Studies	-	-	-	2	-	-	2
Faculty of Humanities	5	2	7	19.5	4	2	39.5
Faculty of Engineering	3	9	9	12	1	-	34
Faculty of Mathematics	2	2	7	5	3	1	20
Faculty of Science	4	3	13	8	5	-	33
Faculty of Social Science	5	3	11.5	30	3	9	61.5
TOTAL TEACHING-AND-RESEARCH							
	19	19	47.5	76.5	16	12	190

	Professor	Associate Professor, Reader	Senior Lecturer	Lecturer	Junior Positions	Total
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### Research Only Staff

#### Academic Activities

Department of Chemistry	-	-	-	-	3	3
Department of Computing Science	-	-	-	-	1	1
Department of Physics	-	-	-	1	1	2
Department of Accountancy	-	-	-	-	1	1
Department of Psychology	-	-	-	-	1	1
Department of Education	-	-	-	1	-	1

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TOTAL	-	-	-	2	7	9
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### Enrolments to 30th April, 1980.

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	FULL-TIME	PART-TIME	TOTAL
PhD Course	45	44	89
Master Degree Courses			
- Research	11	49	60
- Course	29	58	87
TOTAL	85	151	236

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#### Bachelor Degree Courses

Arts	525	484	1009
Commerce	202	216	418
Engineering	283	140	423
Metallurgy	12	96	108
Science	138	104	242
Mathematics	107	81	188

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TOTAL	1267	1121	2388
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	FULL-TIME	PART-TIME	TOTAL
Non-degree Courses	4	81	85
TOTAL UNDERGRADUATES	1271	1202	2473
Other Courses			
Postgraduate Bachelor	1	20	21
Postgraduate Diploma	78	58	136
Master Preliminary/Qualifying	5	-	5
TOTAL	84	78	162
TOTAL ENROLMENTS AT THE UNIVERSITY 1440		1431	2871



### DEGREES CONFERRED

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

#### Bachelor of Arts

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

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

Bachelor of Arts Graduates (Cont'd.)

Geoffrey James Morrell	Christopher Dalkeith Scott
Jan Louise Moxon	Hing Yee Shum
Barry Michael Myler	Thomas Francis Sleigh
Lina Niko	Robert John Sloman
Jonathan Freeman Nott	Brian Leslie Smith
Jeffrey Joseph O'Brien	Eric Smith
Gerald O'Neill	Christine Frances Smythe
Maret Oser	Andrew John Snedden
Enrichetta Antonia Parolin	Doris Stewart
Carolyn Heather Peady	Ada Theresa Stroligo
Gary Polis	Oliver Tams
Carmelo Pollicina	Wendy Lee Testoni
Richard Kim Thomas Porter	John Gregory Thompson
Robert George Preston	John Sidney Thorne
Darinka Radinovic	Mariann Patricia Thorne
John David Rava	Sue Elizabeth Truscott
Lynelle Gloria Rava	Judith Louise van de Ven
Janet Edelle Rees	Bryan Walker
Kristina Elizabeth Rennig	Wayne Gregory Walkerden
David Phillip Richardson	Bronwyn Ellen Watson
Karen Lois Roberts	Phillip John Webb
Kathleen Frances Roberts	Susan Joy Westwood
Ermatine Alice Robinson	Kathryn Anne Wilson
Kerry Hazel Robinson	Russell John Woodard
Jane Michelle Rodgers	Annette Kathleen Woods
Kathryn Grace Rogers	Jeffrey Wragg
Colin George Russell	Khanthong Xaysana
Linda Elizabeth Schmidt	Nadia Eleanor Yen

Bachelor of Arts - Honours

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



Bachelor of Arts - Honours (Cont'd.)

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

Bachelor of Commerce

John Francis Akele  
 John Ian Arndell  
 Terrence Anthony Ashton  
 Graham Dean Atkinson  
 (With Merit)  
 Ralph Riley Basden  
 Peter Michael Beniuk  
 (With Merit)  
 Linda Bewetz  
 Wayne Robert Boatwright  
 (With Merit)  
 Geoffrey Douglas Boxsell  
 (With Merit)  
 Gregory David Bragg  
 Ian Charles Brown  
 Richard Alan Bull  
 Kelvin George Burton  
 Agustin Camino  
 Stephen Caredes  
 Giuseppe Chiumento  
 Graeme Robert Conyers  
 John Francis Courtney  
 Glenn Leigh Day  
 Philip John Dean  
 Pauline Alison Doyle  
 Simon John Rawsley Drew  
 John Thomas Fisher  
 Peter John Fitzgerald  
 (With Merit)  
 Eamonn Bruno Fox  
 Gary John Galbraith  
 Colin Peter Hampson  
 (With Merit)  
 Anthony Peter Hardy  
 (With Merit)  
 Bruce Gregory Harrell

Peter William Houghton  
 John Idotta  
 Aleksandar Ivanovski  
 James Paul Jackson  
 William George Lavery  
 (With Merit)  
 Kim McConnochie  
 Andrew Cameron MacDonald  
 Earle Victor McNamara  
 John Hector Nicholls,  
 BSc N.S.W.  
 Don Osborne  
 Lynette Kay Patch  
 (With Merit)  
 Malcolm James Pye  
 Kerry Ann Reid  
 Peter James Robinson  
 (With Merit)  
 Richard John Scanlon  
 Robert Schleicher  
 Geoffrey Graham Shaw  
 (With Merit)  
 Robert Forbes Smith  
 Paul Dannelo Sowiak-Rudej  
 Barry Geoffrey Stevenson  
 William David Stevenson  
 Trevor John Sullivan  
 Peter Tambakis  
 Trevor John Tandy  
 Christopher Michael Tobin  
 Robert Owen Wild  
 (With Merit)  
 Christopher David Williams  
 (With Merit)  
 Mary Youssif



## Bachelor of Commerce - Honours

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

## Bachelor of Engineering

Civil Engineering

Howard Alan James	Mukesh Jethalal Mehta
Glyn Scott Kearney	Joseph Scimone

Electrical Engineering

Peter Ihnat	Nicolas Rojas
Edward Frederick Lodden	Andreas Vasiliou

Mechanical Engineering

David Alexander Burt	Peter John Rolfe
Peter March	Peter Bryant Sansom
Victor John McLeod	Robert Baden Simpson
Malcolm Frederick Newton	

Mining Engineering

Gordon Edward Arthur

## Bachelor of Engineering - Honours

Civil Engineering

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

Electrical Engineering

Raul Igor Boccola (Honours Class II, Division 2)  
 James Allan Butterfield (Honours Class II, Division 2)  
 Michael John Duffy (Honours Class II, Division 2)  
 Walter Koeller (Honours Class I)  
 Murray James Robinson (Honours Class II, Division 2)

Bachelor of Engineering - Honours (Cont'd.)Mechanical Engineering

Peter Morton Beaumont (Honours Class III)  
 Paul Anthony Buchhorn (Honours Class I & University Medal)  
 Mark Ignatius Carney (Honours Class II, Division 1)  
 Richard Albert Dwight (Honours Class I)  
 David John Goard (Honours Class II, Division 1)  
 Gunnar Richard Holz (Honours Class II, Division 1)  
 John Vicars Kopetko (Honours Class II, Division 2)  
 David John Martin (Honours Class II, Division 1)  
 Brian Allen Moore (Honours Class II, Division 1)  
 Trevor William Phillis (Honours Class II, Division 1)  
 John Vasic (Honours Class III)  
 Eric Lyle Vickery (Honours Class II, Division 2)  
 Graham John Williams (Honours Class III)

Mining Engineering

Robert John Reynolds (Honours Class II, Division 2)  
 Ian Charles Sheppard (Honours Class II, Division 1)

Bachelor of Science (Engineering)Electrical Engineering

Francisco Canero  
 Nuri Phillip Chorvat  
 Erwin Haider

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

Bachelor of Metallurgy

Lance Paul Dyer  
 Leslie George Gregory  
 Graeme Peter Hunt

David Gordon Mellor  
 John Charles Monaghan  
 Phillip Alan Rimes

Bachelor of Mathematics

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

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

## Bachelor of Mathematics - Honours

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

## Bachelor of Science

Donna Marie Ashelford	Paul Lewis
Roslyn Joy Atkins	Dawn Elizabeth Lindsay
David Andrew Aynsley	Graeme Roderick Macdonnell
Pamela Isobel Bath	John Francis George Maxwell
Denis John Behan	Lex Stephen Metcalfe, BA
James Edward Bennett	Gregory William Milham
Geoffrey Wayne Brown	Anthony Gerard Monger
Paul Leslie Brown	Carol Morgan
Terence John Bunn	Gregory Ronald Poole
David James Cook	Michael Hartwell Robson
Patrick James Creenaune	Richard Beamish Ross
Edward Andrew Dubowski	Claudio Ennio Rovere
Geoffrey Fields	Terence John Rudkin
Kenneth John Grant	Michael Salani
Tavipol Hemangkorn	Mario Sanguinetti
Charles David Jackson	Deirdre Tober
Donald Round Jephcott	Therese Elizabeth Walsh
Richard Korber	Brian Leslie Watson
Rodney James Lewin	Paul Anthony Wildey
	Craig Anthony Williams

## Bachelor of Science - Honours

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



## HIGHER DEGREES

### Bachelor of Education

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

### Master of Arts

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

### Master of Commerce

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

### Master of Engineering

Solomon Battino, BE Syd.

### Master of Science

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

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

Pamela Joan Moore, BA N.S.W. DipEd

Barry Irwyn Noyce, BSc N.S.W.

Peter Pavlik, BSc N.S.W.

Alessandro Raffaele Augusto Salvatore, Dr. in Chimica *Perugia*

Fook Cheong Siew, BSc Q'ld.

## Doctor of Philosophy

Edward Michael Boge, BSc N.S.W.

Thesis: "The Magnetic and Chemical Behaviour of some Polynuclear Methoxide Complexes of Tervalent Iron with Bidentate Oxygenous Ligands."

Colin Richard Pidgeon, BSc DipEd N.S.W.

Thesis: "Substituent Effects on the Thermodynamic Functions of Ionisation of Phenols."

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

Graham Kenneth Winley, BA *Macq.*, MSc (O.R.) N.S.W.

Thesis: "Topics in Population Dynamics."

## Doctor of Science

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

## HONORARY DEGREE

Doctor of Letters (*honoris causa*):

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

## UNIVERSITY OF WOLLONGONG DIPLOMATES

The Council of the University awarded Diplomas as follows:

### Diploma in Accountancy

Thomas Franklyn Clemens, BA *Calif.*

Ian Stann, BTech *Kharagpur*

### Diploma in Education

Mark Anderson, BSc

Ian Appleby, BA

Glynis Jean Arber, BA

Bernadette Mary Askew, BA

Michael Charles Askew, BA

Heather Ann Bailey, BA

Dawn Narrell Bartlett, BSc

Henry John Walter Baumeister, BSc

Denis John Behan

Sandra Joy Boccola, BA

Garry Lyle Brabham, BA

Norma Marlene Broers, BSc Syd.

James Michael Cahill, BSc N.S.W.

Sharon Audrey Caldwell, BA

Anne Elizabeth Cassidy, BSc

Jane Caulton, BSc

Anne Kathryn Elizabeth Chapman, BA

Barry John Christiansen, BSc

Joanne Maree Collison, BSc

Joseph Lenehan Davis, BA

James David Dawson, BSc

Christopher Graham Dileva, BSc

Ian Geoffrey Doney, BEc Syd.

John Holger Eklund, BSc

Diploma in Education (Cont'd.)

Graham William Fitzpatrick, BA  
 Roland William Foster, BA  
 Marilyn Anne Gabriel, BA  
 Nadia Ghirardello, BA  
 Harry Grabowski, BSc  
 Robyn Ann Graham, MA N.S.W.  
 Janet Elizabeth Green, BA  
 Christine Mary Hall, BA  
 John Henry Hambly, BA  
 Judith Mary Hicks, BA  
 Keith Andrew Hopkins, BA  
 Dora Horvath, BA A.N.U.  
 Elizabeth Maria Keenan, BA  
 Merin Ann Kemp, BSc  
 Janette Elaine Kenworthy, BA  
 Lillyan Kolevska, BA  
 Richard Korber  
 Thomas Eric Lange, BSc  
 Paul Didacus Larkin, BSc  
 Inga Lazzarotto, BA  
 Peter Wayne MacDonald, BA  
 Gregory Paul MacRae, BSc  
 Jane Mahoney, BA

Philip Walter Mann, BA  
 Lilybeth Margaret Mayhew, BA  
 John William McKay, BA  
 Paula Louise Mitchelson, BSc  
 Jerry Murtin, BSc  
 Brian Liddell Nutt, BA  
 Terry Raymond Ogle, BSc  
 Eileen Ann Perkiss, BSc  
 Cheryl Ann Perry, BA  
 Lenny Phillips, BSc  
 Joseph Pini, BSc  
 Rocco Pasquale Polidoro, BSc  
 Geoffrey Peter Pratt, BSc  
 Bryan Thomas Schofield, BA  
 Amanda Jane Stomps, BA A.N.U.  
 James Harold Sturgiss, BSc  
 Vivienne Margaret Szakacs, BA  
 Sam Tadros, BA  
 Cheryl Daphne Talbot, BA  
 Christine Elizabeth Terry, BSc  
 Mary Vellar, BA  
 Leanne Wilson, BA

Diploma in Philosophy

James Lawrence Jones



## ACADEMIC ACTIVITIES - 1980

### FACULTY OF ENGINEERING

#### Department of Civil Engineering

##### General

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

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

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

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

##### Facilities and Equipment

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

Major equipment purchased during the year included the following:

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

##### Research Thesis Being Undertaken Within the Department

Ph.D. -

##### Civil

A Technique to Resolve Road Accident Problems.  
Progressive Failure in Slope Stability Analysis.  
In Situ and Laboratory Studies of Sandy Soils.

South Coast Coal Field - The Influence of Coal Mining on Settlement and Transport.

Non-Linear Analyses of Plate and Plated Structures by the Finite Strip Method.

Deflection of R.C. and Prestressed Concrete Box Beams.

Hydrodynamic Forces on Offshore Structures by Laboratory Study and Numerical Method.

### Mining

Excavation Analysis Considering Pore Pressure Changes and Progressive Failure.

Subsidence and Strata Control in the Sydney Coal Basin.

M.E. -

### Civil

Shoalhaven River Studies.

Urban Drainage Design Procedures.

The Effect of Slow Moving Heavy Vehicles on Road Pavements Performance.

Use of Unburnt Colliery Shale in Road Construction.

Flood Frequency Estimation.

Storm Temporal Patterns and Flood Hydrographs.

Cement Stabilization of Road Bases.

Environmental Noise Pollution.

Materials in Road Construction.

Urban Drainage.

Computer Graphics Associated with Civil Engineering Problems.

Reinforced Earth Design and Analysis.

Kinematic Wave Models for Flood Hydrography.

Use of Coal Waste in Road Construction.

Recreational Trip Forecasting.

### Mining

Pressure Losses Due to Ventilation in South Coast Mines.

Transportation.

Methane Drainage in Longwall Mining.

A Study of Mine By-Products.

Permeability of Coals.

Control of Gas in Coal Seams.

Analysis of Structural Problems in Faulted Mining Roofs.

## Department of Electrical Engineering

### General

The 1980 academic year saw a most welcome improvement in the average quality of first year full-time students when compared with that of the students in the previous two years. Performance of the first year part-time students was excellent.

Fourth year performance was disappointing as there were only five graduating students from a group of thirteen potential graduates. Investigation suggested that there was no single cause of the failures. Additional tutorials are scheduled in 1981 for fourth year students to enable academic staff members to monitor the situation more closely.

### Facilities and Equipment

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

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

The following items of equipment were purchased during 1980:

5 off BWD Cathode ray oscilloscopes	\$ 3,115
2 " HP Pulse generators	5,616
1 " Wave analyser	9,450
1 " BWD Powerscope	2,821
1 " Philips cathode ray oscilloscope	6,820
Microwave components	410
1 " Microcomputer	1,163
1 " Micronova and controllers	5,931
1 " OKI Printer	1,070
1 " QUME Printer	4,025
1 " Hard copy unit	5,375
1 " HP Printer	4,331
14 " Beehives	15,000
Lathe accessories	648
	<hr/>
	<u>\$65,775</u>

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

<u>Number of Items</u>	<u>Cost of Replacement</u>	<u>Total Replacement Cost</u>
270	Greater than \$300	\$600,000
330	Between \$200 and \$300	<u>70,000</u>
<u>600</u>		<u>\$670,000</u>

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



## Research Theses Being Undertaken Within the Department

### Ph.D. -

- "An approach to the practical design of sub-optimal control systems."
- "Single frame cascade induction machines: analysis and design."
- "Permanent magnet synchronous machines."
- "Identification and experimental design of linear and distributed parameter systems."

### M.E. -

- "A computer controlled infra-red sensing system."
- "Control of a continuous copper casting line."
- "Motor speed control through a microprocessor controlled thyristor converter."
- "Electrical characteristics of a pilot scale electrostatic precipitator."
- "Photographic measurements of stratospheric aerosols."
- "A study of harmonic generation by and fault occurrence in static converters."
- "High bit rate microwave data link."
- "Computer analysis of large-scale non-linear networks."
- "Fly ash resistivity and back corona measurements using a biased grid electrode."
- "Effect of time delays on control system stability."
- "Modulation of polyphase inverters."
- "Adaptive control of the efficiency of variable speed drives."
- "Glider control and supervisory equipment."
- "Microprocessor control of static converters."
- "Fault identification in electronic systems."
- "Investigation of microwave holography."

## Department of Mechanical Engineering

### General

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

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

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

### Facilities and Equipment

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

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

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

Equipment purchased during the year was as follows:

Horiba CO recorder purchased

Pulse phase pneumatic conveying system and instrumentation

Station wagon for bulk solids research.

Graphics terminal (Tektronix 4006)

B & K portable tape recorder.

Dissolved oxygen meter.

A 5 m water channel capable of flow speed up to Froude number 1.5 has been constructed. It will be used for teaching and research in hydrodynamics.

Spectrum Analyser.

X-Y recorder.

Tektronix Terminal (4006).

Teleray U.D.U. (2nd Hand).

Air velocity meter.

Butterfly valve + regulator (Woonona).

Signal Conditioning Amplifiers (2 off).

Tasman Minidata logger (2 off).

Oval P.D. Flowmeter (Woonona).

Kelvinator Air Conditioner.

#### Research Thesis in Progress

Ph.D. -

"Control of large scale systems."

"Flow properties of bulk solids."

"The optimum design of spur and helical gears to B S 436."

"Development of numerical technique for two dimensional fluid flow with flexible boundary."

M.E. -

"Dust collection in the refractories industry."

"Performance of vibratory bin activators."

"The effects of and instrumentation techniques for transient sound."

"Design of diffusers for ocean disposal of industrial wastes."

"The application of finite element analysis to problems of multi-dimensional heat conduction with non-linear boundary conditions."

"Factors affecting the recovery of benzene from coke oven gas."

"Some aspects of shaft design."

#### Department of Metallurgy

##### General

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



## Facilities and Equipment

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

## Research Theses in Progress

### Ph.D. -

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

"Structure development in eutectic alloys."

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

### M.E. -

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

"Some aspect of metal forming operations."

"Modelling of metallurgical processes."

"Fluid flow in sinter beds."

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

"The mechanical behaviour of copper alloys."

## FACULTY OF HUMANITIES

### Department of English

#### General

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

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

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

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

#### Facilities and Equipment

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

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

## Research Theses in Progress

### Ph.D. -

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

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

"The Poetry of Robert Lowell."

### M.A. -

"Disraeli's Scope as a Novelist."

"Attitudes to Landscape in Australian Fiction."

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

## Department of European Languages

### General

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

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

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

### Facilities and Equipment

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



## Research Theses in Progress

### Ph.D. -

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

"An aspect of the work of Marguerite Yourcenar."

## Department of History

### General

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

### Facilities and Equipment

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

## Research Theses in Progress

### Ph.D. -

"Lenin as Head of the Sovoborony."

"The Historian as Moralist: Edward Gibbon."

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

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

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

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

### M.A. -

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

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

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

"Middle Class Women's Immigration to Australia, 1861-1901."

## Department of History and Philosophy of Science

### General

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

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

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

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

### Facilities and Equipment

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

### Research Theses in Progress

Ph.D. -

"Towards a Philosophy of Technology."

"Australian Industrial Research and Development and Technology Transfer."

"Scientific and Political Aspects of Risk Assessment in Australia."

M.A. -

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

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

### Department of Philosophy

#### General

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

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

#### Facilities

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

#### Research Theses in Progress

Ph.D. -

Luigi Pirandello's anticipations of existentialism.

M.A. -

The nature of war crimes and their moral evaluation.

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

F. H. Bradley and Absolute Idealism



## FACULTY OF MATHEMATICS

### Department of Computing Science

#### General

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

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

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

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

#### Facilities and Equipment

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

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

The following equipment purchases were made during 1980:

- 1 Perkin-Elmer 3220 with 0.75 megabytes of memory, cache, hardware floating point unit, writeable control store and 1 67 megabyte disk drive
- 28 VC 404 Video Display terminals

### 3 Printers

- I Qume Sprint high quality printer
- I Sanders high quality printer
- I Siemens ink jet printer

### 2 Upgrades to the 3220

- I 67 megabyte disk
- I Synchronous multiplexer (\$4,000 towards link paid by Computer Centre)
- I Synchronous modem

### 3 Microcomputers

- I Apple microcomputer
- I disk for Apple microcomputer
- I Motorola 68000
- I Zilog Z8000

- I Interface for state analyzer (IEEE) on ARGC grant.

## Research Theses in Progress

### Ph.D. -

"Portability of Operating Systems Software."

"Performance of Portable Operating Systems."

## Department of Mathematics

### General

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

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

### Facilities and Equipment

By the end of 1980 the Departmental Microprocessor Laboratory was equipped with 2 Apple II and 1 TRS80 microcomputers. Facilities available include dual disc drive, printer and serial communication to the University

mainframe computer. Software includes the languages Basic, Pascal, Fortran, and Assembler. Work in progress includes use of microcomputers in CAI, general computing, graphics, and animation. During the year 1 new windgauge was purchased.

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

#### Research Theses in Progress

##### Ph.D. -

"Numerical Solutions of 3 Reactor Kinetics Equations."

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

"A Problem in Sequential Analysis."

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

"Non Classical Diffusion."

"Random Walk Models."

"Mean Value Properties and Differential Equations."

"Boundary Effects of Shelf Waves."

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

"Some Problems Associated with Roll Forming."

##### M.A. -

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



## FACULTY OF SCIENCE

### Department of Biology

#### General

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

#### Facilities and Equipment

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

#### Research Theses in Progress

##### Ph.D. -

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

"Studies in the Evolution of Energy Metabolism."

##### M.Sc. -

"Antibiotic Production by Marine Chromobacteria."

"Osmoregulation in Cyanobacteria."

"Numerical Taxonomy of Dermatophyte Yeasts."

### Department of Chemistry

#### General

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

The overall pass rate of 84% in 1980 is in the middle of the range of the three previous years (79-87%). The total subject pass figure of 355 is below the previous year and largely reflects a decline in undergraduate enrolments. Pass rates in individual units ranged from 78-100%, with all but two units being about 80%.

Attrition rates for all chemistry units were close to the Faculty of Science and University averages for 100, 200 and 300-levels respectively and were comparable with previous years.

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

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

### Facilities and Equipment

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

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

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

The Department purchased the following items of equipment:

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

## Research Theses in Progress

### Ph.D. -

"The Application of Gas Chromatography and Mass Spectrometry to the Study of Human Diseases - The Identification and Quantitation of the Urinary Volatiles Associated with a Number of Genetic Defects."

"Biomedical Mass Spectrometry."

"Spectrophotometric Analysis."

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

"Ring Closure Reactions of Substituted Aminomethylarenes."

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

"Characterisation of Components in Shale Oil."

"Synthesis of Dihydroisindole Derivatives."

### M.Sc. -

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

"Development of a Computerised Magnetic Mass Spectrometer System."

## Department of Geology

### General

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

The postgraduate programme in Geology has historically been oriented towards Ph.D. programmes pursued chiefly by full-time students, but with a significant number of part-time students from outside the Wollongong area taking programmes which relate to some of the areas of expertise of the academic staff. The buoyancy of employment in Geology suggests that



it may be some years before significant numbers of students could be expected to be interested in undertaking full-time postgraduate studies. For these reasons, part-time postgraduate students are likely to become a more significant element in postgraduate teaching. Such students bring advantages in terms of experience and expertise to the University and commonly make available facilities and information which would not otherwise be readily accessible.

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

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

### Facilities and Equipment

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

Utilisation of major research facilities was as follows:

	<u>Hours</u>
Quantimet	445
XRF	170
XRD Unit (University Facility)	400
MPVI Photometer	2687
MPV2 Photometer/fluorescence unit	2444

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

The programme of replacement of student microscopes was continued.

### Research Theses in Progress

Ph.D. -

"The geology of oil shales."

"Volcanic rocks in Central Western New South Wales."

"Studies in coal-bearing sequences in New Zealand."

"A study of a base metal ore deposit in the Mt. Isa region."

"Igneous rocks of the southern Sydney basin."

"Geochemistry of recent sediments in Lake Illawarra."

"Thermal regimes in Australian sedimentary basins."

"Low grade metamorphism in sedimentary sequences."

"Relationship between coals and associated hydrocarbon source rocks."

"Aspects of sedimentology of coal measure sequences."

M.Sc. -

"A study of the Bald Hill claystone."

"Aspects of igneous intrusions in the Southern Coalfield."

"Studies of Queensland coal basins."

"Magnetic studies in the Cudgegong-Rylstone district."

"Organic matter in oil shales."

"The geology of the Ardrossan dolomite and its development as a refractory in the steel industry."

## Department of Physics

### General

A principal change in the 1980 teaching programme was that the subject MATH 101 Mathematics IA was eliminated as a co-requisite for PHYS 141 and 142. The change was made on a trial basis to enable students (such as those "majoring" in Biology) to acquire the Physics essential for a science degree without having to study Mathematics. However, the arrangement has not been a success, and the co-requisite will be re-introduced for 1982, together with a new 100-level Physics sequence having less emphasis on the use of higher Mathematics.

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

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

### Facilities and Equipment

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

The following items of equipment were purchased during 1980:

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

### Research Theses Being Undertaken Within the Department

#### Ph.D. -

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

"Piezospectroscopy of Neutral Copper and Zinc Impurities in Germanium."



M.Sc. -

"The Measurement of Fission Neutron Spectrum of  $^{252}\text{Cf}$  and to Determine the Average Neutron Energy."

"An Infrared Wavelength Modulation Spectrometer for the Study of Impurity Spectra of Semiconductors."

"Scattering of Light by Solids."

"A Survey of Infrared Astronomical Objects."

"A Study of Some Infrared Detectors."

"An Encoder System for the 18" Telescope and UVBYH $\phi$  Photometry of Bright UV Stars."

## FACULTY OF SOCIAL SCIENCES

### Department of Accountancy

#### General

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

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

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

#### Facilities and Equipment

##### Space

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

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

##### Accounting Laboratory

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

## Equipment

The following additional equipment was purchased later 1980:

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

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

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

An Olivetti Word Processor (TES 501), hired from Kass Office Equipment from April to July 1980, was used in producing the text for Australian Company Financial Reporting: 1980. In December 1980 it was agreed to house an IBM Word Processor within the Department on the understanding that it could be used by several other departments of the Social Sciences faculty.

## Research Theses in Progress

M.Com. -

"Taxation of Companies and Concept of Source."

## Department of Economics

### General

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

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

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

### Facilities and Equipment

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



## Research Theses in Progress

### Ph.D. -

"The Application of Linear Programming to Economic Problems."

"The Investment Decision in Changing Industrial Conditions."

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

"The Investment Decision in Electricity Generation."

"Economic Thought and Public Measurement: Studies in Political Arithmetic."

### M.Com. -

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

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

"The Political Economy of Government Expenditure."

"Decision Making for Macroeconomic Policy."

"The Impact of Voluntary Aid on Economic Development."

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

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

"Mining and Economic Development".

## Department of Education

### General

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

Enrolments in the Department continued to place pressure on staff resources, with the attrition rate among Education students being lower than the University average (7.4% against 9.3%) and considerably lower than the average for the Faculty of Social Sciences (7.4% against 11.7%). Pass-rates are higher than the average for the University or the Faculty of Social Sciences because of the high proportion of students who are already graduates.

The workload upon staff proved to be an increasing and troublesome problem during 1980. The Department carried the equivalent of 130 full-time students, an increasing number of whom required postgraduate supervision, with a full-time academic staff of seven. The Department relied heavily upon and wishes to acknowledge its gratitude to more than fifty part-time staff members. It should be noted, however, that this results in, and even creates, markedly heavy demands on full-time teachers.

### Facilities and Equipment

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

### Research Theses in Progress

#### Ph.D. -

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

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

#### M.A. -

"The History of Curriculum Development."

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

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

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

"The Technological Revolution."

"Teacher Development."

#### M.Ed. -

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

### Department of Geography

#### General

The broad aims and directions of the departmental programmes have been under review for some time, in part because of the need to respond to a massively changed external environment (specifically, the near disappearance of demand for secondary teachers of Geography) but also because of changes - in part consequential upon this - in the likely size and composition of the teaching staff. While precise details have yet to be finalised it would seem likely that the environmental strand will be given greater emphasis.

Pass and attrition rates for subjects taught within the Department are in all cases either close to or better than those obtaining in the Faculty of Sciences and/or throughout the University.

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

### Facilities and Equipment

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

The following new equipment was purchased:

6 Kyowa Stereo Binocular Microscopes	\$1920
150 mm lens for Durst CE1000 Enlarger	\$ 350
Durst RCP Print Processor	\$ 800
Kyowa Trinocular 200m Microscope	\$1487
Gossen Fibre Optic Light Source	\$ 557
Olympus Polarising Microscope System	\$2000
Strip Chart Recorder	\$ 730

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

### Research Theses in Progress

Ph.D. -

"Upland Swamps on the Hawkesbury Sandstone Plateau."

M.A. -

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

"Environmental Impact of Sand Mining in the Illawarra."

"Indo-Fijian Migration to New Zealand."

### Department of Psychology

#### General

In an attempt to rationalise available staff resources and yet maintain a range of choices for students, a five year plan was formulated during 1980. The plan will involve the retention or occasional resting of several 300-level subjects offered by the Department. Students have been informed of the specific rotations.



No major changes have taken place in course content or structure at the undergraduate level. Teaching methods within the Department differ widely after 100-level, and students can, to some extent, suit their own developing style and interests. As the Department retains a relatively large percentage of its students it seems that both teaching methods and course content are generally acceptable to students.

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

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

#### Facilities and Equipment

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

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

#### Research Theses in Progress

##### Ph.D. -

"Gestalt therapy."

"Biofeedback mediated behavioural treatment."

"A psychological analysis of therapists' treatment philosophies."

"Transition to university."

"The relationship between mother and infant."

##### M.A. -

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

"Determinants of job satisfaction among health workers."

"Sources of stress on management positions in organisations."

"Subject's perceptions of and responses to punishment: A study of perceived severity of the punishing stimulus, perceived locus of control, and perceived control over the punishing stimulus."

"A re-assessment of achievement motivation theory."

"Lesbianism and ideology."

"Effects of parental death on adults."

"The relationship between taste preferences and taste sensitivity."

## Department of Sociology

### General

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

### Facilities and Equipment

These are presently adequate for teaching and research.

### Research Theses in Progress

#### Ph.D. -

"The Social Construction of Science."

"Science in Society. A Comparative Perspective of Alternative Knowledge Systems from the Viewpoint of the Sociology of Knowledge."

"Scientific Communications in the Field of International Relations."

"Historical Determination of Ideologies."

#### M.A. -

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

"The Formation of Social Change Movements."

### Centre for Multicultural Studies

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

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

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

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



## RESEARCH INTEREST AND PUBLICATIONS

### FACULTY OF ENGINEERING

#### Department of Civil Engineering

#### Research Interests and Major Topics of Investigation.

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

#### Refereed Publications

R. N. Chowdhury. "Landslides as Natural Hazards - Mechanisms and Uncertainties", Geotechnical Engineering, 11 (1980), 135-180.

R. N. Chowdhury. "Evaluation of the Extent of Movement of a Sliding Mass", In Numerical Methods in Geomechanics, Edited by W. Wittke, 4 (1980), 1433-1440.

#### Conference Papers

M. J. Boyd. "Evaluation of Simplified Methods for Design of Retarding Basins", National Committee on Hydrology, Institution of Engineers, Australia, Hydrology and Water Resources Symposium 1980, National Conference Publication 80/9, Adelaide, 182-183.

R. N. Chowdhury. "Probabilistic Evaluation of Natural Slope Failures", Proc. Int. Conf. on Engineering for Protection from Natural Disasters, Bangkok (1980), 605-615.

R. N. Chowdhury. "Recent Progress in Evaluation and Control in Landslides", Proc. Third International Symposium on Landslides, I.S.L. - 1980, Vol. 1, 313-318.

R. N. Chowdhury. "Anticipating Future Needs of Engineering Education", Proc. Australian Engineering Education Conference, Inst. Engineers Australia, Brisbane, Vol. 80/6, (1980), 192-195.

J. R. Croton and M. J. Boyd. "Relation Between Annual Maximum and Partial Duration Floods for N.S.W. Stream, National Committee on Hydrology", Institution of Engineers, Australia, Hydrology and Water Resources Symposium 1980, National Conference Publication 80/9, Adelaide, 184-185.

D. Pearson-Kirk. "Light Road Pavements - The Effect of Truck Traffic on Their Performance", 8th Summer Annual Meeting of Planning and Transport Research and Computation, Transportation Research Board, July (1980), England.

D. Pearson-Kirk, G. R. Easton and D. Ross. "Commercial Vehicle Surveys in New South Wales", 10th Biennial Conference of the Australian Road Research Board, 10:5, August (1980), 267-280.

D. Pearson-Kirk. "Appropriate Road Construction Technology and the Effective Use of Resources in Developing Countries", Proc. Australasian Engineering Education Conference, Inst. Engineers Australia, Brisbane, Vol. 80/6 (1980), 108-112.

M. J. Boyd. "Flood Frequency Analysis", Proc. 20th Annual Conference, N.S.W. Flood Mitigation Authorities, Nowra, May 1980, 13-24.

D. Pearson-Kirk. "Problems Associated with the Operations of the Road Freight Industry", Transport in Illawarra, 15th Annual Engineering Conference, Illawarra Group of the Institution of Engineers, Australia, Wollongong, May (1980).

#### Research and Departmental Reports

M. J. Boyd. University of Wollongong Climatological Station Annual Report 1979, Department of Civil Engineering Report, 1980.

R. N. Chowdhury. "A Reassessment of Limit Equilibrium Concepts in Geotechnique", Department of Civil Engineering Report, 1980.

R. N. Chowdhury. "Probabilistic Approaches to Progressive Failure", 1st Report of Geotechnical Reliability Series, Department of Civil Engineering, 1980.

R. N. Chowdhury. "Landslides as Natural Hazards", Department of Civil Engineering Report, 1980.

D. G. Montgomery. "Works Management", Department of Civil Engineering Report, 1980.

D. G. Montgomery. "A Proposed Tensile Specimen for Testing Cement Pastes and Mortars", Department of Civil Engineering Report 1980.

D. Pearson-Kirk. "Truck Operations and Road Pavement Performance: A Review", Supplementary Paper 1.0, Final Report of the Commission of Enquiry into the N.S.W. Road Freight Industry, 1980.



D. Pearson-Kirk. "Safety Aspects of the Operations of the N.S.W. Road Freight Industry", Supplementary Paper 4.0, Final Report of the Commission of Enquiry into the N.S.W. Road Freight Industry, 1980.

D. Pearson-Kirk. "Environmental Problems Associated with the Operations of the N.S.W. Road Freight Industry", Supplementary Paper 5.0, Final Report of the Commission of Enquiry into the N.S.W. Road Freight Industry, 1980.

## Department of Electrical Engineering

### Research Interests and Major Topics of Investigation

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

### Refereed Publications

J. M. Kontoleon. "Optimum Link Allocation of Fixed-Topology Networks", IEEE Trans. on Reliability, R-28 (1979), 145-147. Also in Zentralblatt Fur Mathematik, 481.90048 (1980).

J. M. Kontoleon. "Analysis of a Dynamic Redundant System with Non-Identical Units", IEEE Trans. on Reliability, R-29 (1980), 77-78.

J. M. Kontoleon. "Probability Level of Readiness in Supervised Protective Systems for Nuclear Reactors", Nuclear Science and Engineering (Journal of the American Nuclear Society), 73 (1980), 84-86.

J. M. Kontoleon. "Reliability Improvement of Multi-terminal Networks", IEEE Trans. on Reliability, R-29 (1980), 75-76.

J. M. Kontoleon. "Supplement to Reliability Improvement of Multi-terminal Networks", IEEE NAPS, No. 3576-A (1980).

J. M. Kontoleon. "An Algorithm for Evaluating Overall Reliability of Special Tree-Networks", IEEE Trans. on Reliability, R-29 (1980), 314.

J. M. Kontoleon. "SAFE Program", Nuclear Science and Engineering (Journal of the American Nuclear Society), 76 (1980), 78.

J. M. Kontoleon. "Fail-to-Safe and Fail-to-Danger Analysis of Logic Protective Networks", IEEE Trans. on Reliability, R-29 (1980), 436-437.

J. M. Kontoleon. "Reliability Determination of r-successive-out-of-n: F Systems", IEEE Trans. on Reliability, R-29 (1980), 437.

J. M. Kontoleon and A. Barrett. "Design of a Variable Scanning-Width System for Dynamic Redundancy Applications", IEEE Trans. on Ind. Electronics and Control Inst., 27 (1980), 255-256.



J. M. Kontoleon. "Fast Decomposition on Networks in Minimally Interconnected Sub-networks", Proc. IEEE, Part G, Electronic Circuits and Systems, 4 (1980).

J. M. Kontoleon. "Reliability Analysis of a Special Redundant System", Reliability Engineering, 1 (1980), 143-147.

K. J. McLean and H. K. Pohl. "Dielectric Properties and Equivalent Circuit of a High Resistivity Particulate Layer", Jrn. of Electrostatics, 8 (1980), 227-238.

F. J. Paoloni. "A Cavity Backed Resonant Slot Array - Theory and Measurement", IEEE Trans. Antennas and Propagation, AP-28 (1980), 259.

F. J. Paoloni. "Propagation and Reflection of Slow Plasma Waves with Periodic Boundry Conditions", Nuclear Fusion, 20 (1980), 1407.

Z. Qureshi, T. S. Ng, and G. C. Goodwin. "Optimum Experimental Design for Identification of Distributed Parameter Systems", International Journal of Control, 28 (1980).

B. H. Smith and W. H. Charlton. "Output Voltages of a Multi-Switch Inverter", Proc. IEE, 127, B:2 (1980), 117-119.

#### Reports

K. J. McLean. "Analysis of the Electrical and Charging Characteristics of the Three Electrode Precharger." Prepared for U.S. Environmental Protection Agency, Research Triangle Park, N.C., Contract No. 68-02-31.

R. W. Motley, S. Bernabei, W. M. Hooke, and F. J. Paoloni. "Phased Waveguide Array with Fixed Tuning Element, Plasma Physics Laboratory, PPPL-1651 (1980).

L. Stokes, B. H. Smith and G. W. Trott. "Electric Car Introduction to the Wollongong Region: A Response to Two Planning Problems", Research Report No. 1, 1980, Department of Electrical Engineering, University of Wollongong (January, 1980), ISBN 0 90716 44 7.

#### Conference Papers

W. H. Charlton. "Selecting and Teaching Electrical Subjects", Pacific Region Conference on Electrical Engineering Education, Churchill, Vic., (December, 1980).

Z. Rana and K. J. McLean. "Microcomputer Control for an Electrostatic Precipitator", IEA Conference on Microprocessor Systems, Sydney, (November, 1980).

Z. Rana and T. S. Ng. "Microprocessor Controlled Colour Graphics System", IEA Conference on Microprocessor Systems, Sydney, (November, 1980).

B. H. Smith, C. D. Cook and B. S. P. Perera. "Operation and Stabilisation of Single-frame, Cascade Induction Machines as Stepping Motors", Proc. of the International Conference on Numerical Control of Electrical Machines, Lyan, (April, 1980).

L. Stokes, B. H. Smith and G. W. Trott. "Electric Car Introduction to the Wollongong Region: Selection of a Set of Public Recharging Sites", Proc. I.E. Aust. Conference on Transportation in the Illawarra, (May, 1980).

#### Other Publications

W. H. Charlton. "Circuit Theory: An Introduction for First Year Students", Wollongong University, (1980), ISBN 0 909716 31 5.

#### Department of Mechanical Engineering

#### Research Interests and Major Topics of Investigation

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

#### Refereed Articles

S. A. Marshall. "The design of reduced-order systems", Int. J. Control, 31 (1980), 677-690.

A. G. McLean and P. C. Arnold. "A Simplified Approach for the Evaluation of Feeder Loads for Mass-Flow Bins", J. Powder and Bulk Solids Technol., 3:3 (1979), 25-28.

A. G. McLean and P. C. Arnold. "The Evaluation of the Contents of a Silo", Powder Technol., 27 (1980), 117-120.

#### Reports

J. Ellis, J. Land and R. T. Wheway. "The Use of Peroxides in Wastewater Treatment." Report to Water Research Foundation of Australia, June, 1980.

R. T. Wheway (ed.) "Proceedings of Symposium on Industrial Use of Water and the Environment." February, 1980.

R. J. Davey and R. T. Wheway. "The Optimum Design of Spur and Helical Grass to AS B61." Department of Mechanical Engineering Design Report, August, 1980.



## Conference Papers

S. A. Marshall. "An appreciation of the design of multivariable control systems", APPITA Conf., Nowra, September 18-19, 1980.

A. G. McLean and P. C. Arnold. "The Flow of Simple Bulk Solids from Converging Channels", Powder Europa 80, Weisbaden, Germany, January, 1980.

P. C. Arnold and A. G. McLean. "Bulk Solids Storage and Flow - Some Recent Developments", Industrial Awareness Seminar, Powder Europa 80, Weisbaden, Germany, January, 1980.

A. G. McLean and P. C. Arnold. "Two Phase Flow in Converging Channels", European Symposium on Particle Technology, Amsterdam, The Netherlands, June, 1980.

A. G. McLean and P. C. Arnold. "Some Considerations in the Design of Silos", Conference on Agricultural Engineering, Geelong, October, 1980.

P. C. Arnold and A. W. Roberts. "Bin Design for Reliable Flow", AWRA, AISC Symposium on Steel Bins for Bulk Solids, Sydney, September, 1980; Melbourne, November, 1980.

W. K. Soh. "Computer Simulation of Water Waves and the Natural Frequencies of a Submerged Cylinder", Seventh Australian Conference on Hydraulics and Fluid Mechanics, Brisbane, 1980, 60-63.

## Department of Metallurgy

### Research Interests and Major Topics of Investigation

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

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

### Refereed Publications

N. F. Kennon. Chapter 2: "Nomenclature of Phases and Constituents", and Chapter 3: "Phase Transformations" in "Optical Microscopy of Carbon Steels", L. E. Samuels, American Society for Metals, Ohio, 1980.

M. Sahoo, G. W. Delamore, and R. W. Smith. "Mechanical Properties Characterisation of the Broten-Lamellar Eutectic Composite Cd-Ge", J. Matls. Science, 15 (1980), 1097.

G. W. Delamore and J. M. Hill. "Solute Concentration Properties in Ternary Lamellar Eutectic Growth", Scripta Met., 14 (1980), 809.

N. Standish and D. G. Mellor. "The Permeability of Ternary Coke Mixtures", Powder Technology, 27 (1980), 61-68.



N. Standish. "Basic Concepts in Blast Furnace Burdening", Iron and Steelmaker, 9:4 (1980), 27-31.

#### Conference Papers

N. Standish and J. C. Monaghan. "The Flow Resistance of Moving Ore-Coke Interfaces", Congress Haut Furneau, Arles, France, June, 1980.

N. Standish. "The Permeability of Blast Furnace Coke", McMaster Symposium, Hamilton, Ontario, May, 1980.

## FACULTY OF HUMANITIES

Department of English

## Research Interests and Major Topics of Investigation

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

## Refereed Publications

R. McConchie. "Philip Sparrow", Parergon, 24 (1979), 31-35.  
 J. Wieland. "'Where the Raw of Feelings Exist.' Moving Images in Recent Canadian Poetry", Reviews Journal, 1 (1980), 3-9.  
 J. Wieland. "'Confronting his Madness': History as Amnesia in the Poetry of Derek Walcott", New Literature Review, 7 (1980), 73-82.  
 J. Wieland. "'Making light of the process': Nissim Ezekiel's poetic fictions", Kunapipi, 11:2 (1980), 91-103.  
 M. Scott. Adaptation of the Script from Moliere's Tartuffe.

## Conference Papers

J. Wieland. "Finding what will suffice': fictions and the Commonwealth Poet", Triennial Conference of the Association for the Study of Commonwealth Language and Literature, January, 1980.

Department of European Languages

## Research Interests and Major Topics of Investigation

Aspects of the writings of Federico de Roberto, with particular reference to Spanish influences.  
 Italian-American theatre of the early 20th century.  
 Neapolitan operas of the early 18th century.  
 Foreign language programmes in tertiary institutions: French and Italian.  
 Eroticism in contemporary French literature.  
 A study of historical writing in 15th century Milan.  
 Aspects of French regionalism, with particular reference to the southern region of Occitanie.  
 Aspects of the Work of Pierre Drieu la Rochelle.

A study of the effects of oral reading on intonation acquisition in learning French as a foreign language.

A comparison of two methodologies for teaching French as a foreign language at University level: structure-global audio-visual based vs. audio-lingual explicit-grammar-based.

Preparation of an Italian edition of Raffaello Carboni's Eureka Stockade.

Preparation of part of a multilingual glossary of Social Security terms for the Australian Department of Social Security.

A survey of practices and policies relating to broadcasting in languages other than English.

#### Refereed Publications

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

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

V. J. Cincotta (ed.), Quaderno quadriennale of the Wollongong Chapter of the Dante Alighieri Society, Wollongong, 1980.

G. J. Ianziti. "Francesco Sforza e la vergine", in M. Feo (ed.) Manipulus Florum ad Eugenio Garin, Pisa, 1980.

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

G. J. Ianziti. "From Flavio Biondo to Lodrisio Crivelli (The beginnings of Humanistic historiography in Sforza Milan)", Rinascimento, XX (1980), 131-167.

R. B. Leal. "Recent publications on Drieu la Rochelle", AMULA, iiv (1980), 220-227.

R. B. Leal. "Language and Multiculturalism", Journal of Christian Education, ixv (1979), 22-29.

B. N. McCarthy. "La notion d'intonation neutre et l'enseignement des languis etrangeres", Revue de phonétique appliquée, iiv (1980), 133-155.

B. N. McCarthy. "Flexibility in audio-visual foreign language programmes", Babel, xvi:3 (1980), 20-30.

G. Rando. "Alcune lettere di Raffaello Carboni sul Risorgimento italiano", Queensland Dante Review, (1979), 18-22.

G. Rando. "Raffaello Carboni e Dante", Quaderno quadriennale of the Wollongong Chapter of the Dante Alighieri Society, (1980), 26-32.

#### Conference Papers

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

G. J. Ianziti, "New approaches to the study of Renaissance historians", 20th Congress of Australian Universities Language and Literature Association, Newcastle, February, 1980.



H. A. L. Jeanjean. "La croisade contre les Albigeois: Croisade ou guerre de colonisation?", 2nd George Rudé Seminar, Adelaide, May, 1980.

B. N. McCarthy. "Conflicts between structure drills and intonation in foreign language methods", 5th Congress of Applied Linguistics Association of Australia, Monash University, Melbourne, August, 1980.

### Other Papers

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

### Department of History

#### Research Interests and Major Topics of Investigation

- ✓ Women's Employment in Australia, 1919-1939.
- History of Wollongong.
- History of the Australian Council of Trades Unions.
- Work Experience of Aborigines.
- Interaction between Western and non-Western societies through modern colonial systems.
- Russian Civil War.
- History of Wollongong.
- J. A. Lyons.
- Italian Immigration to Australia.
- Contemporary Italian politics.
- Communist ideologies.
- Political corruption.
- ✓ Political terrorism.
- Britain, the U.S. and the Korean War.
- David Low, political cartoonist.
- Growing up in the Illawarra, 1834-1984.
- Mount Kembla Disaster, 1902.
- Birth of the modern missionary movement.
- Marriage and divorce in England, 1857-1939.

#### Refereed Publications

J. A. Castle. "The Australian Women's Guild of Empire", in E. Windschuttle (ed.) Women, Class and History, Melbourne, 1980, 287-312.

C. P. Kiernan. "Waltzing Matilda", in K. Grass and W. Kloos (ed.) English Literature of the Dominions, Wurzburg, Germany, 1980, 13-23.

W. Mitchell. "Women in Mining Communities" in E. Windschuttle (ed.) Women, Class and History, Melbourne, 1980, 157-170.

J. S. Hagan. "Industrial Relations as an Election Issue", National Outlook, June, 1980.

J. S. Hagan. "The Ugly Swinger", National Outlook, September, 1980.

F. S. Piggin. "Halevy revisited: The Origins of the Wesleyan Methodist Missionary Society: An Examination of Semmel's thesis", The Journal of Imperial and Commonwealth History, 9:1 (October, 1980), 17-37.

F. D. Marengo. "British Images of Trade Relations with Japan", South African Journal of Business Management, 11 (1980), 21-27.

## Department of History and Philosophy of Science

### Research Interests and Major Topics of Investigation

National policy-making for science and technology.

The state of university research.

✓✓ The impact of technological change on employment in the Wollongong region in the 1980s.

Review of the effectiveness of government incentives for industrial research and development.

The development of science and technology indicators.

Vitamin C Megatherapy: the sociology of scientific controversy.

The German Romantic concept of embryonic repetition and its role in evolutionary theory in England up to 1859.

✓ Implications of trends in coal and aluminium demand for Australian energy policy.

Sociology and political economy of technological development: the nuclear energy debate.

The Scientific Revolution of the Seventeenth Century.

The genesis of effective fields of experimental science.

Explaining scientific change.

Philosophy of technology.

The history and social implications of genetics research in Australia.

The generation of theories of inheritance.

Sir John Herschel's philosophy of science.

### Refereed Publications

R. Johnston. Mechanisms for the Co-ordination of Research, Australian Government Printing Service, Canberra, 1980.

R. Johnston. "Het Richten Van Wetenschappelijk Onderzoek op Doden", in A. Rip and P. Groenewegen (eds.) Macht over Kennis. (Alpen aan den Rijn, Sansom Uitgeverij, 1980).

J. A. Schuster. "Descartes' Mathesis universalis: 1619-1628" in S. Gaukroger (ed.) Descartes: Philosophy, Mathematics and Physics, Harvester Press, Sussex, 1980.

M. Campbell. "Did de Vries Discover the Law of Segregation Independently?", Annals of Science, 37 (1980), 639-655.

J. A. Schuster. "Kuhn and Lakatos Revisited", British Journal for the History of Science, 12 (1980), 301-317.

J. A. Schuster. "Isaac Newton, 1642-1727", Academic American Encyclopedia, Arcte Publications, Princeton, 1980.

## Conference Papers

M. Campbell. "The Role of Explananda in Theory Generation", Australian Association for the History and Philosophy and Social Studies of Science, Otago, New Zealand, May 1980.

J. Falk. "Australia and the Nuclear Fuel Cycle: The Prospect for the 1980s", Australian Political Economy Conference, Melbourne, August 1980.

R. Johnston. "Risk of Science into Science of Risk: an Extraordinary Conversion", Risk Assessment Symposium, ANZAAS Congress, Adelaide, May 1980.

R. Johnston and S. Liyanage. "The Development of Indicators of Academic Research in Australia", OECD Conference on Science and Technology Indicators", Paris, September 1980.

R. Johnston. "Drawing the Limits: the Relative Role of Ethical and Social Systems in the Control of Science", Academy of Science Symposium on Science and Ethics, Sydney, November 1980.

## Reports

J. Falk. "A Survey of Some Initial Problems Arising from Proposed Aluminium, Coal and Power Developments", Science, Technology and Public Policy, Report No. 9, Dept. of HPS, University of Wollongong, July 1980.

R. Johnston. "A Role for the Contract Mechanism in Australian Science and Technology Policy", Science, Technology and Public Policy, Report No. 5, Dept. of HPS, University of Wollongong, January 1980.

R. Johnston. "Key Issues for Australian Science Policies in the 1980s", Science, Technology and Public Policy, Report No. 7, March 1980.



## FACULTY OF MATHEMATICS

Department of Computing Science

## Research Interests and Major Topics of Investigation

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

IRIS

Geoff Hamer. The  
 computer as a  
 back up service to  
 industry

## Refereed Publications

R. G. Dromey and G. M. Foyster. "Rapid Calculation of Elemental Compositions for High Resolution Mass Spectral Data", Anal. Chem., 52 (1980), 394-398.

T. A. Bailey and R. G. Dromey. "Fast Text Searching by Finding Subkeys in Subtext", Inf. Proc. Letts., 11 (1980), 130-133.

## Conference Papers

R. G. Dromey and G. M. Foyster. "Rapid Calculation of Elemental Composition for High Resolution Mass Spectral Data", ANZMS Conference, Adelaide, January, 1980.

P. J. McKerrow. "Controlling a 'Turtle' with an 'Apple'", Proceedings of the National Microcomputer Conference on Personal Computing for the Eighties, Canberra, July, 1980, 18.1-11.

A. Salvadori. "A Successful Ecological Information Retrieval System", Proceedings of the National Microcomputer Conference on Personal Computing for the Eighties, Canberra, July, 1980, 1.1-5.

## Reports - Preprint Series

C. A. R. Hoare. "A Model for Communicating Sequential Processes". No. 80-1.

R. G. Dromey. "An Algorithm for the Selection Problem". No. 80-2.

C. A. R. Hoare. "Additional Notes on 'A Model for Communicating Sequential Processes'". No. 80-3.

P. J. McKerrow. "Controlling a 'Turtle' with an 'Apple'". No. 80-4.

P. Meyer. "U.F.S. (Unix File Handling System)". No. 80-5.

R. S. Nealon. "GAP - Graphics Assistance Package". No. 80-6.

B. Hammond. "The Conversion of Cobol to PL/I". No. 80-7.

P. J. McKerrow. "Apple I/O (and Documentation)". No. 80-8.

J. Reinfelds. "Lecture Notes for Computing Science II." No. 80-9.

R. G. Dromey and T. A. Bailey. "Fast String Searching by Finding Subkeys in Subtext". No. 80-10.

## Department of Mathematics

### Research Interests and Major Topics of Investigation

Biological Fluid Mechanics.

Low Reynolds Number Fluid Mechanics.

Engineering Fluid Mechanics.

Illative combinatory logic.

Klop's counterexample to the Church-Rosser Theorem.

The logic of Aczel and Feferman.

BCK algebras.

Implicational logics.

The "evaluation" notion in Martin-Lof type theory.

Euclidean rings and their elements.

Inverse combinators.

Water table variation in the beach matrix due to change in ocean state.

Methods of solution of  $Ax = \lambda Bx$  for large sparse A and B.

Composition of vibrational levels in small molecules.

Large deformation analysis of rubber inner tubes.

Random walk model of diffusion in a media with two diffusivities.

Solute concentration profiles in ternary lamellar eutectic growth and determination of random walk probabilities.

Evaluation of functions in series of Chebyshev polynomials.

Numerical linear algebra.

Computer Assisted Instruction (CAI).

Linear difference equations and their adjoints.

Invariant means.

The relationship between neighbourhood lattices and topological spaces.

Effects of time dependent changes in demographic parameters on populations.

Growth models for various age and position dependent cell communities.

### Refereed Publications

J. R. Blake and H. Winet. "On the mechanics of muco-ciliary transport", Biorhodes, 17 (1980), 125-134.

H. Winet and J. R. Blake. "On the mechanics of muco-ciliary flows. II Observations of a Channel Model", Biorhodes, 17 (1980), 135-150.

M. W. Bunder. "Deduction theorems in significance logics", Notre Dame Journal of Formal Logic, 20 (1979), 695-700.

M. W. Bunder. "Paraconsistent combinatory logics", Bulletin of the Section of Logic of the Polish Academy of Sciences, 8 (1979), 177-181.



M. W. Bunder. "Significance and illative combinatory logic", Notre Dame Journal of Formal Logic, 21 (1980), 380-384.

J. M. Hill and C. M. Gulati. "Collision probabilities for two random walking particles in terms of Legendre polynomials", Utilitas Mathematica, 18 (1980), 241-255.

J. M. Hill. "A discrete random walk model for diffusion in media with double diffusivity", Journal of the Australian Mathematical Society (Series B), 22 (1980), 58-74.

E. C. Aifantis and J. M. Hill. "On the theory of diffusion in media with double diffusivity, Part I; Basic mathematical results", Quarterly Journal of Mechanics and Applied Mathematics, 33 (1980), 1-21.

J. M. Hill and E. C. Aifantis. "On the theory of diffusion in media with double diffusivity, Part II; Boundary value problems", Quarterly Journal of Mechanics and Applied Mathematics, 33 (1980), 23-41.

G. W. Delamore and J. M. Hill. "Solute concentration profiles in ternary lamellar eutectic growth", Scripta Metallurgica, 14 (1980), 809-814.

J. M. Hill. "An integral equation arising in double diffusion theory", Journal of Mathematical Analysis and Applications, 77 (1980), 278-287.

J. M. Hill. "The finite inflation of a thick-walled elastic torus", Quarterly Journal of Mechanics and Applied Mathematics, 33 (1980), 471-490.

J. M. Hill. "On the solution of reaction-diffusion equations", Journal of the Institute of Mathematics and its Applications, (1980).

J. M. Hill and C. M. Gulati. "Collision probabilities for two random walking particles in terms of Legendre polynomials", Utilitas Mathematica, 18 (1980), 241-255.

T. S. Horner. "Recurrence Relations for the Coefficients in Chebyshev Series Solutions of Ordinary Differential Equations", Math. Comp., 35 (1980), 893-905.

P. G. Laird. "A reconsideration of the 'three squares' problem", Aequationes Math., 21 (1980), 98-104.

K. P. Toggetti and G. Winley. "Stochastic growth models with logistic mean population", J. Theor. Bio., 82 (1980), 167.

K. P. Toggetti and G. Winley. "The growth of a column age and position dependent cells", Math. Biosc. 50 (1980), 59-74.

#### Conference Papers

D. C. Gibson and J. R. Blake. "On the formation of a jet in cavitation bubbles near rigid and flexible boundaries", Prd. Ftn. Hyd. and Fluid Mechanics Conference, Brisbane, 1980, 285-286.

M. W. Bunder. "A consistency proof in illative combinatory logic" in A.I. Arruda, R. L. Chaqui and N. C. A. da Costa (eds.), Mathematical Logic in Latin America (Proceedings of the 4th Latin American Symposium on Mathematical Logic), Amsterdam, 1980.



M. W. Bunder. "A new hierarchy of paraconsistent logics" in A.I. Arruda, N.C.A. da Costa and A.M. Sette (eds.), Proceedings of the third Brazilian Conference on Mathematical Logic, Sao Paulo, 1980.

M. W. Bunder. "Modus Ponens free (implicational) logics" in A.I. Arruda, N.C.A. da Costa and A.M. Sette (eds.), Proceedings of the third Brazilian Conference on Mathematical Logic, Sao Paulo, 1980.

G. Aldis and K. P. Tognetti. "A simulation of growth and cell division in a roof", Proc. of Fourth Conference of Simulation Soc. of Australia, Brisbane, August, 1980, 102-107.

## Reports

M. W. Bunder. "First year and compulsory second and third year Mathematics courses at Australian Universities", Australian Mathematical Gazette, 7 (1980), 78-80.

D. J. Clarke, I. G. Eliot, P. J. Dean-Jones, J. A. Lanyon and E. Lee. "An interim report on shoreline fluctuation at Warilla Beach, New South Wales".

I. G. Eliot, D. J. Clarke, P. J. Dean-Jones, J. A. Lanyon and E. Lee. "The subaerial beach sediment budget on Warilla Beach", Report to P.W.D., N.S.W.

## Departmental Reprint Series

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| 1/80  | A Discrete Random Walk Model for Diffusion in Media with Double Diffusivity.   |
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- 21/80      A New Definition of Division in Rings of Quotients of Euclidian Rings.
- 22/80      One Day Meeting on "Diffusion and Moving Boundary Problems" - Abstracts.
- 23/80      Simpler Axioms for BCK Algebras and the Connection between the Axioms and the Combinators B, C and K.
- 24/80      Natural Numbers in Illative Combinatory Logic.
- 25/80      Cardinal and Natural Numbers in Illative Combinatory Logic.
- 26/80      Slender Body Theory at Low Reynolds' Numbers.
- 27/80      Possible forms of Evaluation or reduction in Martin-Löf Type Theory.
- 28/80      More than 72 Weak Implicational Logics based on Rules for  $\vdash$ .

## FACULTY OF SCIENCE

Department of Biology

## Research Interests and Major Topics of Investigation

Animal Physiology, Behaviour, and Ecology - Role of the thyroid gland in energy metabolism and temperature regulation.

Nature of chemical neurotransmitters in the mammalian hippocampus.

Environmental physiology of the platypus.

Factors affecting the spatial distribution of the field cricket.

## Plant Biochemistry -

Photosynthesis, with special reference to interactions between photosynthetic metabolism in mitochondria.

Nitrogen nutrition of developing pea embryos together with comparative analysis of seed protein from legumes.

## Microbial Physiology -

Osmoregulation in yeast and salt-tolerant unicellular green algal.

## Refereed Publications

A. D. Brown and M. E. Edgley. "Osmoregulation in Yeast", in D. W. Rains, R. C. Valentine and A. Hollaender (eds.) Genetic Engineering of Osmoregulation, Plenum Press, N.Y., 1980, 75-90.

T. J. Dawson and T. R. Grant. "Metabolic Capabilities of Monotremes and the Evolution of Homeothermy", in K. Schmidt-Nielsen, L. Bolis, and C. R. Taylor (eds.) Comparative Physiology: Primitive Mammals, University Press, Cambridge, 1980, 140-147.

A. J. Hulbert. "On the Evolution of Energy Metabolism in Mammals", in K. Schmidt-Nielsen, L. Bolis and C. R. Taylor (eds.) Comparative Physiology: Primitive Mammals, University Press, Cambridge, 1980.

A. D. Brown and J. M. Sturtevant. "State of Water in Extremely Halophilic Bacteria: Freezing Transitions of *Halobacterium halobium* Observed by Differential Scanning Calorimetry", J. Membrane Biol., 54 (1980) 21-30.

R. T. Furbank and R. McC. Lilley. "Effects of inorganic phosphate on the photosynthetic carbon reduction cycle in extracts from the stroma of pea chloroplasts", Biochim. Biophys. Acta, 592 (1980), 65-75.

H. W. Heldt, A. R. Portis, R. McC. Lilley, A. Mosbach and C. J. Chon. "Assay of nucleotides and other phosphate-containing compounds in isolated chloroplasts by ion-exchange chromatography." Analytical Biochemistry, 101 (1980), 278-287.

R. McC. Lilley. "That most abundant protein". Trends in Biochem. Sci., 5:3 (1980), IX.

D. R. Murray. "Functional Significance of Acid Phosphatase Distribution during Embryo Development in *Pisum sativum* L." Ann. Bot., 45 (1980), 273-281.



D. R. Murray. "Some Properties of an Acid Phosphatase Isolated from the Seedcoats of Developing Pea Seeds", Ann. Bot., 46 (1980), 499-504.

D. R. Murray and I. R. Kennedy. "Changes in Activities of enzymes of Nitrogen Metabolism in Seedcoats and Cotyledons during Embryo Development in Pea Seeds", Plant Physiol., 66 (1980), 782-786.

D. R. Murray and I. J. Porter. "A Comparative Electrophoretic Study of the Seed Albumins from *Sophora microphylla* and *Pisum sativum* (Leguminosae)", Plant Syst. Evol., 134 (1980), 207-214.

#### Conference Papers

P. Else and A. J. Hulbert. "Reptile to Mammal: A Comparison of the Capacity to Produce Metabolic Energy", Bull. Aust. Mamm. Soc., 6 (1980) 33.

R. T. Furbank and R. McC. Lilley. "Carbon fixation and Benson-Calvin cycle turnover in chloroplast stroma extracts: inhibitory effects of inorganic phosphate", Proc. Australian Biochem Soc., 13 (1980), 68.

A. J. Hulbert. "Evolution from Ectothermia towards Endothermia", Proc. Satellite Symp. on Thermal Physiology (1980).

A. J. Hulbert and P. Else. "Reptile to Mammal: A Comparison of the Use of Metabolic Energy", Bull. Aust. Mamm. Soc., 6 (1980), 41-42.

A. J. Hulbert and T. R. Grant. "Thyroid Hormone Levels in the Platypus", Bull. Aust. Mamm. Soc., 6 (1980), 42.

A. J. Hulbert and W. Reynolds. "A Comparison of Strategies of Cold Adaptation in a Marsupial and a Eutherian Mammal", Cryobiology, 17 (1980), 620.

A. W. D. Larkum and R. McC. Lilley. "Isolation of Functionally Intact Rhodoplasts from *Griffithsia monilis* (Rhodophyta)." Australian Soc. Plant Physiol., 21st Meeting (1980), 24.

D. R. Murray. "Acid Glycosidase Activities of Developing Pea Seeds", Xth International Congress on Carbohydrate Chemistry (1980), F2.

D. R. Murray and I. R. Kennedy. "Enzymes of Nitrogen Metabolism in Seedcoats and Cotyledons of Developing Pea Seeds", Proc. Aust. Biochem. Soc., 13 (1980), 71.

#### Reports and Other Papers

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

D. R. Murray. "*Acacia sophorae*", Aust. Plants, 10 (1980), 372.

## Department of Chemistry

### Research Interests and Major Topics of Investigation

#### Oil Shale -

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

#### Environmental Chemistry -

✓ Analysis of atmospheric aerosol particles in the Wollongong-Port Kembla region, and development of new methods for the analysis of aldehydes and ketones.

Investigation of the detoxification of phenolic effluents with hydrogen peroxide and poly-electrolytes.

Development of sensitive methods for analysis of trace metals.

Investigation of the chemistry of welding fume and possible health implications arising from suspected mutagenic components.

Hydrolysis of indium III.

#### Physical Chemistry -

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

#### Synthetic Organic Chemistry -

Synthesis of anti-cancer drugs.

#### Inorganic Chemistry -

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

#### Theoretical Chemistry -

Direct computation of vibrational transition probabilities for the hydrogen laser.

Development of computation techniques for highly accurate and artefact-free representation of the electronic structures and energies of molecules.

Development of completely general techniques for the computation of vibrational wave functions of small molecules.

Electronic distribution in beryllium, magnesium, and calcium oxides to establish the requirements for accurate theoretical modelling of transition metal oxides.

#### Computers and Chemistry -

Development of a computer software system for evaluation of body images generated by nuclear magnetic resonance spectroscopy.

Development of self-paced computer-aided instruction material for use by students enrolled in the Department.

Development of software for computerisation of laboratory instrumentation, especially the Department's gas chromatography/mass spectrometry system.



## Clinical Chemistry -

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

Application of gas chromatography and mass spectrometry to confirmation and diagnosis of metabolic disorders.

Application of gas chromatography/mass spectrometry and related techniques for study of inborn errors of metabolism.

## Refereed Publications

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

P. T. Crisp, S. Rama Bhat, J. M. Eckert and N. A. Gibson "A spectrophotometric method for the determination of anionic surfactants at  $\mu g/l$  levels", Anal. Chim. Acta, 116 (1980), 191-193.

J. Ellis, M. McD. Harris and R. J. King, "Zostera capricorni Aschers in Illawarra Lake, N.S.W.", Proc. Linn. Soc., 104 (1980), 23.

J. Ellis. "A Convenient Parameter for Tracing Leachate from Sanitary Landfills", Water Res., 14 (1980), 1283.

J. Ellis and T. W. Hamilton. "Determination of Arsenic and Antimony in Electrolytic Copper by Anodic Stripping Voltammetry at a Gold Film Electrode", Anal. Chim. Acta, 119 (1980), 225.

J. Ellis, T. W. Hamilton and T. J. Hunt. "An Automatic Controller for Voltammetric Analysis", Chemical Biomedical and Environmental Instrumentation, 9 (1979), 353.

J. Ellis, J. Land and R. T. Wheway. "Use of Peroxides for the Treatment of Wastewater", Report to Water Research Foundation of Australia, June 1980, 44pp.

J. Ellis, A. M. Holland and R. T. Wheway. "The Clarification of Clay Suspensions", Water Research Foundation of Australia, Report No. 55 (1979) 55pp.

B. Halpern, G. M. Schier, I. E. Gan and J. Korth. "Measurement of Sodium Valproate in Serum by direct Insertion CIMS", Clin.Chem., 26 (1980), 47.

## Conference Papers

P. G. Burton and K. Schaefer. "Accurate Techniques in Intermolecular Force Computation and the Interpretation of the Total and Differential Elastic Scattering Cross Sections in Helium-Helium Scattering", Australian Conference on Molecular Physics and Quantum Chemistry, Sydney, Feb.17-20, 1980.

P. G. Burton. "The Basis Set Completeness Problem in Potential Surface Calculation" in Molecular Physics and Quantum Chemistry: into the '80's, P. G. Burton, University of Wollongong, 1980.



G. Mockler, R. J. Butcher, C. J. O'Connor and E. Sinn. "Binuclear, Trinuclear, Tetranuclear and Hexanuclear Copper (II) Complexes", Inor.25, 179th American Chemical Society National Meeting at Houston Texas, March 24-28th, 1980.

G. M. Mockler, G. Brewer and E. Sinn. "The Inorganic Chemistry of the Cytochrome Oxidase Active Site". Inor.348, 180th American Chemical Society National Meeting at Las Vegas, Nevada, August 25-29th, 1980.

## Reports

P. T. Crisp. "Analysis of atmospheric aerosol particles in the Wollongong-Port Kembla area", 6-monthly report submitted to the N.S.W. State Pollution Control Commission, (1980).

## Department of Geology

### Research Interests and Major Topics of Investigation

Coal carbonization.

Maturation and source-rock studies in Australian sedimentary basins.

Petrology of low rank oil shales.

Strata control-stress/strain studies in the southern coalfield, New South Wales, using reflectance and anisotropy of magnetic susceptibility.

Thermal studies, 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.

Geology of the Windellama-Marulan region, New South Wales.

Sedimentological studies in the Illawarra Region.

### Refereed Publications

A. J. Wright "Devonian tetracoral succession at Mount Frame near Mudgee, New South Wales, Australia." (Abst.) Abstracts 3rd Int. Symp. on Fossil Cnidria, Warsaw, 1979, 83-84.

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

P. F. Carr, A. C. Cook, B. G. Jones, A. J. Kantsler, P. S. Moore, and A. J. Wright. "Bungonia rediscovered: evidence for orogenic episodes between the Late Ordovician and the Carboniferous." (Abst.) In Programmes and Abstracts, Fourth Australian Geological Convention, Geol. Soc. Aust., (1980), 29.

P. F. Carr. "Permian shoshonitic activity in the Southern Sydney Basin, New South Wales." (Abst.) In Programmes and Abstracts, Fourth Australian Geological Convention, Geol. Soc. Aust. (1980), 39.

B. G. Jones and P. F. Carr. "An Early Devonian volcanogenic sequence in the Marulan South region, N.S.W., and its relationship to synorogenic plutonism." (Abst.) In Programmes and Abstracts, Fourth Australian Geological Convention, Geol. Soc. Aust., 64-65.

M. Smyth. "Coal encounters of the third kind: Triassic." (Abst.) In Programmes and Abstracts, Fourth Australian Geological Convention, Geol. Soc. Aust. (1980), 90.

G. C. Smith and A. C. Cook. "Exinite and inertinite coalification." (Abst.) In Programmes and Abstracts, Fourth Australian Geological Convention, Geol. Soc. Aust. (1980), 90.

E. R. Phillips. "On polygenetic myrmekite", Geol. Mag., 117 (1980), 29-36.

R. A. Facer. Australian Landform Example No. 36. "Explosion cavities in lava flows", Aust. Geographer, 14 (1980), 306-307.

A. C. Hutton, A. J. Kantsler, A. C. Cook, D. M. McKirdy. "Organic matter in oil shales", APEAJ, 20:1 (1980), 44-67.

D. M. McKirdy and A. J. Kantsler. "Oil geochemistry and potential source rocks of the Officer Basin, South Australia", APEAJ, 20:1 (1980), 68-86.

A. Cook, A. Hutton, A. Kantsler, and S. Warne. "Oil Shales", Scientific Australian, 4 (1980), 6-14, and 39.

R. D. Shaw, A. P. Langworthy, A. J. Stewart, L. A. Offe, B. G. Jones, and I. C. O'Donnell. "1:250,000 Geological Series Map Sheet SF53-14 Alice Springs", Bur. Miner. Resou. Aust. Prelim. 2nd ed. (1979).

A. J. Wright and P. A. Bourque. "Halysitid corals from the Silurian and Devonian of Quebec", Can. J. Earth Sci., 17 (1980), 788-796.

J. W. Pemberton. "The geology of an area near Cudgegong, New South Wales", J. Proc. R. Soc. N.S.W., 113 (1980), 49-62.

B. E. Chenhall, E. R. Phillips, and A. E. Gradwell. "Spotted structures in gneiss", Mineralog. Mag., 43 (1980), 779-787.

F. A. Facer, A. C. Hutton, and D. J. Frost. "Heat generation by siliceous igneous rocks of the basement and its possible influence on coal rank in the Sydney Basin, New South Wales", Proc. Linn. Soc. N.S.W., 104 (1980), 95-109.

P. F. Carr, B. G. Jones, and A. J. Wright. "Dating of rocks from the Bungonia district, New South Wales", Proc. Linn. Soc. N.S.W., 104 (1980), 11-117.

M. J. Garratt. "Siluro-Devonian Notanopliidae (Brachiopoda)", Mem. Nat. Mus. Vic., 41 (1980), 15-41.

A. J. Wright and J. G. Byrnes. "Review of occurrences at halysitid corals in Devonian strata", Alcheringa, 4 (1980), 183-202.



R. A. Facer, A. C. Cook, and A. E. Beck. "Thermal properties and coal rank in rocks and coal seams of the Southern Sydney Basin, New South Wales: a paleogeothermal explanation of coalification", Coal Geology, 1 (1980), 1-17.

A. C. Cook and A. J. Kantsler. "The maturation history of the epicontinental basins of Western Australia", U.N. CCOP SOPAC Tech. Bull., 3 (1980), 171-195.

G. C. Smith and A. C. Cook. "Coalification paths of exinite, vitrinite and inertinite", Fuel, 59 (1980), 641-646.

A. C. Hutton and A. C. Cook. "Influence of alginite on the reflectance of vitrinite from Joadja, N.S.W., and some other coals and oil shales containing alginite", Fuel, 59 (1980), 711-714.

P. F. Carr and R. A. Facer. "Radiometric ages of some igneous rocks from the Southern and South Western Coalfields of New South Wales", Search, 11 (1980), 383-383.

A. J. Wright. "Occurrence of the Devonian tetracoral Grypophyllum mackenziense in Nevada", J. Paleont., 54 (1980), 963-967.

E. R. Phillips. "Myrmekite as a marker between preaqueous and post-aqueous phase saturation in granitic systems: Discussion", Bull. geol. Soc. Am., 91 (1980), 672-673.

J. W. Pemberton. "The stratigraphy of the volcanic rocks of the Cudjoe district, N.S.W." (Extended Abst.). Geol. Soc. Aust. Abstracts No. 2 (Australas. Sed. Group Conf.), (1980), 51-52.

M. J. Garratt. "Melbourne Trough: sedimentation and environments", (Abst.) Geol. Soc. Aust. Abstracts No. 2 (Australas. Sed. Group Conf.), (1980), 54.

P. F. Carr and B. G. Jones. "The Early Devonian Tangerang Volcanics, N.S.W.", (Extended Abst.) Geol. Soc. Aust. Abstracts No. 2 (Australas. Sed. Group Conf.) (1980), 71-72.

## Department of Physics

### Research Interests and Major Topics of Investigation

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



## Refereed Publication

Lindsey F. Smith. "Interstellar Absorption Lines", New Zealand J. of Sci., 22 (1979), 523-526 (not included in 1979 Report).

K. J. Duff, P. Fisher and N. R. Butler. "Stress Enhancement of the G-Line of Singly Ionized Zinc in Germanium", Aust. J. Phys., 33 (1980), 73-90.

J. W. Boldeman, D. Gogny, A. R. de L. Musgrove and R. J. Walsh. "Fission Fragment Angular Distributions for Neutron Fission of  $^{230}\text{Th}$ ", Phys. Rev. C, 22 (1980), 627-637.

B. J. Allen and F. Z. Company. "Radiative Width of Neutron Scattering Resonances", J. Phys. G, 6 (1980), 1173-1188.

R. L. Walsh, J. W. Boldeman and M. E. Elcombe. "Viscosity Effects at Low Excitation in the Neutron Fission of  $^{239}\text{Pu}$ ", Physics and Chemistry of Fission 1979 Vol II, editorial staff of the I.A.E.A. (Vienna, 1980), 129-142.

## Conference Papers

K. J. Duff, P. Fisher and N. R. Butler. "Stress-enhancement of the G-line of Singly Ionized Zinc in Germanium", Bull. Am. Phys. Soc., 25 (1980), 11.

A. D. Martin, P. Fisher and P. E. Simmonds. "The Deformation Potential Constant  $E_p$  of Germanium from Piezospectroscopy of Arsenic Impurities", Bull. Am. Phys. Soc., 25 (1980), 11.

A. D. Martin, P. E. Simmonds and P. Fisher. "Quantitative Piezospectroscopy of Group III Impurities in Germanium", Twelfth Australian Spectroscopy Conference, August 25-29, UNSW.

A. I. Segal. "The Influence of Certain Parameters on the 'Tone' of Bowed String Instruments", Co-operative Workshop on the Acoustics of Stringed Musical Instruments, The Catgut Acoustical Society, July 5th-8th, 1980.

## Reports

R. L. Walsh and I. F. Senior. "Preparation of Thin  $^{239}\text{Pu}$ , and  $^{233}\text{U}$  and  $^{235}\text{U}$  Targets by the Method of Electrospraying", A.A.E.C. Report E512.

R. L. Walsh and M. M. Elcombe. "Measurement of Neutron Beam Characteristics of a Tripe-axis Spectrometer", A.A.E.C. Report TN172.

## FACULTY OF SOCIAL SCIENCES

Department of Accountancy

## Research Interests and Major Topics of Investigation

Australian company financial reporting/New Zealand company financial reporting.

✓ Accounting theory construction and verification.

✓ Behavioural aspects of management information systems.

Business finance.

Business objectives.

Capital and profit concepts, including cost and value concepts, and their measurement.

Capital expenditure decision-making.

Computer-aided instruction in accounting.

Constitutional law.

External reporting in the extractive industries.

Funds statements.

History and development of accounting thought.

✓ Learning curve.

✓ Small business management.

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

✓ Taxation.

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

Trade practices and consumer protection.

## Refereed Publications

J. B. Ryan, C. T. Heazlewood and B. H. Andrew. Australian Company Financial Reporting: 1980. ARS No. 9, Australian Accounting Research Foundation, 1980.

J. H. Crabb. "Organisations from the Business Analysts View", The Professional Administrator, October 1980, 198-194.

J. H. Crabb. "Management and Microprocessors, Part (1)", The Professional Administrator, December 1980, 214-221.

C. T. Heazlewood. "Mineral Reserves - Should Disclosure be Mandatory?", The Chartered Accountant in Australia, 50:9 (1980), 14-15, 17-18.

J. B. Ryan. "Australian Company Financial Reporting - a report on 'the state of the art'", The Chartered Accountant in Australia, July, 1980, 11-12.

G. E. Tibbits. "The Accountant's Dilemma", The Australian Accountant, 50:10 (1980), 706, 9, 10.

## Conference Papers

C. T. Heazlewood. "The Development of Inflation Accounting in Australia", Mid Atlantic American Accounting Association Conference, West Virginia University, 10-12 April 1980.

C. T. Heazlewood. "The Development of Extractive Industry Accounting Standards in Australia and the USA", South East American Accounting Association Conference, University of South Carolina, 17-19 April 1980.

G. E. Tibbits. "Interfirm Comparisons as a Management Tool", Accounting Association of Australia and New Zealand Annual Conference, Townsville, 24-27 August 1980.

## Department of Economics

### Research Interests and Major Topics of Investigation

- Tax Progressivity in Australia.
- Methodology of Estimating Regional Input/Output Tables.
- Turnpike Optimality in Input/Output Systems.
- Overseas Investment in Fiji.
- An Australian Social Contract.
- Aborigines in the Work Force.
- Medical Insurance.
- Designing Unemployment Statistics in New Zealand: A Case History of Political Arithmetic.
- History of Political Arithmetic: The Work of William Petty et. al. in the 16th Century and Development of the Notion Thereafter.
- Some Key Methodological Issues in the Design/Use of Statistics in the History of Economics.
- Statistics for Policy: A Theory of Public Policy Indicators.
- The Economics of Quantitative Knowledge: An Exploration into How Decisionmakers Come to "know" Phenomena.
- Productivity in Indian Agriculture.
- The Economics of Parole.
- Occupational Segregation of Women.
- Agricultural Co-operatives in Papua-New Guinea.
- Australia-Japan Sugar Trade.
- An Econometric Model of Predictable World Demand for Sugar.
- Development of the Sugar Industry in Barbados.
- Theory and Measurement in Labour Hoarding.
- ✓ Labour Hoarding in Australian Manufacturing.
- ✓ Manpower Management for the Individual Organisation.
- ✓ Analysis of Safety Statistics and Procedures at Australian Iron and Steel.
- ✓ New Technology and Union Bargaining Procedures.
- Labour and Politics in New South Wales, 1880-1900.
- Social Mobility in Australia at the Turn of the Century.
- A Comparison of "New Unionism" in Australia and Britain, 1880-1900.
- Industrial Relation Aspects of the Myers Recommendations.
- ✓ The Effect of the Tax System on the Capital Intensity of New Investment.
- ✓ Labour Market Implications of Changing Patterns of Work and Education.
- ✓ Decentralisation in Australia.
- The Choice Between Bus and Car in the Wollongong Region.
- Optimal Decisions Through Programming of Flood Mitigation.

### Refereed Publications

R. G. Castle. "Reducing Government Expenditure", in J. M. Veale (ed.) Australian Macroeconomics, Prentice-Hall, 1980.



D. E. Lewis. "Australian Trading Banks: Competition or Collusion?", in C. Terry (ed.), Australian Microeconomic Policies and Cases, Prentice-Hall, 1980.

A. M. McGregor. "The Price Pattern of the World Market for Sugar: Its Causes and Consequences", Fiji Sugar (1980).

A. M. McGregor et. al. "The Barbados Sugar Industry: Problems and Perspectives", Government of Barbados, Bridgetown, 1979.

J. C. Steinke and L. Stokes. Wollongong Statistical Handbook No. 2, University of Wollongong Press, 1980.

L. Stokes and D. A. Hensher. "Transport Congestion Pricing: A Disaggregate Approach", International Journal of Transport Economics, VIII: 1 (1980).

### Department of Education

#### Research Interests and Major Topics of Investigation

Issues in Curriculum: A study of factors affecting curriculum change in Australian schools.

Compilation of a Select Bibliography on the Middle School, for the Committee of Inquiry into Pupil Behaviour and Discipline in Schools in New South Wales.

Computer assisted instruction: application in Chemistry at the University of Wollongong.

Case study methodology in curriculum planning and development.

Role perceptions of secondary school teachers in urban comprehensive schools.

Learning: the development of new theory of how learning occurs.

Growing up in the Illawarra: a study of schooling, childhood and the family in the Illawarra region during the nineteenth and twentieth centuries.

History of Sydney Church of England Grammar School.

#### Refereed Publications

Geoffrey Sherington. Australia's Immigrants, 1788-1978, Sydney, 1980.

D. M. Cavanagh. "Changing High School Patterns: Implications for the Eighties", Teacher Feedback, xiii:3 (1980), 3-6.

P. R. de Lacey. "Culture and Intellectual Structure", Cross-Cultural Psychology Newsletter, xiv:4 (1980), 2-5.

J. M. Jones. "Discrimination Against Women Academics in Australian Universities", Signs (1980).

A. W. McHoul. "The Practical Methodology of Reading in Science and Everyday Life: Reading Althusser Reading Marx", Philosophy of the Social Sciences, x (1980), 129-150.

A. W. McHoul. "Cultural Creation: Unsociological Aspects of Goldmann's Sociology of Culture", Sociology, (November 1980).

## Conference Papers

D. M. Cavanagh and A. J. Fielding. "Teacher Training and Education: Proposals for the 1980's", Annual Conference of the Australian Comparative and International Education Society, Bendigo, November, 1980.

D. M. Cavanagh. "A Contextual Problem: Common Grading Policies in Practice Teaching", Conference on Grading of Teaching Practice, Sydney, November, 1980.

A. J. Fielding. "Teacher Development and Inservice Curriculum Planning", Conference of the South Coast Regional Inservice Committee, Wollongong, October, 1980.

A. J. Fielding. "An Open System Model of Personality", International Congress on Applied Systems Research and Cybernetics, Acapulco, Mexico, December, 1980.

P. R. de Lacey. "Early-childhood Education and the Enhancement of Mental Growth Rates", Conference of Australian Preschool Association, Sydney, May, 1980.

P. R. de Lacey. "Cultural Difference, Deficit and Compensation: a Pragmatic Deficit Hypothesis", Conference on Ethnic and Immigration Studies, University of New South Wales, June, 1980.

G. E. Sherington. "The Writing of a School History: Some Methodological Considerations", ANZHEs Tenth Annual Conference, Newcastle, 1980.

## Reports

L. C. Brigden, P. G. Burton and A. J. Fielding. "Computer Assisted Instruction in Chemistry at the University of Wollongong", Research Report (November, 1980).

## Department of Geography

### Research Interests and Major Topics of Investigation

Sediment movement in the near-shore zone in regard to beach build-up and erosion.

Changes in Indian agricultural practices and productivity.

✓ Analysis of the human problems of living on the fringes of the metropolitan area.

✓ Australian decentralisation policies and programmes.

Local stream channel characteristics and the process of channel movement.

Demographic ageing in non-metropolitan urban centres.

✓ Lake Illawarra sediment movement.

Erosional and tectonic evolution of the Eastern Highlands.



## Refereed Publications

- E. Dayal. "Agricultural Location Theory: A Review" in Noor Mohammad (ed.) Agricultural Geography; Theory, Concepts and Models. (New Delhi, 1980).
- E. Bryant. "Bathymetric Changes in Three Estuaries of the Central New South Wales Coast", Aust. Jour. Marine and Freshwater Research, 31:5 (1980).
- G. C. Nanson. "Point Bar and Floodplain Formation of the Meandering Beatton River, N.E. British Columbia, Canada", Sedimentology, 27 (1980), 3-29.
- G. C. Nanson. "A Regional Trend to Meander Migration", Journ. of Geology, 88 (1980), 100-108.
- R. W. Young and P. Bishop. "Potassium-Argon Ages on Cainozoic Volcanic Rocks in the Crookwell-Goulburn Area, N.S.W.", Search, 11 (1980), 340-41.
- R. W. Young (with P. Bishop) "Discussion: On the Cainozoic Uplift of the S.E. Australian Highland", Jour. Geol. Soc. Aust., 27 (1980), 117-119.
- R. W. Young. "Commentary on Evolutionary Geomorphology of Australia and New Guinea", Instit. British Geographers Trans., New Series, 5 (1980) 509-510.
- R. W. Young. "The Illawarra Escarpment", Wollongong Studies in Geography No. 2, Department of Geography, University of Wollongong (1980).
- E. Dayal. "Agricultural Adjustments in the Illawarra", Wollongong Studies in Geography No. 4, Department of Geography, University of Wollongong (1980).

## Conference Papers

- E. Dayal. "Fragmented Farms in the Wheat Belt of N.S.W.", Proceedings, 10th N.Z. Geography Conference, Auckland (1979) (Published 1980) 261-63.
- E. Dayal. "Agricultural Productivity in India", Paper read at the International Seminar on Geography and the Third World, Kuala Lumpur, May, 1980.
- G. C. Nanson. "Sediment Transport and Channel Geometry Characteristics Unique to Small Steep-Gradient Streams" N.Z. Hydrol. Soc. Symposium, Napier, N.Z., Nov. 1979.
- G. C. Nanson and R. W. Young. "Downstream Reduction of Channel Size on Small Coastal Streams of N.S.W.: Problems for Urban Planning". Proc. Inst. Australian Geogr., University of Newcastle, Feb. 1980.
- M. G. A. Wilson. "Age Structure Changes in the N.S.W. Urban System 1966-76", Proceedings, Tenth New Zealand Geography Conference, (Auckland, 1979), (published 1980) 116-20.



## Department of Psychology

### Research Interests and Major Topics of Investigation

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

Heart Disease ✓

### Refereed Publications

D. D. Diespecker. Small Groups in Australia - Annual Directory of Leaders and Organisations (Bundoora, 1980).

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

S. Beattie, & L. L. Viney. "Becoming a lone parent", British Journal of Social and Clinical Psychology, 19 (1980), 343-351.

A. M. Clarke. "The Interpersonal Approach to Expectancy Effects: The Experimenter and the Subjects", The Behavioural and Brain Sciences, 3 (1980), 469.

D. D. Diespecker. "Towards a bootstrap psychology", Small Groups Newsletter (Australia), 3:1 (1980), 18-20.

D. D. Diespecker. "Facilitation", Small Groups Newsletter (Australia), 3:2 (1980), 17-18.

D. D. Diespecker. "D-Grams, Processing, and Record-Keeping", Small Groups Newsletter (Australia), 3:3 (1980), 20.

D. D. Dispecker. "Personal Power", Proceedings of the Psychic Conference, La Trobe University, March, 1980, 93-97.

S. Ginsberg. "Letter to the Editor", Biofeedback, 1980.

M. T. Westbrook and L. L. Viney. "Scales of origin and pawn perception using content analysis of speech", Journal of Personality Assessment, 44 (1980), 157-166.

M. T. Westbrook and L. L. Viney. "Biographic and illness-related predictors of patients' reactions to the onset of chronic illness", Proceedings of the Behavioural Medicine Conference, Cumberland College of Health Sciences, Sydney, 1980.

L. L. Viney and M. T. Westbrook. "Psychosocial reactions to heart disease: An application of content analysis methodology", Proceedings of the Geigy Symposium on Behavioural Medicine, Melbourne, 1980.

#### Conference Papers

D. D. Diespecker. "Consciousness raising, awareness, and narcissism", Sixth International Transpersonal Conference, Phillip Island, Victoria, 1980.

D. D. Diespecker and D. C. Cornford. "Pictures in the mind: some aspects of imagery", Fifteenth Annual Conference of the Australian Psychological Society, Toowoomba, 1980.

D. D. Diespecker. "Personal power", Proceedings, Psychic Orientation Conference, Phillip Island, Victoria, 1980.

S. Ginsberg. "Effect of instruction and forward and backward conditioning analogs in response to change from paired stimulus repetition: More evidence relevant to the role of orienting-reaction-recovery in short-interval classical autonomic conditioning", Seventh Experimental Psychology Conference, Sydney, 1980.

S. Ginsberg. "The role of orienting reaction recovery (ORR) in human short-interval Pavlovian autonomic conditioning", Annual Experimental Psychology Conference, Sydney, 1980.

#### Department of Sociology

##### Research Interests and Major Topics of Investigation

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

##### Refereed Publications

P. C. D'Alton. Combat-Myth to Reality. (London 1980).

K. Good and M. Donaldson. The Development of Rural Capitalism in Papua New Guinea: Coffee Production in the Eastern Highlands. (Boko, Papua New Guinea, 1979).

S. Hill. "Technology and Industrial Transformation", in G. Dow and D. Boreham (eds.) Work and Inequality, vol. 1 (Brisbane, 1980).

R. Johnston and T. Jagtenberg. "Het Richten Van Werenschappelijk Onderzoek Op Doelen" (Reprint of Johnston, R. and Jagtenberg, T., "Goal Direction of Scientific Research") in Aric Rip en Peter Groenwegen (ed.) Macht over Kennis: Magelijkheden Van Wetenschapsbeleid. (Brussels, 1980).



M. Donaldson. "The Independence Movement in West Irian", Australian Left Review, 73 (1980), 33-41.

M. Donaldson. "Class Formation in Papua New Guinea: The Indigenous Bourgeoisie", Journal of Political Economy, 7 (1980), 63-85.

S. Hill. "Who Knows Best", UNESCO Review, 1 (1980), 23-27.

R. Horne. Book Review: F. J. Hunt (ed.) Socialisation in Australia, in Australia, New Zealand Journal of Sociology, (November, 1980).

#### Conference Papers

M. Donaldson. "Contradiction, Mediation and Hegemony in Pre-Capitalist New Guinea: Warfare, Production and Sexual Antagonism in the Eastern Highlands", Melanesia - Beyond Diversity, Research School of Social Sciences, Australian National University, November, 1980.

M. Donaldson. "Warfare, Production with Sexual Antagonism in the Eastern Highlands of Papua New Guinea", Fifth National Political Economy Conference, Melbourne, August 1980.

#### Reports

M. Donaldson. "Some Facts and Figures on Steel and Coal Production: For the Merger of A.I.S. Collieries", Transnational Co-operative Wollongong, Report No. 4, April, 1980.

M. Donaldson. "The Industries Assistance Commission. Report on Basic Iron and Steel Products and some of its Implications for the Port Kembla Steelworks: for the Rank and File Group as the Federated Ironworkers' Association", Transnational Co-operative Wollongong, Report No. 5, June, 1980.

M. Donaldson and P. Murphy. "The Bypassing of Port Kembla and some of its Implications for the Regional Economy: For the Port Kembla Branch of the Waterside Workers' Federation", Transnational Co-operative, Wollongong, Report No. 6, July, 1980.

M. Donaldson and T. Stocker. "Submission to the Wollongong Workers' Health Centre Committee on the Need for Health Research", October, 1980.

#### Centre for Multicultural Studies

##### Refereed Publications

M. Morissey and A. Jakubowicz. Migrants and Occupational Health: A Report, Social Welfare Research Centre Reports and Proceedings, No. 3, Kensington (1980).

E. Wolf. "Assessing Programmes in English as a Second Language", TEFL/TESL Newsletter, v:2 (August, 1980).



## Conference Papers

A. Jakubowicz. "The Aged Migrant", C.O.T.A. Annual Conference, Sydney, November, 1980.

A. Jakubowicz. "Multiculturalism, the school, and the community", N.S.W. Department of Education, Queanbeyan, October, 1980.

A. Jakubowicz. "Multiculturalism - Co-option or Liberation?", Keynote address, Australian Federation of Ethnic Communities' Councils, Canberra, July, 1980.

A. Jakubowicz. "The Politics of Ethnicity", Australian Political Science Association Conference, A.N.U., August, 1980.

M. Morrissey. "Migrants and Occupational Health", Work and Health Conference, A.N.U. November, 1980.

M. Morrissey. "Migrants and Health: Ideology and Reality", Deakin University, October, 1980.

E. Wolf. "E.S.L.: What it is not and what it ought to be", N.S.W. Department of Education, Wollongong, October, 1980.

E. Wolf. "Operating With Working Class Ethnic Leaders: Paradigms and Personalities", Australian Political Science Association, A.N.U., August, 1980.

## Reports

A. Jakubowicz. Immigrant Parents and Port Kembla Schools: Multiculturalism and the School Environment, Research Report to the Port Kembla Community of Schools, C.M.S., Wollongong, 1980.

A. Jakubowicz, R. Sullivan, J. Milne, E. Keenan, A. Beckett. Migrant Youth and Unemployment: a preliminary study in the southern suburbs of Wollongong, C.M.S., Wollongong, 1980.

A. Jakubowicz and M. Chan. The Mother-Tongue Maintenance Programmes. Cringila/St. Francis Project: An Evaluation Study, C.M.S., Wollongong, 1980.

RECURRENT FUNDS1980 RECURRENT INCOME AND EXPENDITURE

<u>1979 COM- PARISONS</u>	SOURCE OF INCOME	AMOUNT	%
11,686,000	Australian Government Grants	13,218,000	99.76
39,136	Other General Income	31,460	0.24
11,725,136		13,249,460	100.00

<u>1979 COM- PARISONS</u>	EXPENDITURE HEADINGS	AMOUNT	%
9,397,148	Salaries and Staff Charges	11,061,387	81.69
1,698,230	Maintenance Expenses	1,830,788	13.52
608,545	Furniture & Library Books	647,563	4.79
11,703,923		13,539,738	100.00

AGGREGATE FUNDS

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

Aggregate income was received from the following sources:-

<u>1979 COM- PARISONS</u>	SOURCE OF INCOME	AMOUNT	%
	<u>Australian Government Grant</u>		
11,686,000	Recurrent	13,218,000	-
212,000	Building Projects	1,853,978	-
675,000	Equipment	709,000	-
71,000	Special Research	78,000	-
12,644,000		15,858,978	88.77

<u>1979 COM- PARISONS</u>	SOURCE OF INCOME	AMOUNT	%
	<u>Special Purpose Funds</u>		
430,027	Research	521,493	-
7,205	Scholarships, Prizes, etc.	19,024	-
929,000	Other	1,432,854	-
1,366,232		1,973,371	11.04
	<u>Other General Income</u>		
39,136	Recurrent	31,460	0.19
14,049,368		17,863,809	100.00

<u>1979 COM- PARISONS</u>	EXPENDITURE HEADINGS	AMOUNT	%
	<u>Salaries and Staff Charges</u>		
9,397,148	Recurrent	11,061,387	-
53,188	Special Research	58,330	-
158,099	Special Purpose - Research	253,202	-
53,466	Special Purposes - Other	202,007	-
9,661,901		11,574,926	67.36

<u>1979 COM- PARISONS</u>	EXPENDITURE HEADINGS	AMOUNT	%
	<u>New Buildings (Including Sites)</u>		
1,824,224	Grants for Building Projects etc. Under States Grants (Tertiary Education Assistance) Acts	1,271,754	-
281,931	Special Purposes - Other	191,835	-
2,106,155		1,463,589	8.51



<u>1979 COM- PARISONS</u>	EXPENDITURE HEADINGS	AMOUNT	%
	<u>Maintenance</u>		
1,698,230	Recurrent	1,830,788	-
16,165	Special Research	16,750	-
72,047	Special Purposes - Research	99,097	-
185,817	Special Purposes - Other	372,809	-
1,972,259		2,319,444	13.49
	<u>Equipment, Furniture &amp; Library Books</u>		
608,545	Recurrent	647,563	-
1,647	Special Research	2,920	-
722,694	Grants for Equipment	694,467	-
69,416	Special Purposes - Research	129,143	-
75,742	Special Purposes - Other	349,954	-
1,478,044		1,824,047	10.64
15,218,359		17,182,006	100.00

AGGREGATE FUND BALANCES

FUNDS	
Recurrent Funds	410,870 DR
Grants for Equipment Under State Grants (Tertiary Education Assistance) Act	69,904
Special Purpose Funds (Research)	255,708
Special Purpose Funds (Scholarships, Bursaries, Prizes, etc.)	14,791
Special Purpose Funds (Other Purposes)	1,701,207
Australian Research Grants Committee Projects	1,883
Sundry Suspense Accounts	51,490
Sundry Creditors	320,490
Bank of NSW Loan (International House)	220,000
	<u>2,223,515</u>

AUSTRALIAN RESEARCH GRANTS COMMITTEE PROJECTS

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

SPECIAL PURPOSE FUNDS (OTHER)

Advanced Study Institute in Molecular Physics & Quantum Chemistry	FRG/Australia Science & Technology Agreement	1,554
Australian Institute of Management	Autonomy Donation for Improvement of Managerial Techniques	600
Donations to English	English	994
Donations to Geography	Geography	257

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

Australian Institute of Nuclear Science and Engineering Studentship	5,503
Australian Institute of Management Scholarship in Management	2,000
Peter Beckman Memorial Prizes in Physical Chemistry Fund	44
The Biology Prize	55
Darryl Condon Memorial Prize Fund	22
Foundation Prize in Geology	66
Bert Halpern Memorial Prize Fund	844



Post Graduate Scholarship Account	Department of Biology	1,000
	Department of Chemistry	1,000
	Department of Civil Engineering	750
	Department of Education	500
	Department of Electrical Engineering	250
	Department of Geography	250
	Department of Geology	1,500
	Department of History	1,000
	Department of History & Philosophy of Science	1,000
	Department of Mathematics	2,000
	Department of Mechanical Engineering	400
	Department of Metallurgy	500
	Department of Physics	500
	Department of Psychology	500
	Department of Sociology	752
Ramaciotti Foundation	Application of G.C. & M.S.	20,586
Radio Research Board	Micrographic & Holographic Wave Reconstruction	800
Social Welfare Res.Centre	Migrant Safety Report	3,925
Special Research	Biology	896
South Coast Research	R.W.Young	2,272
State Pollution Commission	Port Kembla Project	1,635
State Planning & Environment Commission	Sand Mining Research	1,750
	Air Analysis	4,461
Sundry Donations for Research	Accountancy	724
	Chemistry	1,771
	Civil Engineering	632
	Electrical Engineering	12,894
	Metallurgy	1,673
Sundry Donations for Chemical Water Research	Chemistry	400
L.L.Viney Research Fund	Psychology	1,000
Vice-Chancellor's Special Research	Vice-Chancellor's Unit	263
Water Research Foundation of Australia	Water & Natural Slope Instability	2,672
X.R.D.-Research Fund	Geology	576

GRANTS AND DONATIONSSPECIAL PURPOSE FUNDS (RESEARCH)

Australian Institute of Nuclear Science and Engineering	Post Doctoral Fellowship	9,252
Aerosol Research Fund	Chemistry	500
Australian Iron & Steel Pty.Ltd.	Automatic Monitor & Forward Feed Controller	4,755
Bourke Pre-School Research and Support	Education	3,140
Bulk Solids Handling	Mechanical Engineering	6,916
Bulli Hospital Research	Psychology	151
Department of Health (Australian)	Counselling of Patients	23,222
Department of Education (N.S.W.)	Cringila Evaluation Project	2,000
Diespecker Research Fund	Psychology	4,480
Digital Electronics	Quad R.G.A.Project	17,000
Electric Vehicles Research	Electrical Engineering	15,000
Electrical Research Board	Control of Large Scale Systems	2,500
Environmental Research Donations	Geography	500
Education Research and Development Committee	Analysis of French and Italian Programs	10,000
Geology Fuel Research	Geology	2,372
Geology and Petrophysics Research	Geology	211
Hall Foundation	Australian Company Financial Reporting	12,000
Learning Environmental Research	Geography	25
Mass Spectrometer Interface - P.Bolton & G.Trott	Chemistry	2,000
Mechanical Engineering - Research and Development	Mechanical Engineering	4,549
National Health & Medical Research Council	Application of GC-MS and Related Techniques to the Study of Inborn Errors in Metabolism - 1979	7,720
	- 1980	24,948
	The Influence of the Thyroid Hormones on Membrane Lipids	600
National Energy Research Development and Demonstration Council	- Coal Storage Bin Design	26,830
	- Electrostatic Precipitators -	
	- 1979	19,750
	- 1980	12,160
	- Studies on Coal Carbonization	
	- 1979	113,100
	- 1980	49,832
	- Reflectance of Oriented Vitrinite	88,533
	- Low Rank Oil Shales	5,587

Austin Keane Memorial Prize		1,043
Mathematics Prize Fund		637
Metal Manufacturers Limited Scholarship		6,000
Evan Phillips Memorial Prize		2,142
A.J. & J.Waters Geology Prize		165
University of Wollongong Prizes		
- Australasian Institute of Mining and Metallurgy (Illawarra)	Mining	50.0
Australasian Institute of Mining and Metallurgy (Illawarra)	Metallurgy	50.0
Australasian Institute of Mining and Metallurgy (Illawarra)	Geology	50.0
Western Mining Prizes	Mining	300.0
Western Mining Prizes	Metallurgy	300.0
Australian Institute of Metals (Port Kembla)	Metallurgy	40.0
Australian Iron & Steel Pty.Ltd. Prize	Metallurgy	30.0
John Lysaght Australia Prize	Metallurgy	30.0
Marjory Brown Prize	English	71.6
Gina Savage Prize	Faculty of Science	100.0
Staff Prizes in Physics	Physics	20.0
Corporate Affairs Commission Prize	Accountancy	50.0



