During 1977 the University of Newcastle celebrated 25 years of University education in Newcastle with a programme of special events, the highlights of which were Quarter Century Reunion Dinners on August 20 and an Open Day on September 11.

The programme began with the premiere performances of Nigel Butterley’s fanfare and processional at the conferring of degrees ceremonies in April.

The anniversary was a meaningful occasion for the University as so much has happened in the course of 25 years.

It was a period of establishment and growth at Tighe’s Hill, transference to Shortland and major development on its own site.

When Newcastle University College was established on December 3, 1951, students were enrolled as undergraduates of the New South Wales University of Technology. The college provided courses in science and engineering.

In 1954 it became possible for Newcastle students to get an Arts degree at the College. The University of Technology remained the parent institution, but examinations were supervised, and degrees were awarded, by the University of New England.

In 1957 the first degrees in Arts were awarded, in 1958 the University of Technology changed its name to the University of New South Wales, and in 1962 the Council of Newcastle University College was established.
THE CHANCELLOR

During 1977 ill-health forced the University's Foundation Chancellor, Sir Alister McMillin, K.C.M.G., Hon. D. Litt., to retire as chancellor and as a member of the Council. The Council elected to the thus vacant office of Chancellor Sir Bede Callaghan, C.B.E., Hon. D. Sc., who had been associated with Sir Alister in guiding the University in its formative years, initially as a member of the Council and since 1973 as Deputy Chancellor.

Sir Alister McMillin

At its meeting in March, 1977, the Council incorporated in its records the following statement of appreciation of the work of Sir Alister McMillin,

- On 8th March, 1977 the Chancellor of the University of Newcastle wrote to say that, with the greatest regret, he had found it necessary to resign.
- Although he had been in poor health for some time, it was his hope that he would have been able to take his place with the University Council again — but this was not to be. The Council accepted his resignation with deep regret.

Sir Alister was appointed to the Council of the University by the Governor and elected first Chancellor by the Council in 1966, the year in which we moved to our new site at Shortland. Since then he has been continuously re-elected Chancellor.

In Sir Alister the University obtained a Chancellor from the Hunter Valley with national and international standing. Born in 1900 he is a grazier and pastoralist; in World War II he served in the RA.A.F. in northern Australia.

After an active career in local government he entered the Senate as a Senator for New South Wales in 1951 and was elected Senate President in 1953. He served a record term of 18 years as President of the Senate.

As Chancellor of the University of Newcastle he showed a great personal interest in the work and development of the University. Admitted to an Honorary Doctor of Letters in 1966, he has officiated at the openings of new buildings and conferring of degree ceremonies, in including those for the conferring of honorary degrees. He has been of great assistance to the Vice Chancellor and members of the Senior Administrative staff.

Bibliographical Services, Chairman of the Commonwealth Parliamentary Library Committee and Deputy Chairman of the Council of the National Library of Australia.

Sir Alister was a representative for the Parliament, and an emissary for the Australian Government included the funeral of President Kennedy in Washington in 1963 and the presentation of the President's Chair to the Malaysian Senate in 1965. In 1957 the Queen conferred upon him the honour of K.C.M.G.

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Events which caused him to travel to represent the Australian Government included the funeral of President Kennedy in Washington in 1963 and the presentation of the President's Chair to the Malaysian Senate in 1965. In 1957 the Queen conferred upon him the honour of K.C.M.G.

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The University which commenced as a College in 1951 has increased its academic and teaching staff from 17 to 340; its student body from 419 to 4,600.


There is a wide choice of undergraduate and postgraduate degree courses available at the University and one demand made as early as 1957 was satisfied this year when the first students in the Faculty of Medicine were enrolled.

Beginning with this issue, The Gazette will present pictorial documentation of the changing University landscape, which is regarded as a "must" for visitors to Newcastle to see. The campus is the place to work for students and members of staff, but many Hunter Valley residents also come to attend concerts, plays, lectures or simply to enjoy the setting. We hope that graduates of the University who have moved out of the district will be interested in the pictures of the developing University. Above: The Courtyard near the Administration building reflects the attention given to landscaping. Students can read, talk and relax in this protected spot.

Newcastle Technical College and Newcastle University College still shared the same site at Tigh's Hill, but the Newcastle University Establishment Group and a later organisation, the Lord Mayor's Committee for the Establishment of an Autonomous University of Newcastle were working for the development of an independent institution on 96 hectares at Shortland.

This proposal was accepted by the Government of N.S.W. in the early 60's and the University of Newcastle Act was assented to in 1964, when work started on the construction of the first stage of the University.

Since the University of Newcastle was established in 1965 the bushland site at Shortland has been developed to accommodate steadily increasing enrolments of students.

The University which commenced as a College in 1951 has increased its academic and teaching staff from 17 to 340; its student body from 419 to 4,600.
Over his ten years as Chancellor he has never missed an annual conferring of degrees ceremony and has awarded more than 4,500 degrees to new graduates. He presided over meetings of the University Council until last year when poor health first prevented him from attending. His firm but invariably courteous chairmanship will long be remembered by those who had the privilege of being on Council with him and particularly by student members whom he encouraged with a sympathetic understanding to play a full and important role.

The Council of the University records its gratitude to Sir Alister for his distinguished service to the University as its Foundation Chancellor. It also expresses its gratitude to Lady McMullin for her interest in the University and for her ready support of the Chancellor in his attendance at University functions. Council conveys its good wishes to Sir Alister and Lady McMullin and expresses the hope that as occasion permits they will maintain their interest in and association with the University of Newcastle.

The Senate, the University's senior academic body, noted Sir Alister's resignation with regret and recorded its gratitude to Sir Alister for his distinguished service to and leadership of the University during its first decade of growth and expressed its deep appreciation of his sympathetic interest in the hopes and ambitions of the Senate for the academic development of the University.

In recognition of Sir Alister's outstanding contribution to the development of the University in its formative years, Convocation dedicated to mark the first quarter century of the provision of university level education in the Hunter Valley. This work, Sir Alister's interest in and association with the University of Newcastle.

The new Chancellor's links with both the University and Newcastle are long-standing.

When the first full Council of the University was formed in 1966, Sir Bede took his place on it as one of the six members appointed by the Governor. At the first meeting he was elected to the Finance and Personnel Committee, an important Committee he has served on continuously since then. In 1973 Sir Bede was elected to the office of Deputy Chancellor, succeeding the late George Edwards.

While his links with the University go back to the early days of autonomy, the Chancellor's links with the area span a century to the 1860's when one of his grandfathers came to the Lake Macquarie area as manager of Spec's Estate which gave Speers Point its name. One of his other grandfathers was the Headmaster of Hamilton Superior Public School at the turn of the century. He was born in Newcastle and educated at Newcastle High School.

Sir Bede's distinguished career in banking which culminated in his appointment in 1965 as Managing Director of the Commonwealth Banking Corporation, a post he held until his retirement in 1976, commenced with his appointment as a clerk in the Commonwealth Bank in Newcastle. In the intervening years he held various appointments in the Commonwealth Bank in Australia and England and was in the United States representing Australia as Executive Director of the International Monetary Fund, the World Bank and the International Finance Corporation from 1954 to 1959. Upon formation of the Commonwealth Development Bank of Australia in 1959 he returned to Australia to become its first General Manager. From its formation in 1970 until 1976 he was Chairman of the Australian European Finance Corporation Limited.

Despite the considerable demands of these positions, Sir Bede has devoted, and continues to devote, considerable time to honorary posts on public, national, educational, research and charitable organisations. These have included — Chairman of the Advisory Board of Lewisham Hospital, President of the Banker's Institute of Australasia, Chairman of the Australian Administrative Staff College. Since 1976 he has been Chairman of the Foreign Investment Review Board and of a Committee which advises the Reserve Bank on aspects of overseas borrowings. He recently conducted an enquiry for the Commonwealth Government into the structure of industry and employment in Tasmania.

The Council of the University of Newcastle, 1977
Small Business - Fate or Future?

Professor Alan Williams, who holds the second chair in Commerce at the University, has pioneered research into the rise and fall of small business entrepreneurs in Australia. The aim of Professor Williams’ studies — that bankruptcies and business failures are enormously detrimental to Australia — is amplified in this article, which also outlines the Professor’s method of predicting which entrepreneurs are likely to be successful.

A predominant emphasis in business education, for decades, has been toward large enterprises and only in the past five years has there been any discernible interest in the nature, problems and modes of operanda of the small business and the independent entrepreneur. In fact the interest is growing at a rate best described as prodigious. Is this concern justified? Is it a fad?

The reader may judge for himself the real impact on the economic health of Australian capitalism, indeed, on the total quality of life of some 350,000 businesses.

By any reasonable yardstick, the vast majority of these businesses are small. For example, firms employing fewer than 20 people constitute 71% of all manufacturing firms, 97% of all retailers, 80% of all services, and 98% of all service-based firms. They employ about 45% of the total workforce, that is approximately 2.5 million workers. As many as seven million Australians depend directly on small businesses for their livelihood. The contribution to value-added by small firms ranges from 42% in manufacturing to over 70% in other industry sectors.

Practically every large company is reliant to a significant extent on many hundreds of small suppliers and retail outlets, G.M.H., for example, using some 4,000 small suppliers of parts, components and services.

There are also varied and vital contributions made by the small business sector to the economic and social fabric of society which may be expressed in, or appreciated solely from, statistical data. Small firms and their owners contribute in many ways to the quality of life of their different endeavours so permeate our way of life that it is impossible to discuss them adequately in this analysis. It is sufficient to recognise that small firms, inter alia:

1. provide a breeding ground for new inventions and innovations
2. contribute significantly to a geographical balance of industry and therefore to decentralization
3. provide a balance between large and small industry in which the latter complements the former to a very marked degree
4. are a means whereby entrepreneurial talent and creative independence may be exercised fruitfully
5. represent a seed-bed starting point since practically every large company started life as a small independent venture
6. provide a stabilizing influence — an aid to community loyalty and social stability particularly in suburbia and country centres
7. offer a means of gainful employment and personal development and find acceptance in public service, the professions and large business (e.g. doctors, physicians, physically or mentally handicapped persons and minority groups)
8. are essential in a free enterprise or mixed economy for a strong competitive spirit and concern for efficiency of product and service.

Without any doubt, the small firms in our community are significant in terms of their numerical predominance and their varietal and essential social and economic contributions.

Despite this fact, there is a heavy mortality rate among small firms, probably totalling some 12,000 annually in Australia, constituting a shock to the nation’s economic and human resources and creating at least half of the total unemployment. Small firms (generally accepted as being those which are relatively small in their particular industry, are owned/ managed and independent of external control or direction) represent the vast majority of failures (e.g. 86% in the author’s doctoral study employed fewer than 20 persons). Also of importance is the fact that nearly 28% of failures were under one year old, 41% less than two years of age and 69% under five years old.

A study of 863 failures shows that 6943 persons became unemployed, 9497 creditor firms lost at least $200 each, a total of 1128 families (of which at least 600 were out workers and shareholder/directors) suffered the indignity, economic loss, and psychological and social trauma of involvement in a business break-up. Ill health, marital problems and distinct evidence of emotional stress were obvious in 75% of the affected families.

In the great Newcastle region, with approximately 9500 small firms and no less than 400 failures each year the figures are of “good brood” affecting some 500-600 families annually, causing significant bad debts for about 4500 other firms and causing half the region’s unemployment.

The above picture represents a problem of massive and serious proportions — a national disgrace and a national challenge. What should and can be done?

Analysis of the characteristics common in studies of small business failure indicates very clearly that management incompetence and incom- petence are associated with over 50% of small business terminations. The

unwittingly destructive influence of the inexperienced, naive, unprepared and inept owner/manager is the underlying factor.

The initiation of any programme of assistance for small business necessitates a thorough understanding of the fundamentals of small business management and of the entrepreneurial role, in that there are two distinct but related sets of skills, qualities and characteristics involved in successful small business ownership — entrepreneurial and managerial.

Entrepreneurial characteristics are complex and diverse, relating closely to personal traits. Among the personality factors incorporated in the profile of the highly entrepreneurial individual are:

1. strong task and achievement orientation
2. assertive, rather than compliant, interpersonal orientation, and
3. an appropriate role perception.

The first two sets of factors produce a high level of inclination for, respectively, innovative work and achievement oriented behaviour, and assertive, controlling and objective achievement oriented behaviour, whereas the latter set is concerned with one’s perception of what patterns of behaviour are desirable/necessary for success in the work role here being discussed.

The individual who has the required behavioural propensities in significant measure, and can see such characteristics as necessary for successful small business ownership, may be generally superior the performer.

Measurement of these characteristics and attitudes is now possible and is of increasing importance and can be done.

The above picture represents a problem of massive and serious proportions — a national disgrace and a national challenge. What should and can be done?

The second major set of characteristics relates to skills and competence in managing other people. A well-qualified owner/manager of the small firm must provide his venture with well-rounded experience and preparation, either entrepreneurial or managerial.

The ability of the small business owner to operate effectively and efficiently in his difficult role, is the consequence of his possession and utilisation of a wide range of skills, capacities and personal qualities. These factors have been labelled loosely as either entrepreneurial or managerial. A serious deficiency in any one or more areas will tend to render the individual either ineffective or inefficient, or both, through the debilitating influence of stress. As evidence and observation suggest, this is the case with the majority of Australian small business owners.

The author’s study of the Australian small business owner/manager (the majority of whom are grossly lacking in entrepreneurial characteristics), has shown that not only does individual who manifest entrepreneurial propensity and talent have a number of characteristics in common, but there are also very real personality, biographical and experiential differences between successful, marginal and unsuccessful independent entrepreneurs. Even though entrepreneurial research is still in an early and rather rudimentary stage of development, successful entrepreneurial identification appears to be quite feasible.

Remedial and preventative action is required, on a wide front, with a variety of educational/training/developmental programmes coupled with availability of counselling help, and relief from certain discriminatory legislation. Such assistance, aimed at promoting entrepreneurial spirit and activity has tremendous potential, as has been demonstrated in many other countries.

Economic growth and development, and importantly, the quality and volume of entrepreneurial spirit and initiatives, are significantly correlated. Concern for small business and the entrepreneur is long overdue.

Professor Williams.

* Your change of address
* Names and addresses of other graduates who are not on the mailing list for "THE GAZETTE"
* Changes in marital status

Please advise

The Secretary, University of Newcastle, 2308, of

* Your change of address
* Names and addresses of other graduates who are not on the mailing list for "THE GAZETTE"
* Changes in marital status
To commemorate the first quarter century of University education in Newcastle and the Hunter Valley Convocation organised two anniversary reunion dinners for graduates.

The dinners were held simultaneously at —

Edwards Hall, for graduates who reside in the Hunter Valley and, St. John's College, University of Cambridge, for graduates who live in the United Kingdom.

The Edwards Hall dinner was a bright and felicitous function which reunited many students of past years.

The guests found that the menus were presented inside souvenir folders, which gave the history of the University in newspaper cuttings.

A special University birthday cake was cut by the Deputy Chancellor (Dr. F. O. J. Purdue) and the Warden of Convocation, Mr. B. W. Reif.

There was a welcome by the Warden, then a toast to the University by the Vice-Chancellor, Professor D. G. George. Emeritus Professor Auchmuty, the first Vice-Chancellor, was guest speaker.

Professor George said any incom ing Vice-Chancellor would be lucky from the vantage point which had been provided for him, with his University possessing such natural beauty and such academic standards, was very fortunate indeed.

He congratulated the Warden for what Convocation had done to achieve the happy function they were at and the dinner in Cambridge — and the other things which Convocation had initiated during this year.

Professor Auchmuty was Vice-Chancellor from 1965 to 1974. His reminiscences were most appropriate for the anniversary.

In his own words: "It is wonderful to see so many old friends, going right back to the very first year in which I enrolled Arts students.

He expressed the view that Convocation and the graduates had made a very great contribution to the identity of the university, especially its Wards — Dr. Helmore, Mr. Talty, Mr. Derkenne, Professor Dutton and Mr. Reif.

"I am perturbed by the fact that so many of our students are birds of passage — here today, gone tomorrow without degrees. However, Convocation members are those who have achieved a full education.

Professor Auchmuty noted that the University had held the first graduates' dinner on April 17, 1962, when 50 people were present. By this point the university had already produced some outstanding scholars — and had won the Rugby Union grand-final twice. It was about to win the grand-final again.

He also noted that the Deputy Chancellor, Dr. F. O. J. Purdue, had been present, and had spoken, at the official opening of Newcastle University in December, 1951.

As for his opportunities as Vice-Chancellor: "After independence was granted to the University progress was consistent. I was fortunate from the time I came to Australia because it was a period of continuous expansion. The University started from a low economic base and, as we moved on, there were satisfactions every year."

He recalled having been present at Convocation's first dinner on November 25, 1968, and concluded by stressing how happy he was to be with graduates and staff members of the University after 24 years.

Some of the guests of the Cambridge dinner travelled long distances, for example, Margaret Norris, who flew in from Vienna where she is doing postgraduate work, and Professor Godfrey Tanner, a Fellow of St. John's College, who came from Australia.

Professor Tanner said grace and Professor R. W. Upland, of Wollongong University, a 1955 B.E. graduate, proposed the toast to the University and its next 25 years.

Miss Carmen Johnson proposed the toast to Convocation. She is a Ph.D. student at the University of Cambridge and said it was a special pleasure for her to be attending a Convocation function thousands of miles from Newcastle, as she had belonged to Standing Committee before she went to Cambridge.

Mr. W. G. Jones, a Lecturer at Newcastle College of Advanced Education, responded. Mr. Jones is a former Secretary of Convocation and is attached to the Open University as a Ph.D. student. He was coordinator for the dinner and made most of the preparations.

Mr. Jones thanked Professor Tanner for having arranged for Convocation to hold the dinner in the wonderful Wordsworth Room. Having taken a telephone call from the Wardens of Convocation (Mr. B. W. Reif) prior to the dinner he could inform the guests that the Havana cigar dinner had been very successful.

Mr. Jones delivered a report on Convocation and its latter-day activities, including the fanfare and procession.

Sir Hugh Springer, Secretary-General of the Association of Commonwealth Universities, was guest speaker.

He commented that he had attended 25 Convocations, the distinction which the University of Newcastle had achieved in the university world was worth celebrating with joy and gratitude.

Strong ties united Australia with the Association of Commonwealth Universities, he said. When the Association was founded in 1913 as the Universities Bureau of the British Empire, the six Australian Universities then in existence were all members, and the same was true today of the present 19 institutions.

Sir Hugh reflected that the University of Newcastle was one of the very first that he visited after taking office as Secretary-General. That was early in 1971.

"Needless to say I was greatly impressed by what I saw and by the people I met. James Auchmuty and his wife proved, not surprisingly, to be charming and generous hosts, and his colleagues were equally warm in their welcome.

The visible pride they all showed in the growing University, with its fine architecture and its uniquely picturesque site, seemed entirely justified, especially to one who like myself had been through the exciting and often traumatic experience of helping to build a new university on a virgin site."

Sir Hugh observed that the rapid growth in size of the individual university tended to alter its character as a community. It was easier, he said, for a small community that grows can slowly preserve its values, since dissent can be contained and dissenters chastened or disregarded.

"What I have just been saying reminds me that the Twentieth Commonwealth Universities Congress, to be held in Canada next year, will have for its general theme reconciling national, international and local roles of universities with the essential character of a university; for these words seem admirably to sum up the purpose with which Professor Auchmuty and his co-workers have guided the development of the University during its first crucial years."

"One other absent friend who is certainly with us in spirit is the Vice-Chancellor, Professor Donald George, who I am sure must wish he could be in two places at once. Perhaps by the year 2002 when the University celebrates its Golden Jubilee, Professor Donald George or his successor will manage to attend both functions by travelling westward on Concorde II."

"May Newcastle continue to flourish and all who work within her walls," Sir Hugh declared.

Mr. Bruce Humphries, who graduated in 1974, thanked Sir Hugh on behalf of the guests at the dinner.

The Auchmuty Library and students of Pacific Islands history have profiled by Miss Eve Buscombe's former employment at the University.

Miss Buscombe has presented a rare book to the library to mark her attachment to the Department of History as a Tutor from May, 1973, to January, 1976, and to recognise the fact that the subject Pacific Islands history is offered to students by the Department.

In a letter to the Vice-Chancellor, Miss Buscombe states that the book: The Story of the South Seas, must be rare, the Fisher Library, University of Sydney, did not possess a copy.

The Story of the South Seas is a history of the London Missionary Society from August, 1796, when the good ship Duff sailed from the Thames carrying the first missionaries to the Pacific Islands, to 1894, when the book was published.

Author, George Cousins, stated the book to impress upon people "the greatness of the enterprise which they have been helping forward." He was referring to the efforts of the London Missionary Society, which had a ship, the John Williams, functioning in the South Pacific.

The book which Miss Buscombe donated to the University is "presented to Nellie Stephens by the London Missionary Society for collective 5/7 for paying off the debt on the steamship John Williams."

The University is always grateful when its graduates and former staff members take a particular interest in the institution and express this interest in the form of books, equipment, or other donations which support the pursuit of scholarship.
Research, Development and Instruction

The Department of Electrical Engineering has developed greatly in the decade since the appointment of the Professor of Electrical Engineering, Professor Brian Anderson. In this article Professor Anderson and Associate Professor Graham Goodwin who was Acting Head for a period in 1977, discuss the work of the Department with The Gazette.

QUESTION: Could you give us a brief overview of the Department’s activities?

ANSWER: Our research covers a number of areas including: control theory, signal processing, time series analysis, computer aided design, communication systems, high frequency devices, computer hardware, computer software and electrical machines. We have received support from a number of grant giving bodies for research in each of these areas. We are particularly proud of the fact that almost all members of staff have been able to attract research funds from outside the university.

Our main areas of activity have been industrial electronics and computer software. More recently we have been working at microprocessor applications.

Our activities in instruction cover undergraduate courses in both Electrical Engineering and Computer engineering together with advanced courses for postgraduate students. The Department has put a considerable effort into the structuring of our courses so that they meet the needs of students. We now firmly believe that our courses, and undergraduate component in particular, are among the best in the country and would equal the best available overseas.

Q. Your Department is often mentioned in the lists of annual research grants made by the Australian Research Grants Committee. How much has been awarded to you for research projects in the last five years?

A. The total support from all grant-awarding bodies has been approximately $200,000.

This amount has been distributed amongst nearly all our staff members, each of whom has received support for individual projects.

Q. Do any other bodies give financial assistance?

A. Yes they do. The main two bodies which have given us assistance in research grants which have to be competed for are the Radio Research Board and the Electrical Research Board. We have received approximately $30,000 in support from bodies of these Boards over the ARGC over the past five years.

Q. What is the biggest single factor which attracts research grants to your Department?

A. The answer to this would have to be that the quality of the projects and the estimate by the granting authorities of the proposers’ capacity to execute these projects make them highly competitive. Also, to a degree, success fuels success and the back- once Department members show that they can perform well with one grant then they probably become to be regarded as reasonable investments for further grants.

Q. Professor Anderson, could I ask you to tell us a little about the beginnings of the Department and the background of the first staff appoint­ ments? What were your aims and overall strategy?

A. The Department has its origins in the pre-autonomy days of the University. In those days, all full-time degree students had to do the final two years of their degree at the University of New South Wales, and much of the Department’s effort was in fulfilling a service role to other engineering departments. When I came at the start of 1967, there were four existing members and one new member of staff who came with me, in fact starting the same week - John Moore, who is now a professor in the Department. Our first major task was to mount a fourth year course for the first time. During that first year, much of our work was concerned with setting up an undergraduate curriculum, and in hiring new staff members.

We’ve always considered that the making of staff appointments is really the most crucial exercise in which the Department gets involved. In making appointments, we have had to consider the availability of staff and other students on their research and teaching commitments. We have always felt that the best way to teach students is to get the very best people.

Q. Could you give us some idea of the size of the Department now?

A. At the moment we have 10 full time academics, 12 support staff in the office, laboratory and workshop, 13 graduate research students, 3 course work masters students and 144 undergraduate students.

Q. Where do you draw your postgraduate students from?

A. We have had students from most universities in Australia, and not just students with undergraduate backgrounds in Electrical Engineering. We have had students with degrees in other fields of engineering, students with Science, Mathematics and Commerce undergraduate degrees.

Q. What distinctive courses do you offer students?

A. The Department takes considerable pride in its undergraduate courses. We feel that our courses have several features which are distinctive in the Australian undergraduate engineering education context. The most distinctive feature of the content of our undergraduate course has been our inclusion of more material of a scientific nature several years earlier than in other Australian universities. In fact as we have mentioned previously, we now offer an undergraduate course in Microcomputer Engineering, as distinct from Electrical Engineering. Ours was the first such discipline in Australia, and at least one other university is seeking to introduce such a course. We also feel that we have made a number of significant improvements in the way we deal with students including an adviser system, the creating of Industrial Experience electives and student assistance grants. The students are also always looking for ways to make our courses more attractive. For example, in 1978 we plan to offer a sandwich program of a possible 12 month industrial placement.

Q. What is the Department’s basic approach to research student education?

A. Our guiding philosophy is to treat the experience of postgraduate study as a term of apprenticeship in which the student interacts with an experienced researcher. This implies that, particularly in the first year or so of his graduate program, the student will work closely with supervisory staff leading to the joint authorship of technical papers. We also give great emphasis to the need to teach students to research effectively and we ask all our students to go through a rigorous seminar training program. In the seminars they report the results of their research and receive feedback from staff and other students on their research goals and on their presentation skills. As a result, we feel that most of our students improve considerably in the area of technical communication.

Q. Your staff consists of lecturers of many backgrounds does it not?

A. Yes that is quite true. More than half of our staff have done graduate work overseas, some in U.S.A., and some in the United Kingdom. They have had a variety of experiences before coming to the University. This implies that, as a result, we have amongst our staff members some who are making significant contributions in the field of research and many others who are contributing to the local industrial scene, by way of development rather than research.

Q. Is it true that your Department encourages staff to go overseas to learn about modern developments?

A. Indeed we feel it is vital for staff to go overseas, and indeed some do with a frequency which other department heads would probably find surprising. Why? The discipline is a fast moving one: some have said that the half-life of Electrical Engineering Technology, that is, the time needed for half of what is published to become irrelevant, is about five years. This in itself constitutes a good argument for a person going overseas more often than every seven years. We have found though that the real advantage of going overseas comes often just from the opportunity to interact with other people and to keep oneself informed, rather than by the printed page. So much work in science and engineering proceeds via a union of minds aimed together to thrash out an idea, and it is the overseas travel that makes possible this sort of union of minds. You may be interested to know that a number of us have in fact co-authored papers with overseas colleagues as a result of these trips.

Q. The publications list for Electrical Engineering staff is unusually long. How can staff achieve so much more than other departments in the University?

A. There are several ways one might answer this question. Perhaps the simplest is to say that if one is fortunate enough to have staff of high quality, then fairly naturally a high performance flows from it. It is fair to say that publishing has been encouraged. We have tried to remove the annoyances of, for example, limited secretarial time. We have tried to avoid the pitfalls of consuming vast proportions of the resource of staff time in the offering of low enrolment courses. And in all this, we have consistently received encouragement from the Administration. Dean. Some of our colleagues who have been in areas in which research is perhaps easier to publish than in some others, though equally, we are not in one of the disciplines in which it is easiest of all to publish. As we mentioned before, graduate students often act as co-authors. But also, faculty members are often co-authors with each other.

Q. Are any special factors which have facilitated the work of your Department?

A. We have been greatly assisted by our technical and workshop staff. We are fortunate to have an extremely able and very dedicated team of excellent craftsmen. All support staff have shown a willingness to assist with the research and to introduce new innovations. Also we have been assisted by a part-time administrative assistant who has contributed to the smooth running of the Department. The Department has also been able to release staff members from certain routine jobs, has provided additional time for research work.

Q. Have you written anything of significance lately?

A. Both of us have written books which will appear fairly soon in print.
The position of third Professor in Commerce has been filled with the arrival of Professor Joseph K. Winsen. Professor Winsen obtained his B.Com. degree with first class honours from the University of Newcastle in 1968 and his M.Com. degree in 1971. He was a Senior Tutor in Accounting prior to going to Ohio State University to embark on post-graduate studies. In 1973, while a Graduate Teaching Associate in the Department of Administrative Science at Ohio State, he was awarded, first, the degree of Master of Arts and, then, the Doctorate of Philosophy. His dissertation research was titled Investor Behaviour, Stock Market Efficiency and Publicly Available Information. It was an attempt to use stock market data to assess the influence of corporate financial reports on the ability of investors to comprehend publicly available information.

He moved to Berkeley in 1973 to take up an appointment as Assistant Professor of Business Administration at the University of California, a position he held until he accepted the Chair in the Faculty of Economics and Commerce.

Professor Winsen has published widely in the Accounting field. He is a member of several professional associations in Australia and the U.S.A.

One Approach to Controlling Human Fertility

This year the Ford Foundation of New York awarded a grant of $105,000 over three years to support research work by Professor B. Boettcher in the field of the immunological control of human reproduction. The award follows work already performed by Professor Boettcher and has been made in a field which is being explored for possible practical applications. In the article which follows Professor Boettcher, Head of the University's Department of Biological Sciences, delves into the state of the branch of fertility research.

Although there are several different approaches to the problem of human sterility, new methods are still needed and research needs to continue.

Professor Winsen.

As a Consultant he has received a variety of commissions, including the post of Principal Investigator for the U.S. Nuclear Regulatory Commission's study of the relative costs of alternative plutonium inventory systems in 1976.

Professor Winsen comments on the introduction of the Master of Commerce in Accounting/Finance by coursework and dissertation, to be introduced in 1978:

"With the simultaneous introduction of the M.B.A. and M.Com. degrees by coursework and dissertation in 1978, it seems appropriate to briefly differentiate between them in comment on the latter.

"The M.B.A. degree programme, offered by the Department of Economics and Commerce, is primarily aimed at those with undergraduate education in fields other than business and management. It provides a broad coverage of business administration.

"The M.Com. in Accounting programme, offered by the Department of Commerce, builds upon an undergraduate education in commerce. It provides in-depth coverage of Accounting and Finance. The objective of the programme is to develop analytical and applied decision-making abilities in advanced level fields as Auditing, Managerial Accounting and Finance, among others.

"While students are given some choices in the second year of the two year full-time programme (or its part-time equivalent) the first year provides a common experience in financial managerial accounting with an investigative, contemporary core, and applied thought in these fields.

"It is envisaged that in most cases the dissertation will involve analysis of an academic problem in the context of an existing or prospective organisation. If a central theme must be identified, it should be advanced level and as the role of uncertainty in financial decision-making." Professor Winsen stated.

"The M.B.A. degree, focused on the need for in-depth coverage of business administration, is considered by the University as the logical control of fertilisation.

"The M.Com. in Accounting, directed at components of the spermatozoal outer membrane rather than components of the seminal plasma, fluid portion of the semen. The recent, further, of studies on the bank sera have shown that white blood cell antibodies to a very specific enzyme in spermatozoa, called lactate dehydrogenase-X (LDH-X). This enzyme is involved in the production of energy by spermatozoa.

"In the mouse and rabbit, it has been very effectively demonstrated in the U.S.A. that antibodies to LDH-X effectively fertilise. Such effects of antibodies to LDH-X in man has not yet been investigated, but our group, since the advent of this end in mind. At the present time, Mr. M. Coughlan is developing proce-
The aim of the workshop was to provide a forum where workers could present results related to Immunology in Human Reproduction and, also, where specific topics could be discussed in depth by the specialists.

One of the most popular topics for discussion was the present attempts to immunise women with a hormone that is found only in pregnant women and does not affect implantation in maintaining pregnancy. Preliminary clinical trials in this area have recently been encouraging, although an increase in effectiveness is necessary.

Another interesting field was immunisation in men who have undergone vasectomy where the spermatozoa are being resorbed actively within the body. It is certain that many of these men do become immunised to spermatozoa, but it does not appear to be detrimental to them. However, the chances of restoring fertility in these men should they desire it, is not certain at this stage and the effect of the anti-spermatozoal antibodies they have developed is currently being investigated.

The proceedings of the workshop have now been published by Academic Press under the title "Immunological Influence on Human Fertility."

In recent years a graduate student from the Department of Biological Sciences, Mrs. R. Gruszyński, has shown that antispermatozoal antibodies increase the migration capacity of spermatozoa, and this is considered to be a way in which antispermatozoal antibodies can reduce fertility.

Resulting from Professor Boettcher's interest and activity in the field of immuno-reproductive research he is currently a councillor of the International Co-ordination Committee for Immunology of Reproduction, which has its headquarters in Sofia, Bulgaria, and he is a member of the advisory board for the World Health Organisation Reference Bank for Reproductive Immunology in Aarhus, Denmark.

The University on Public Show

At least 6,000 people accepted the invitation to see the University at work on Jubilee Open Day, September 11, 1977.

From 10 a.m. to 3 p.m., the visitors were offered inspections of departments, exhibitions, demonstrations, information about courses, sporting displays, films and jazz.

The Open Day marked the 25th Anniversary of the beginning of University education in the Hunter Valley.

A special feature was the Jubilee exhibition in the Great Hall. This consisted of displays of pictures and graphs reflecting on the University's growth, achievements and resources over 25 years. Convocation also organised a display, which informed the visitors about the careers of certain graduates of the University.

According to figures from the University, more than 1,000 people were served food between noon and 3 p.m.

A jazz band which originated from Newcastle Boys' High School, the Jelly Roll Band, gave two concerts in the plaza. The band was heard by a large audience which appreciated both the contemporary jazz and the delightful surroundings.

An unusual display was mounted by the Australia-Japan Society in the Japanese section of the Department of Modern Languages. To illustrate the Japanese section's courses and Japanese culture in general the society gathered a diverse range of items, including clothes, dolls, calligraphy, banners and books.

A special booklet made for the visitors' day reproduced a map of the campus and contained full details of displays. Copies of this guide were handed to people as they arrived in their cars by students who had volunteered their services.

Course advisory services in the offices of some Departments, staffed by academics, and information desks in the Great Hall, manned by student counsellors and the student employment officer, gave prospective students an opportunity to obtain answers to questions concerning enrolment.
Women and the University

life has been one of a slow but dogged battle against prejudice and discrimination, one which, even in our own day, is not fully won. I should like to identify two particular in which it is still being fought.

The first is that of the relationship between careers and marriage. In 1923, when Gemma Bailey published her Short History of Lady Margaret Hall, she was able to state that after 45 years of the College's life, about a quarter of its students had married. And that was by no means an unusual statistic to point to in relation to women graduates. Nowadays, however, the normal expectation for women graduates is that of marriage undergraudates (for some, indeed, it seems a chief preoccupation). Women graduates today are already married, whether or not they are “mature age” students.

The typical employment pattern of married women graduates seems to fall into three stages: first, a period of professional employment between graduation and marriage, or until the arrival of children; then, several years of domestic life devoted to the rearing of a family; and finally, the stage in which the graduate can return to professional work, and is often anxious to do so.

The problem of retaining her skills through the domestic and family years (even these are decreasing in numbers with the greater availability of child care facilities) may well be a severe difficulty, but there are others as well. The woman who graduates usually expects both to marry and to work, but she often has to accept, as an unavoidable compromise, work which doesn't measure up to her capacity but happens to be obtainable where her husband is working. Few indeed are the cases, to my knowledge, of a husband who has accepted work of a lower level than his qualifications permit, simply because he had to follow his wife where her job as a graduate took her.

The second problem is that facing women who seek a University career, though in this area I think it is true to say that the situation has changed and continues to change, for the better, with every year that goes by.

The Sixth Report of the Universities Commission (May 1975) published some interesting figures on the number of female academic staff in Australian universities. Essentially, the picture is this: that of the total number of female academic staff to total academic staff rose from 12.5% to 15.3%, a movement broadly in line with the relative size of the potential pool of qualified women (i.e., women with Masters or Ph.D. degrees). But the distribution pattern is most interesting: whereas female academic staff represented one-sixth of total staff numbers in 1974, they were heavily weighted towards more junior ranks and only representing 5.2% of staff at Tutor level, 36.3% at Senior Tutor level, 14.8% at Lecturer level, only 7.8% at Associate Professor level and a mere 1.4% at Professor level.

It is interesting, though saddening, to note the dearth of women in University posts. If it is true that Australian universities were in advance of Oxford and Cambridge in the admission of women, it is not true that older sister institutions in Britain have caught up and sped past us in recent years. Cambridge itself having a woman (Dr. Rosemary Murray) as Vice-Chancellor. Even in older institutions such as my own alma mater the Sorbonne, the Rector (equivalent to Vice-Chancellor) is now a woman, Professor Hélène Ahreweiller. Another woman, Dr. Lorene Rogers, was recently chosen as President of the University of Texas — something unthinkable a hundred years ago, since it was only in 1962 that Dr. Rogers was refused admission to Chemistry on account of her sex.

If giant strides have been made in unemployment overseas, why not in Australia? The fact is that the examples I have mentioned are still fairly rare, even in countries where one would expect results of some research by Dr. Tessa Blackstone of the London School of Economics, relating to academic posts in the U.K. in the last 30 years were published recently in the Times Higher Education Supplement. They show that, in the U.K., more academics tend to be married men; then divorced, separated or widowed women; followed by single men; single women; divorced, separated or widowed women; and, finally, married women. There is, moreover, a huge difference between the two extremes: after the age of 50, for example, 76% of married men have become Senior Lecturers or Professors; only 44% of single men have done so; and only 20% of married women have.

Dr. Blackstone's conclusion is that marital status affects both men's and women's career prospects, but whereas marriage appears to enhance his chances of promotion, marriage for a woman tends to inhibit promotion prospects in relation to seniority.

The day will certainly come when University women can say they are equal to men in respect of their rights and opportunities, but not arrived at yet. Since the day when Eve handed Adam the fruit of the tree of knowledge, most of the traffic seems to have gone to women. The time has come to reverse the process once again.

Professor Morgan

Professor in Newcastle

A Newcastle-born doctor with an international reputation for his research into hypertension took up duties at the University as Foundation Professor of Medicine.

He is Dr. Trefor Morgan who was educated at Newcastle Boys' High and the University of Sydney. He graduated from the University of Sydney with Honours in Medical Science, Medicine, and Surgery, and received his Doctorate in Medicine (Medical) of the same Hospital in 1972.

He was a Resident and Registrar at Royal Prince Alfred Hospital from 1965 to 1968, and Clinical Superintendent (Medical) of the same Hospital from 1964-1966.

He was a Visiting Scientist at the National Institutes of Health, Bethesda, U.S.A., and in 1969 was Senior Visiting Research Fellow of the Medical Research Council (U.K.). On his return to Australia he was Renal Physician at the Princess Alexandra Hospital, Brisbane.

More recently, he was First Assistant in the Department of Medicine at the Repatriation and Austin Hospitals in Victoria, which are teaching hospitals of the University of Mel­bourne.

He has an international reputation for his research into the causation, investigation and treatment of hypertension, with particular emphasis on the role of the kidney and the importance of the distribution and control of sodium within the body.

He has wide clinical experience and is a Fellow of the Royal Australasian College of Physicians.

He has been involved in the teaching of undergraduates and graduates for the past 18 years; in many of his appointments he has been responsible for the development of teaching programs, and widely recognised as an excellent educator.

One of the important aspects of the teaching with which he has been associated has been an attempt to integrate medical students into the team of medical personnel caring for patients. Another aspect has been an attempt to devise a system of health care delivery in which patient care, undergraduate teaching, postgraduate teaching and research are all integrated leading to benefits to all.

He delivered the University's first Inaugural Lecture on April 27, 1977.

GRADUATES SHOULD LEND AN EAR TO OUR SONG

Many programmes being broadcast by the University's radio station 2NUR-FM since it went to air with regular daily broadcasts on March 17 should be of particular interest to graduates of the University.

For instance two magazine programmes deal with cultural happenings and events of interest — plays, music, art, etc. are all covered. The programmes are broadcast each successive Thursday evening commencing at 9 p.m. Earlier in 1978 the station will transmit refresher courses for professional people living in the Hunter Valley. The programmes are broadcast each successive Thursday evening commencing at 9 p.m.

To set up the station on campus, 2NUR-FM is the Newcastle and Hunter Region's first high-fidelity radio station. Broadcasts are received on car radios, and 103.9 MHz. throughout Newcastle, the Coalfields and the Hunter Region's first high-fidelity radio station. Broadcasts are received on car radios, and 103.9 MHz. throughout Newcastle, the Coalfields and the Hunter Valley.

The intention is to have the station accessible to everybody living from Newcastle to Muswellbrook and from Nelson Bay to Wyong. In addition the type of signal that 2NUR-FM is using can be received on many car radios. To help the station judge the quality of reception people have been urged to report how they are hearing the broadcasts.

The University's first Inaugural Lecture on April 27, 1977.
give the best results was ordered from overseas countries (the transmitter from France, the tape recorders from the United States, other items from Japan).

Members of staff attached to the station have worked extensively in radio.

John Hill, the Station Manager, has worked for the ABC as a radio producer and for the BBC. He has also worked in association with NBN Channel 3 as a producer of several television series. Martin Hadlow, the Assistant Manager, has worked for the Armidale station, 2ARM-FM, and has had broadcasting experience in the U.K., Papua New Guinea, New Zealand and Hong Kong.

Mr. Hill says that he wishes to get some of the best radio programmes that are available from overseas countries. He has obtained material from the BBC — programmes such as The World of Books, Science Magazine and Profile; in addition tapes are arriving from The Netherlands, Sweden, Japan and France. He also said that the station had started negotiations with Pacifica, of California, which many people regarded as the point of origin of some of the best creative radio being made in America. 2NUR-FM expects to be the first station to receive Pacifica programmes in New South Wales.

In the early future live interviews, discussions and commentaries on the news will be included. One special feature might be a phone-in programme which will allow members of the public to put questions to people in the news.

Later in 1978 full details of programmes will be published in a monthly programme guide. Initially, however programmes are printed in the Newcastle Morning Herald as well as the University News.

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**BY-LAW CHANGES**

The first series of amendments to the By-laws made by the Council following its consideration of the Report of the Committee on University Government were recently approved by the Governor and have now come into effect.

Some amendments relate to participation in meetings, Faculty Boards, Departments and Deans and other Faculty officers but of particular interest to members of Convocation are those relating to the election of Council members. In future these will be governed by new procedures under which:

(a) the practice of placing an asterisk beside the name of a retiring candidate is to be discontinued;

(b) the order of names of candidates on ballot papers will be determined by lot; and

(c) candidates in the election of members by Convocation are to be given an opportunity to provide for distribution to voters a passport-size photograph of themselves together with a statement of no more than 150 words relating to their candidature.

The first elections under these new procedures will be the biennial ones due in the middle of this year.