Newcastle University graduate and leader of the Australian Democrats, Senator Cheryl Kernot, was speaking on her car phone en route from her Brisbane home to the airport. Rocketed to prominence by her adroit handling of negotiations with the Government over the Federal Budget, Senator Kernot is forced to plan her time with the precision of a military manoeuvre.

Praised by the press as the voice of reason for her role in moderating the Keating/Dawkins hardline budget and viewed as a saviour by her grateful Democrat colleagues for restoring their party's credibility with the public, Senator Kernot says she has been lucky. "I think I was helped by community outrage and by the stupidity of the Government in cobbling together their unacceptable budget," she said.

There is no doubt, however, that her pragmatic, reasoned negotiating skills have brought new meaning to balance of power politics and new hope to minority parties and individuals about their role in the government of Australia. By being credited for taming the belligerent duo, Keating and Dawkins, she has stolen the thunder of the petulant Opposition and the Labor backbench alike, as well as reclaiming the right for the Democrats to be taken seriously.

And all this while handling the Canberra press gallery, juggling four difficult portfolios (Treasury, Women's Affairs,
I want to make a substantial contribution to the welfare of this country. I want to see us become a strongly Australian Australia and regain control of our economic destiny.

Aboriginal Affairs, Small Business), and leading her sometimes disparate party. Senator Kernot is particularly interested in women and work and how this impacts on families. "Women have borne the brunt of social change and I don’t think society is being realistic about the stresses being placed on families. Most women feel they have to work in our current economic environment, they don’t have a real choice, and we need to totally change the workplace and insist on childcare and family support," she said.

Senator Kernot says her politicisation began at school, when she was a teenager. She recalled making a speech, when she was Captain of Maitland Girls High School in the late ’60s, and being told afterwards by Hunter Labor politician Milton Morris that she should go into politics. "I guess that first put the idea into my head," Senator Kernot said. And while she studied politics at Sydney University when she first left home, the young Cheryl Kernot didn’t like the policies of either major political party any more than she did the big city.

She returned to Newcastle to complete the second half of her Bachelor (1972) and her Diploma of Education (1975).

Newcastle University was very different to Sydney...it was very personal, the classes were small, and I really enjoyed the bushland campus.

Having read a party policy booklet in 1978, Cheryl Kernot joined the Democrats. The human Kernot, as opposed to the assured politician, enjoys the opportunity to do normal things like washing and shopping on her increasingly rare home visits, with her husband Gavin and 10 year old daughter Sian. "Things have really escalated since I became leader, my daughter thinks she might soon have to make an appointment to see me," she jokes.

But she admits that the Democrat workload, with a need to be up on issues that is sharpened by the necessities of balance of power politics, gives her a definite "use by date" as party leader. On her relationship with Prime Minister Paul Keating since her Budget meeting with him, Senator Kernot says he at least knows who she is now. "I think he also knows that the word Democrat may have to pass his lips occasionally," she said.

As well as her ambitions for the nation, for women and families, for Aboriginal Australians, and for the economy, Senator Kernot has another. "The other thing I want to do is to have a nice relaxing time by the sea," she sighed wistfully as she arrived at the airport to resume her headlong flight into history.
Life wasn't meant to be easy. The statement certainly rings true as we struggle through each day coping with work, study, families and those unavoidable day-to-day hazzles which are sent to try us. But consider for a moment, the extraordinary battle you fought just to arrive in this world....

A PRECARIOUS STATE

... a growing fetus you faced hazardous few days in early life. On reaching the uterus, you engaged in an elaborate interaction with your mother which many messages were transmitted in both directions. This interaction, which may be stages of pregnancy, the immunology of pregnancy and the sequence of the maternal-fetal signals which prevent the mother's immune system attacking the foetus.

Led by Associate Professor T...
allow her to mount the right sort of pregnancy response."

Professor Roberts explained that the mother has to regulate the invasiveness of the placenta - if it grows too far into the uterus and gets out of control, a tumour-like growth such as a choriocarcinoma may result. Conversely, if the placenta doesn't grow enough, the fetus will not be adequately supported and abortion could result.

The steps involved in a successful pregnancy are tightly controlled. Professor Roberts and others have found that within six hours of fertilisation, the egg releases a signal (known as IL-1) which causes the mother's platelets and lymphocytes (white blood cells) to behave differently. An immunosuppressive molecule, Early Pregnancy Factor, is released and the developing embryo and placenta are thus safe from immune attack.

Once the embryo is implanted into the mother, the role of the maternal hormones becomes important. The uterus will only provide a suitable environment if maternal conditions are right. If the invading embryo is to survive, it must signal its presence to the mother and prevent withdrawal of progesterone, which would normally occur if the non-pregnancy is detected.

We know that the addition of progesterone can inhibit cell growth and reduce NK cell attack," Professor Roberts explained. "In vivo, stimulating NK activity causes abortion, whereas reversal of this would be in the embryo's best interest."

The model proposed by the group of researchers is that fertilisation leads to a signal which stimulates progesterone to release a soluble factor to prevent NK cell attack. A second mechanism proposed is that parental antigens in the production of antibodies which bind to the placenta and in this way block NK cell attack, thereby protecting the embryo and the placenta.

"The story isn't all there, "The understanding of this area of research is being made more complex by a phenomenon known as genomic imprinting. It means that the genes from the father are inherited differently to those of the mother and that only the genetic code of the mother is expressed on the placenta," Professor Roberts said.

The significance of this research, which will continue into 1994, is in understanding the mechanism of spontaneous abortion and infertility. "As well as

Professor Roberts' research forms part of a mosaic of research on reproduction currently underway in the Department of Biological Sciences. In collaboration with Dr Cheng Smart (Faculty of Medicine), Dr Jim Stanger (Lingard Hospital) and PhD student, Ms Barbara Podsaidy, Professor Roberts is conducting research into the very early stages after fertilisation. A further study, being conducted by Dr Cheng Smart and two PhD students, Greg Clark and Heraldo Piresa-Pacci, is looking at the distribution of NK cells in the uterus of the mouse. Chantalle Peters, a tutor in the Department, is investigating the regulation of expression of progesterone receptors, and Dr John Falconer and PhD student, Charles Omwando, are involved in isolating antibodies from the placenta of sheep, horses and humans in an attempt to define their role in placental protection.
Associate Professor John Chambers works with one of the biggest vacuum cleaners in the world— but few would want his cleaning job or the responsibility that goes with it.
The 'vacuum cleaner' is attached to Eraring Power Station and makes sure that dust emission from the Lake Macquarie power source is reduced to a minimum for protection of our fragile environment.

For the past six years Professor Chambers and his team of researchers (Shane Keys, Xiaojing Li, Owen Scott and Li Xu) have been working in conjunction with the CSIRO and with the support of the Australian Electric Supply Industry Research Board, Pacific Power and TUNRA (the University's research arm) to investigate ways of prolonging the life of filter bags.

It may not sound very exciting, but the consequences and cost savings are extraordinary. And we are not talking about the ordinary filter bag for the household vacuum cleaner. Eraring Power Station has about 86,000 filter bags, each 5.5 metres long with a diameter of 165mm to collect the fly ash from the 4 x 660Mw generating units. Add Bayswater Power Station with its 4 x 660Mw units and Mt Piper with its 2 x 660Mw units and you have a major 'house cleaning' job.

Professor Chambers, from the Department of Mechanical Engineering, knows the costs of running large power stations and terms such as cake dust, fabric filters, controlled varying decelerations, collecting the transient acceleration/deceleration signals from accelerometers and kinematics of shaken filter bags have been very much part of his vocabulary since 1987.

"Eraring Power Station was the first large generating plant in New South Wales to install bag filters and not surprisingly the most costly maintenance area was the fly ash collection system. The bag material was acrylic and a mechanical shake cleaning method was used to clean the fly ash from the filter bag. Initially, we were lucky to get one year of life from a bag," Professor Chambers explained.

An experimental program to investigate the basic mechanisms controlling the dislodgement of dust cake filter was undertaken with the aim of determining the strength of dust filter cake which collects on the side of filter bags and also, in conjunction with the CSIRO, of determining the response of a bag filter to a forced mechanical vibration.

A pilot plant was built at Eraring Power Station to measure, among other things, filter pressure drops, effect of particle size and different coal types, types of bag material, shake frequency and amplitude and much more.

Results of the research have shown start-up of a newly rebagged cell as being critical. To obtain effective cleaning, the bags need to be fully loaded with ash to shorten the cleaning cycle and ensure the dust cake breaks off.

"At first, a bag life of less than one year was being obtained after Eraring was commissioned. This research has increased bag life to more than three years," Professor Chambers said.

"Our program on mechanical shaking of fabric filters is essentially completed. There is little doubt that the numerical model for the filtration and cleaning process will improve with time, as our understanding of the mechanism of dust removal from fabric surfaces improves.

"The next step is to apply ideas developed in this program to reverse pulse gas cleaning. Where a mechanical shake dislodges the accumulated dust cake, reverse pulse means blowing clean gas from the outside to the inside of the filter bag to throw off the dust cake. It's ongoing, critical research from which we and our environment will benefit."
Ms Georgia Young had certain perceptions of Australia when she arrived from Scotland a little over four years ago. Australian women were slim and six-foot tall and a lot of Aussie men were obviously sun-tanned lifesavers...oh, those bronzed Aussies! How did Ms Young know all this—the tourism and information brochures told her. Well, didn’t they?

In the past 200 years the rugged Australian pioneer and the bronzed lifesaver have consistently appeared in popular representations of Australian identity. These traditional images of Australianness now feature prominently in tourism promotions. Whilst these and other images may help to “sell” Australia to overseas and domestic tourists, they also convey meanings about broader aspects of Australian life, both past and present.

Ms Young, a Lecturer in Leisure Studies, said the images convey to us much about changes in the pattern of social relations between men and women. Or do they? With the Head of Leisure Studies, Mr Peter Brown, Ms Young has written a paper on the subject which has been receiving ongoing attention from both the media and those in the tourism industry. Entitled, From Bushmen to Bondi Beach: The Social Construction of ‘Malestream’ Images of Australia in Tourism Advertising, the paper was delivered by Ms Young to the Leisure Studies Association recent conference in England and by Mr Brown to the Australian and New Zealand Leisure Studies Association in Brisbane.

“In the wake of the ‘women’s movement’ and changes in government, the tourism industry and the way we perceive ourselves as Australians, the traditional images of the rugged pioneer and the bronzed lifesaver have become less prominent,” Ms Young said.

The photographs illustrate the modern image of Australia, with its urbanized and tourist-oriented culture. The image of the bronzed lifesaver is increasingly replaced by the image of the modern surfer, who embodies the spirit of Australia’s coastal culture. The traditional image of the pioneer is also giving way to modern urban images, reflecting the changing face of Australian society.

Photographs courtesy of the Australian Tourist Commission
legislation, Australia has experienced a redefinition of gender roles in the past two decades," Ms Young said. "According to social commentator, Hugh Mackay, this has left Australian women with a radically new view of their role and status in society and Australian men with a sense of uncertainty about how to respond to the revolution."

If Australia is experiencing a period of redefinition, is this reflected in the way men and women are currently portrayed in tourism promotions? Ms Young said the question was particularly relevant in a period when the advertising industry was under attack for its stereotypical representations of gender. The question is also significant in the light of evidence that women are the principal decision makers in travel choices.

"If women, as consumers, have concerns about advertising, then promoters may need to modify their 'messages';" Ms Young said. "This may be problematic given the manner in which constructions of Australia and 'Australianness' are so closely intertwined with the construct of masculinity."

From Bushmen to Bondi Beach draws on literature of Australian popular culture and uses selected material from electronic and print media to critically examine the degrees to which stereotypical images of men and women have been presented in tourism and advertising and whether this has changed over time.

"The tourism industry finds a suitable anchor for selling the nation in the 'ideal' types of Australian manhood and it is evident in travel brochures and journals dating back to the 1920s.

"In the last 70 years bushmen and pioneers have featured prominently in tourist brochures and travel journals," Ms Young said. "However, a dominant image of Australianness, which is reflected in the print media, is the beach. At the beach, secondary images of 'masculinity' and 'femininity' abound with pictures which generally portray strong and active men (often lifesavers), as well as women who serve as decorative observers of male athleticism. Like the Australian outback, the beach reflects an Australian lifestyle which is physical, masculine and in harmony with the great outdoors."

Ms Young outlined four recurring themes evident in archival and contemporary advertising images. The images are:

1. Where male models are portrayed in active roles while their female partners are portrayed in passive or submissive roles;
2. Where the role of the female model is to lend 'romantic ambience' to a tourist setting;
3. Where female sexuality is used without relevant context in order to eroticise a scene or activity;
4. Those which communicate a stereotypical message about Australian masculinity, usually associated with athletic prowess, mastery of the natural elements, or mateship.

"By perpetuating these myths the advertising industry is providing tourists with a particular impression of social relations and an Australian lifestyle which draws heavily on the history of male domination and male centred culture. Their mythical portrayal of the Australian way of life also denies the largely urban and cosmopolitan existence of Australians and replaces it with a romantic image of man, nature and ruralism."

Can we look forward to a change?

"The Commonwealth Government has embarked on an educational campaign designed to encourage greater understanding in the community of how the communication industry works as well as how the public can gain greater access to the regulatory process," Ms Young explained.

"Through the National Working Party on the Portrayal of Women in Advertising the Government has also created a forum for the industry, consumers and government to discuss concerns about the portrayal of women in the media and to identify areas of common ground, including research on what women want to watch," she added.

"The tourism industry is currently marketing a 'malestreamed' image of Australia which may help with positioning in the world tourism market, but has little regard for the realities and social relations in Australia," Ms Young said.

"As Australia moves towards the Year 2000 it is evident that Australians are once again focussing on their national identity. It is also evident that traditional myths and stereotypes about what it means to be Australian are being challenged. The image makers will have to confront the dual realities of multiculturalism and the redefinition of gender roles if they are to present a more accurate picture of Australia and its inhabitants."
Blue Stocking Week celebrates the path of women to education and the world of intellectual life. To mark the week, female artists of this University mapped the experience of a generation of women in a fable of modern life.

"Behold, there appeared a chariot of fire, and horses of fire; and Elijah went up by a whirlwind into heaven."
II Kings 2:11

We, too, beheld and there appeared a throng of songsters, and minstrels; and music went up by a chorus into the rafters. And the University Choir and Orchestra filled the night with the melody of Felix Mendelssohn's first Oratorio—the passions of the Elijah. I guess you had to be there!
Pianissimo

The most pianos you've ever seen in one place at one time and nobody tried to sell you one. The classical music festival of the Newcastle year.
IN THE EYE OF THE BEHOLDER

Winners of the Australian Entomological Society Insect Illustration Competition, Kate Thompson and Rebecca Wisely, and runners-up, Juanita Hall and Sonia Naumov, see bugs and spiders, butterflies, dragonflies and the like, as objects of great beauty rather than things to be swatted or simply taken for granted.

For them, the colours and contours of a wing, the segments of a leg, or the facets of an insect eye, take on new meaning as they translate them to paper in the painstaking process of insect illustration.

Kate Thompson, a postgraduate student in the University's Plant and Wildlife Illustration course and a science graduate from Melbourne University, was awarded first place in the colour section of the competition, with Juanita Hall (a 1992 graduate of the Plant and Wildlife Illustration course) placing second.

Rebecca Wisely and Sonia Naumov, both in their final year of the Bachelor of Arts (Visual Arts) degree, were placed first and second in the black and white section of the competition, respectively.
"I HAVE A DREAM"

I am frequently asked what my vision for the University is. I have no vision. The idea of having "visions" is a fantasy of the management theory world which, in Western cultures, over emphasises the ability of an individual to dream dreams which lead people out of the wilderness. For a Vice-Chancellor to enunciate a "vision" would be insulting to the staff who collectively make the University a good University. It is not a question of private fantasies, but of seeking to appoint and support and keep outstanding staff: as everybody who is involved in the University culture knows, a university stands or falls on the quality of its administrative and academic staff.

I am committed to my own scholarship and teaching and believe that I do it well, but also stand in awe of the quality of the contribution of the scholars and scientists throughout the different Faculties of the University, a contribution I view with respect. What I may be able to contribute is sound long term planning, and assistance with priorities and objectives. One can do nothing more than ensure that staff are able to work creatively, to enjoy productive relationships with students (a process called "education") and to have for themselves the possibility of personal development through training mechanisms and contact with others.

In this, travel is important; and equally important is the bringing of experienced people from other universities to this campus. Since ancient Greek times, education has been viewed as being based on "association", and it is pleasing to see that the Karmel Report insists so strongly on the traditional academic principle of departments being built up around leading experts, and constituting groupings of expertise, which allows a process of mutual influence: student education should not be seen as different or separate to this, but as an extension of this process of association. The idea of "association" carries with it two things: one, that the educational process is not limited or restricted to predictable and rigid modes of contact; and two, that the educational process is an evolving one which is not based on formula or prescription, but on human spontaneity and inventiveness, relying on the ordinary progress of social relationships. This is what happens in a university; this is what has always happened and this is what will always happen. This process is under the care of the Vice-Chancellor, whose role is nothing more than that of facilitating and protecting it. To call upon a Vice-Chancellor to have a "vision" is to imply some kind of vacuum in what is a vigorously functioning, lively, and diverse educational institution. I ask made all the time. Every choice which involves expenditure is a choice which cuts out another option, and whilst it may appear to be satisfactory and satisfying to endorse various objectives, it must be recognised that any approval which involves expenditure is a de facto choice to eliminate something else. In academic policy making, we live in a world of existential freedom to choose, where the obligation and responsibility of choice is thrust upon us all the time.

I believe that academic decision making must be very closely linked to financial decision making, and that the University Senate, for example, should make informed financial decisions on all academic matters. Academic questions should not be considered as divorced from financial questions, since any pretence of this kind will lead to the kind of de facto exclusion of other options.

We are over-spending on salaries, we probably try to do too much, and we have to begin the discipline of assessing the University and its current operations very carefully. This should be done in any case, but all the more so since we are now told that The University of Newcastle at its main campus will not be allowed to grow further after next year.

Thus we cannot rely on growth to cover mistakes or indulge options which may be less than essential in the collegiate view of the University. I will therefore be proposing that a committee of academic assessment be developed, and leave you with the thought of Derek Bok: Curiously, universities are very eager to do research on every institution in society except themselves.

With every good wish.
Raoul Mortley, Vice-Chancellor.
When she was told by teachers at a country school that she must ask the Headmaster if she wanted to study “boys” subjects, Annette Booth saw red. The Year 8 student, recently arrived from Sydney was more determined than ever to continue with her Technical Drawing and Industrial Arts courses and took her place as the only female in those classes at Lismore High School.

Perhaps it was that encounter that set Annette Booth on the path to her current achievement, being appointed the first female Chairman of a branch of the Institution of Engineers Australia. A chemical engineering consultant, Ms Booth, 30, hopes her Chairmanship will assist in attracting more women to the profession.

"The field is still male dominated, with women constituting only 7% of the students enrolling in engineering last year," Ms Booth said. The Newcastle division, which has over 2,000 members from the Central Coast to the Queensland border, has set up a group to look at issues concerning female engineers.

“We don’t want our group to be gender specific,” Ms Booth said. “We will be looking at issues like childcare, the availability of part-time work and career breaks; what I would describe as family issues.” The group will also attempt to establish a network of female engineers who are interested in helping to promote their profession.

Another scheme Ms Booth is involved in is the Neighbourhood Engineer Scheme, which aims at putting at least one engineer in touch with each high school in the Newcastle district. The volunteers will offer career advice and encouragement to students. While the level of encouragement to girls to pursue science related subjects like engineering has definitely increased since Ms Booth’s unhappy experience at Lismore, they have some way to go to meet her high hopes. “While the numbers (of women enrolling) have increased since I went to University, I believe they should be 50/50,” she said.

Annette Booth began a chemical engineering traineeship with BHP Steel Rod and Bar Products Division in 1981. After studying full and part time, she graduated with First Class Honours from the University of Newcastle in 1987. She and husband Colin have a two year old son.
"When I use a word," Humpty Dumpty said in a rather scornful tone, "it means just what I choose it to mean, neither more nor less."

"The question is," said Alice, "whether you can make words mean so many things."

"The question is," said Humpty Dumpty, "which is to be master - that's all."

**GOBBLEDEGOOK & DOUBLESPEAK**

This citation from *Through the Looking Glass* opened the Inaugural Lecture of Professor Warren Pengilley, commencing professor of commercial law at the University of Newcastle. The reference illustrates the difficulties of linguistics, which was the subject of the Professor's lighthearted look at the language of his profession, *Linguistics, Legalese and the Law*.

Who is the master of words? In order to minimise problems of construction, lawyers brought into existence a scientific process for writing documents. Professor Pengilley demonstrated the use of legalese on the simple statement, *I give you my orange*. In order to ensure clarity, it would be obvious to a lawyer that more words are needed. Thus:

_I hereby give you all my singular, my estate and interest, right, title, claim and advantage of and in my orange, with all its rind, skin, juice, pulp and pips, and all right and advantage therein, with full power to bite, cut, suck, or otherwise eat the same orange, or give the same away, with or without its rind, skin, juice, pulp, and pips, anything hereinbefore, or hereinafter, or in any other deed, or deeds, instrument or instruments of what nature or kind whatsoever, to the contrary in any wise, notwithstanding._

Now that is a legal document! A document for which a lawyer can command a fee for what lawyers call "due care, skill and consideration". It was not, however, lawyers who took the brunt of Professor Pengilley's scathing wit, but the lawmakers and politicians who are guilty of the twin sins of gobbledegook and doublespeak.

Based on the Orwellian concept of doublethink, doublespeak is more than mere euphemism and involves the creation of misleading impressions. "Orwell believed that thought corrupted language," Professor Pengilley said, "Doublespeak is language which corrupts thought." Hence the description by the oil company Exxon of the 35 miles of Alaskan beach fouled by an oil spill as "virtually clean" and "less than lightly oiled", and the announcement by US President, George Bush, not that the US had declared war on Kuwait, but that they had "authorised the use of force" or exercised the "military option".

Closer to home, we no longer fire employees, we engage in "repositioning", "duplication reduction", "reshaping", "elimination of an employment security policy", "a release of resources", "a restructuring involving permanent downsizing", "vocational relocation", and so on. Even Australian Government policy in this area refers not to unemployment but "job shedding". Who's kidding whom? Professor Pengilley asked. Yet it is these very words which are changing our whole approach and attitude to the major societal problem of unemployment.

Professor Pengilley has practiced law for 30 years, spent seven years as Australian Trade Practices Commissioner and is still a consultant to law firm Sly and Weigall. Among his several degrees, the Professor holds the only earned Doctor of Science Degree awarded in the Faculty of Economics and Commerce at the University of Newcastle, for original research in the areas of Trade Practices and Franchising.
A world class centre for minerals and energy economics, which will contribute to public debate and policy on sustainable development of Australian resources and attract students from Australia, is set to give the University a leading edge in this important area of national debate and education.

WORLD
CLASS
CENTRE
ESTABLISHED ON CAMPUS

Building on Australian expertise and complementing the work already being done by the privately funded Australian Mineral Foundation and by the professional association of the Australasian Institute of Mining and Metallurgy and the Economic Society, the Centre has already developed links with internationally recognised institutions such as the Colorado School of Mines (USA), Penn State University (USA), Queen's University's Resources Centre (Canada) and Paris University (France).

The Centre is based in the Faculty of Economics and Commerce and attracted Professor Tim Considine from Pennsylvania State University as its Director. The Faculty's Department of Economics has particular strengths in econometric modelling and forecasting, applied microeconomics, macroeconomics and industrial economics. Expertise in geology and relevant areas of engineering also is available and will make a valuable contribution to the work of the Centre.

Chairman of Renison Goldfields Consolidated Ltd, Mr Max Roberts, said the Centre was established because for
far too long Australia's high international profile in minerals had not been matched by similar eminence in mineral economics.

"It's high time this deficiency was reversed," Mr Roberts said.

A total of $760,000 has been raised to establish the Centre, funding being contributed equally from the NSW Education and Training Foundation and leading mining and financial companies. An Advisory Committee, of which Mr Roberts is Chairman and Vice-Chancellor of the University, Professor Mortley, the Deputy Chair, includes leading members of the mining, financial and government sectors.

The Centre follows a proposal put forward in late 1991 to raise funds to establish a coursework Master degree in Mineral and Energy Economics at the University, a Steering Committee confirming the need for such a course in Australia.

"Interest from the mining and petroleum industries is self evident but the world of stockbrokers, bankers, merchant bankers, institutional investors and associated financial bodies also needs better financial analysis from professionally trained people," Mr Roberts said.

"It is apparent that contribution from trained mineral economists to the national debate is lacking. There is an abundance of the ingredients in Australia in the form of geologists, geophysicists, metallurgists, engineers and economists. But whilst the extractors are skilled in their art, they are not trained in the whole spectrum of an industry exposed to the world with all the ramifications of supply/demand, social metals, international pricing, competitive costs bases, exchange rates and exposures, and both the micro and macro economics of this extractive industry - and the converse is true of the economists."

The objectives of the Centre are to:
• provide an authoritative contribution to public debate and policy on sustainable development of Australian resources;
• make available a body of experienced consultants to conduct project analysis and assessment for companies and governments;
• train a body of mineral economists to service business and government through provision of a Master of Mineral Economics qualification;
• offer the facility to overseas students, particularly from Asian countries; and
• provide non-degree short courses on topics of importance to companies dealing with forecasting and analysis of the resources sector in capital cities and Newcastle.

The industry members of the Advisory Board (in addition to Mr Roberts) are: Dr Brian Fisher (Australian Bureau of Agricultural and Resource Economics), Dr Michael Folie (Shell Aust Ltd), Mr David Graupner (Ord Minnett Securities Ltd), Professor Barry Hughes (CS First Boston), Mr John Macleod (CRA Ltd), Dr Robin Stewardson (BHP Co Ltd) and Dr Neil Williams (Bureau of Resource Sciences).

Companies supporting the establishment of the Australian Centre for Mineral and Energy Economics are: The Educational Training Foundation, Aberfoyle, AMP Investments, Ampolex, Atlas Copco Construction and Mining, BHP, Coal and Allied Industries, Commonwealth Bank of Australia, CRA, CS First Boston, Esso Australia, ICI Explosives, Macquarie Bank, MIM Holdings, Newcrest Mining, Normandy Poseidon, Ord Minnett, Pancontinental, QCT Resources, Queensland Investments, Sagasso Resources, Rension Goldfields, Shell Australia, J.B.Were & Son, Western Mining Corporation and Westpac Banking.
I survived 5.5...The slogan appeared on t-shirts, bumper stickers and other paraphernalia following the 1989 Newcastle earthquake which measured 5.5 on the Richter Scale.

Small by worldwide standards, the Newcastle earthquake caused havoc in a city ill-prepared for such a disaster. Since the quake, Newcastle has been rated as the most likely major population centre in Australia to experience an earthquake. A new building code released recently takes account of that probability.

Released by Standards Australia, the new Earthquake Loading Code supersedes the 1979 code which placed Newcastle in the lowest risk category. The city is now rated as having the most severe earthquake design requirements in Australia. Coincidentally, a review of the 1979 code and the rating of Australian cities for earthquake risk was under way before the Newcastle earthquake, and the city's nil rating would have changed even if the quake had not occurred.

Engineers from the University of Newcastle's Structures Group, within the Department of Civil Engineering and Surveying, have had significant input into the development of the new code. Senior lecturer in the department, Mr Peter Kleeman, is a member of the Standards Australia Loading Code Committee. Professor Adrian Page has been involved in the assessment of the impact of new provisions on masonry structures, and Professor Rob Melchers has been involved in studies concerned with the level of risk associated with future earthquakes.

Professor Page explained that the classification of earthquake risk is achieved by an earthquake hazard map showing, by means of contours, the level of predicted ground acceleration in various locations on the Australian continent. The contours, which are closest together in areas of high acceleration, have been prepared from studies of past seismological records and an assessment of the probabilities of future events.

"In assessing the forces induced in the structure, account must also be taken of the foundation conditions (with soft soils having the potential to significantly increase ground acceleration), and the type of construction," Professor Page said.

"Heavy brittle structures built from masonry have more severe requirements than the most ductile structures built from steel or reinforced concrete. Structures which have an important post-disaster function, such as hospitals or police stations, also have more severe design requirements to ensure they function after the event," he added.

Under the new code, Newcastle has the highest acceleration coefficient of any major population centre, although smaller centres, such as Tennant Creek in the Northern Territory, and Meekerg, east of Perth, are higher.

"Although the provisions for Newcastle are now much more severe, provided that the code is applied at the design stage, the extra costs will be minimal," Professor Page said.

Implementation of standards outlined in the code will mean that buildings will be better able to resist earthquakes and provide for much higher levels of safety than before. "Most of the additional requirements will not be noticeable to the layman, and will consist of extra reinforcement in some locations, and more effective tying and support of masonry," Professor Page said.
DETECTING GASTRIC ULCERS

Yet, in some people, these protective mechanisms are inadequate and erosions, or ulcers, of the gastric wall occur. If severe enough, the ulcer may damage the underlying blood vessels, causing bleeding into the lumen. The question of what actually causes ulceration has been puzzling scientists and doctors for decades. Possibilities have included stress, genetic susceptibility, drugs, decreased blood flow, smoking, bile salts and excess acid.

Recent research suggests that 90 percent of gastric and duodenal ulcers can be linked to the presence of an infective organism, Helicobacter pylori, according to Associate Professor Robert Batey, from the University's Faculty of Medicine and the John Hunter Hospital's Gastroenterology Unit. H. Pylori is spread by food contamination, particularly by contamination of eating utensils.

"A high frequency of H. pylori infection in Chinese communities may be related to the sharing of communal meals," Dr Batey said.

The organism lives in the human gastrointestinal tract, where gastric epithelium (a layer of cells) exists. It resides in the protective mucous layer and neutralizes acid by an enzyme action on the mucus. "The organism thereby alters our normal protective mechanisms," Dr Batey explained.

Working in conjunction with Professor Robert Clancy's team from the Department of Pathology within the Faculty of Medicine, Dr Batey has been investigating ways of detecting and treating duodenal ulcers at an early stage. Occurring in about 5 percent of the population, duodenal ulcers are currently detected by endoscopy, an excellent, but expensive, investigation. "Standard treatment for ulcers over the past fifteen years has been to prescribe drugs which turn off acid secretion. These drugs are very well tolerated and will heal an ulcer within six weeks in 90 percent of people," Dr Batey said.

In 80 percent of cases, withdrawal of these drugs will, however, result in recurrence of the ulcer. "What is clear now is that these drugs don't affect the bacteria, but minimise acid damage," Dr Batey explained. On the other hand, treating the ulcer with antibiotics dramatically reduces the rate of recurrence, but the side-effects are unpleasant. "Doctors are worried that serious side-effects may be produced by treating with antibiotics, the worst of which (antibiotic-induced colitis) may result in a life-threatening form of severe diarrhoea."

While research into ulcer treatment continues, emphasis is being placed on developing ways to detect the presence of the H. pylori bacteria. Early detection will assist in the development of more cost-effective treatments and in epidemiological studies. Dr Clancy's group has, for the first time, developed a test kit specifically for the detection of salivary antibodies to H. pylori. Working with Cortecs International, the group has developed a non-invasive test based on detecting tiny amounts of antibody present in the saliva during or after H. pylori infection.

The benefit of such a test-kit is obvious. Testing for H. pylori may, in future, be undertaken by GP's, who will initiate eradication treatment.

Dr Batey believes that further results from research undertaken in Newcastle will radically change the whole approach to ulcer disease. "If we start eradicating the bacteria and stop the spread of the infection, we'll see ulcer disease take a real nose-dive," he said.