FEATURE: ENVIRONMENT WEEK

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"Van Gogh's Ear" is published monthly and is edited by Lindy Burns, with layout and design by Gillian Stack. Letters to the Editor (no longer than 300 words and signed), reports on outstanding and unusual research, news, and human interest stories are welcome. Please contact either Lindy Burns or Rosemary Roohan at the University's Information and Public Relations Unit on 21 6440 or 21 6463.

"Van Gogh's Ear" is printed on recycled stock.
Sir Bede Callaghan, after whom the University’s geographical location was renamed in 1992, died from a heart attack in mid-September, aged 81. He was the University’s second Chancellor holding the position from 1977 to 1988 after serving as Deputy Chancellor to Sir Alistair McMullin from 1973 to 1977. Born and educated in Newcastle, he was General Manager of the Commonwealth Development Bank (1959-65) before being appointed Managing Director of the Commonwealth Bank in 1965; a position he held until his retirement in 1976. During a distinguished career, he also held the post of Chairman of the Foreign Investment Review Board and Executive Director of the International Monetary Fund. He was awarded the John Storey Medal in 1974 by the Australian Institute of Management and in 1977 received the Sydney Rotary Club’s annual Vocational Service Award. He was knighted for distinguished services to banking in 1976.

Despite his achievements, or perhaps because of them, his theory on life and work was a straightforward one. He always found his work satisfying and therefore did it to the best of his ability. In the year of his knighthood, Sir Bede commented on his work ethic “I suppose it was my Catholic background and my parents’ attitudes towards work that strongly influenced my own approach. I do believe there is a certain moral obligation involved. We have a responsibility to work to the best of our ability and we have an obligation to those we work for.”

However, work was something he did rather than spend a lot of time thinking about. He always tried to spend some time during the weekend relaxing. Pastimes that were particular favourites were lawn bowls and following the football, especially the round ball variety. Having spent some time in London, his allegiance to the Chelsea soccer club remained with him until his death. Sir Bede liked all types of sports and took such roles as his Chairmanship of the Institute of Sports Medicine very seriously.

Although closely interested and involved in government matters throughout his life, Sir Bede never had the desire to go into politics. That he left to his son-in-law, former NSW Premier, Nick Greiner, whose wife, Kathryn survives her father together with her two sisters and mother, Mollie.

Shortly after Sir Bede’s death, the Vice-Chancellor, Professor Mortley spoke on behalf of those who remembered him well. “He worked tirelessly in his 11 years as Chancellor and was dedicated to making the University of prime importance not only for the Hunter Region, but also for New South Wales and Australia. When he stepped down in 1988 he still maintained close links with the University and he will be sadly missed by many good friends that he had on campus.”

The new Wetlands area: “...a special place.”

Chairman of Environment Week.
Kevin McDonald displays the project’s promotional T-Shirt

Thanks to the initiative shown by former planner, Dr Don Morris, the University now has its own Wetlands area. The area, situated behind the engineering buildings, was officially opened, appropriately by Dr Morris, during Environment Week. University Environmental Affairs Officer Kent Gillman, said that during the 1970’s, Dr Morris used to go down to the swamp behind Engineering on weekends to clear the lantana. “Now we’ve got a wetlands which is sustainable. It has all sorts of fish and frogs and birds. It really is a special place.”
ENVIRONMENTAL ART MAKES AN IMPACT

To see people pause, then stand back to appreciate, then move in closer to carefully study the artworks on display in the foyer of the Great Hall was a reward in itself for curators, Herbert Heinrich and Anne Llewellyn, both members of staff in the Department of Fine Arts.

The Exhibition by thirteen invited artists was based around an environmental theme. It was held to complement the University's Environment Week, a week which focussed on the important issues of having respect for, appreciating and preserving our environment and featured educational, social and cultural events.

The Exhibition was opened by the Director of the Northern Regions Environment Protection Authority, Mr Brian Gilligan.

Mr Gilligan said that the art reflected people's reactions to what is happening in the environment. He said that at last people are becoming more aware of the need to protect our environment.

"Artwork is an integrating mechanism. It brings together our feelings, interaction and perceptions about our surroundings," Mr Gilligan said.

"We have tended to compartmentalise the environment and think of air, water and the land as separate components of it. Now, though, people are incorporating environmental activities into their mainstream activities, pulling it into their consciousness."

"It's interesting to note how much our emotions are bound up in the environment. Some of this art is an expression of our anguish that our environment is needing protection," he said.

"This is one of the main aims of the Environment Protection Authority. We work hard to make sure that environmental awareness is not an add-on, but integrated into people's daily lives and work," he added.

WHY FIGHT NATURE, MAKE IT AN ALLY

According to its Chairman, Mr Kevin McDonald, the University's Environment Week fulfils three purposes. These are to be proud of our natural bushland campus, to show that we practice what we preach in environmental management and to make sure that we join in the global effort to protect the environment.

Kevin was speaking at the official opening of Environment Week, the second to be held and now an annual event on the University calendar.

The week was filled with activities centred around environmental issues. Bushland campus walks, clean up the campus projects, displays, an environmental art exhibition and a 'plant a tree' campaign were some of the features. The NRMA conducted a test station to see how vehicles rated as pollution producers whilst a vehicle free day saw many people travel to campus by alternative means, no mean feat in the commuter era.

Kevin said it is particularly evident that The University of Newcastle is environmentally conscious. He said the current landscaping initiatives which use self sustaining methods such as mounding, mulching and conservation of water are now starting to come into their own. He also said that the recycling initiatives for bottles, paper and other products enhance these initiatives.

The Vice-Chancellor, Professor Raoul Mortley, endorsed these sentiments and announced that the Hunter Water Corporation will set up an endowment to sponsor a Chair in Environmental Engineering. He said that Engineering, Science, Philosophy, Economics and Management as well as Architecture are important areas of academic pursuit that need to consider environmental issues.

The Environment Week opening was attended by the Newcastle Lord Mayor, Cr. John McNaughton and the Deputy Mayor of Lake Macquarie, Cr. Bob Tsousis. A tree planting ceremony took place outside the Chancellery after the function. Trees were planted by the President of the Student Union, Ms Karen Watts, Crs. McNaughton and Tsousis, the Vice-Chancellor, Warden of Convocation, Ms Jean McGarry and President of the Friends of the University, Mr Keith Barbour.

The Vice-Chancellor, Professor Raoul Mortley assists the University's Bushland Regeneration Officer, Min Woodlands, to plant one of the many trees put in during the opening of Environment Week.
KEEPING OUR DAIRIES GREEN

The 1980's were unparalleled in awakening human consciousness to our impact on the global environment. Pollution of land, waterways and the ocean is no longer acceptable, and new ways of waste disposal are constantly being sought by the general community, industry and agriculture. In the Hunter region, dairy farmers are being asked to consider more environmentally sound ways to dispose dairy wastewater.

Agricultural practices contribute a significant amount of nutrients, such as nitrogen and phosphorous, to water bodies. These nutrients may result in algal blooms. Recent studies indicate that phosphorous levels in the Williams River, a prime source of Newcastle’s water supply, are on the increase. And, according to researchers, some 96% of this phosphorous comes from grazing, forestry and dairying.

Approximately 70 dairies are located in the Williams River Catchment and the majority of these currently dispose of waste by overland flow into vegetated paddocks. Effluent may then enter the water cycle and contribute to the nutrient load of the river system. In an effort to reduce this nutrient load, researchers at the University, in collaboration with the Hunter Catchment Management Trust and the Hunter Water Corporation, have embarked on a project to investigate the performance of artificially constructed wetlands to treat dairy waste-water prior to off-site disposal.

Mr Phillip Geary, from the Department of Applied Science and Technology, says there are currently no legislative requirements regarding pollution control in the dairy industry. The Dairy Research and Development Corporation has, however, recently produced guidelines for on-site waste treatment and management. But are these guidelines sufficient to combat the nutrient problem?

“While the guidelines represent good management practice in terms of suspended and organic matter in the waste, they do not particularly address the situation regarding nutrients such as phosphorous and nitrogen,” Phil said, adding that artificial wetlands may provide the solution.

Artificial wetlands have been successfully used for effluent polishing for other waste streams such as urban runoff and industrial effluents. The various physical, chemical and biological processes which occur have been well documented.

Already a dairy property near Dungog has had a basic pollution control system, incorporating a wetland, installed. Phil explained that the system includes anaerobic and aerobic treatment ponds, followed by a wetland system consisting of three parallel trenches. These trenches have been planted with different species and the performance of each system in retaining and removing nutrients will be examined.

The project will also involve the construction of pollution control systems, incorporating various wetland configurations, at a number of locations in the lower Hunter Valley. According to Phil, systems can be constructed relatively cheaply and the technology demonstrated by farm visits and field days. “The environmental impact of this intensive industry can be minimised if dairy wastes are treated on the farm and utilised effectively,” Phil said.

CLEANING-UP AND CARING:
ENVIRONMENT WEEK IN ACTION
For centuries, mankind relentlessly exploited the earth's natural resources, oblivious, it seemed, to the fact that these resources are limited. An environmental awakening in the mid nineteen hundreds slowed down this exploitation. However continued efforts are required to effectively manage our remaining natural resources.

In Australia, and in NSW in particular, various attempts have been made over the last 50 years to achieve a co-ordinated approach of natural resource management. It was not until the introduction of the 1989 Catchment Management Act in NSW, that a formal framework for resources management was implemented. This Act also recognised, for the first time, the overriding importance of community participation in natural resources management.

Locally, the success of catchment management is highlighted in the work undertaken in the Throsby Creek catchment, where a degraded stormwater channel of low amenity is being transformed into an attractive and functional inner-city waterway.

Attention is now being focussed on the region's other catchments. At Lake Macquarie, a strategic plan for catchment management is currently being drafted, Chaired by Dr Rod Kidd from the University of Newcastle's Department of Applied Science and Technology, the Lake Macquarie Catchment Management Committee was formed in 1992 with the support of the Environment Protection Authority. According to Rod, the aim of the Committee is to manage the lake's resources to ensure future viability of the diverse natural systems, while at the same time meeting the needs of the community.

Rod has been involved with the Committee since its establishment in 1992. He was appointed Chairman by the NSW Minister for the Environment, Mr Chris Hartcher, in July this year, an appointment he will hold until July 1995. Rod explained that the Committee is governed by the 1989 Catchment Management Act and as such is comprised of Government and community representatives.

"We have identified a number of issues within the Lake Macquarie catchment relating to the management of natural resources, including erosion and sedimentation, land-use and development, catchment area hydrology and water quality, vegetation and biodiversity, and estuary waterway management," Rod said.

"Adopting a Total Catchment Management Strategy for the Lake Macquarie catchment will mean that there is, for the first time, co-ordinated management of natural resources, particularly water, soil and vegetation.

"Given that a number of Government agencies are working with community representatives, a high level of acceptance of the strategy should result," Rod said.

The work of the Community Awareness and Education Task Group of the Lake Macquarie Catchment Management Committee was recognised at the Hunter Environfest when the group won the award for "Best Theme Exhibit". (Incidentally, the University display at Environfest won Lake Macquarie Council's award for the most innovative display of environmental research and programs.)

Rod, who has a particular interest in policy development for coastal zone management, has also been appointed as the University representative on Lake Macquarie Council's Estuary and Coastal Management Committee, and on the Council's Environmental Research Committee.
BLUE GREEN ALGAE - A DANGEROUS SWIMMING COMPANION

While there is a ready supply of the algae (particularly in the summer months), Kathy explained that it is not usually in bloom proportions and therefore poses no direct danger, but any excess growth should be treated with caution. A bloom of blue-green algae in the Williams River last summer was not toxic, she said.

Kathy describes the importance of her research in terms of the environmental and health hazards posed by blue green algae contamination. "There are many consequences of algal blooms which have a direct effect on the Australian population," she said. "For instance, by contact with cyanobacterial toxins, live-stock and fish stock (from fisheries) can be decimated. Human contact can result in allergic reactions, eye irritations, gastroenteritis and in more severe cases, hepatitis and other serious health conditions," Kathy added.

Cyanobacterial blooms can have detrimental effects on the local economy (particularly a farming community if water normally used for irrigation becomes contaminated), so the prediction of blooms and their toxicity are important considerations in maintaining the public and agricultural value of our land.

The problem is a complex one, as cyanobacteria are metabolically flexible and very tolerant of environmental extremes. "Some species can grow in temperatures of up to 75°C, and reproduce rapidly in nutrient rich waters," Kathy said. As with many environmental problems, humans have much to answer for. Contaminating nutrients such as phosphorous from agricultural and suburban areas can enter natural water systems in drainage water and sewage effluent, in eroded soils, and animal excreta. Kathy says that strategies to prevent large scale algal bloom formation include the removal of phosphorous from treated sewage, re-establishment of vegetation along river fronts and maintaining adequate water flow within rivers.

"These strategies need to be widely implemented and accepted in as many locations as possible," Kathy said.

"Conceptualisation of possible detrimental effects on the environment from inappropriate land and sewage management can only occur through education of the general public. It is apparent that there is a need for a fast and efficient method of evaluating changes in environmental integrity to prevent large cyanobacterial outbreaks."

PROTECTING THE HUNTER’S RAINFORESTS

The world’s rainforests are being destroyed at an alarming rate as “civilisation” moves in to even the most remote corners of the globe. The majestic rainforests of South America and South-East Asia are disappearing and so too are many of the animals that inhabited them. But what about the rainforests in “our own backyard”?

University of Newcastle researcher, Dr John Turner, says that the Hunter Valley’s rainforests remain in “fairly good shape”. We have probably, despite development, retained more than 50 percent of our original rainforest. “Of course, rainforest that existed along the floor of the main valleys quickly disappeared with early settlement,” John said, “but much of the remaining rainforest, which occurred in the more inaccessible parts, is still alive and well.”

John, a lecturer in the Department of Geography, has spent more than 15 years on local rainforest research - examining the composition and distribution of stands of forest. His fascination with rainforests is, he says, difficult to explain in objective terms. "It has something to do with their exoticism,
UNI HELPS WITH Kooragang ENVIRONMENTAL STUDY

Some 600 to 1,000 hectares of wetlands have been lost or severely degraded in the Hunter Region over the past 40 years. With the implementation in 1953 of the Newcastle Harbour Improvements Act, extensive reclamation works were undertaken in the Hunter Estuary - all in the name of development, we were told. The environmental impact of this reclamation is now becoming obvious.

Kooragang Island, where large scale reclamation was undertaken in the 1960's to provide industrial land, provides an interesting case study. In the process of “reclaiming” the land, saltmarsh, mangrove forests and tidal channels were destroyed and valuable fisheries feeding and breeding habitats lost.

Concerned at the loss of these habitats, NSW Fisheries has called upon researchers at the University of Newcastle to undertake a range of studies of the Western end of Kooragang Island in an effort to improve fish productivity in this area. With the support of the Public Works Department, Hunter Catchment Management Trust and Newcastle City Council, a “Wetland Compensation Project Feasibility Study” was completed last year and recommendations, including the restoration of fisheries habitat, integrated education and recreation facilities, and an integrated Hunter Estuary Nature Reserve Complex, were made.

According to the study, restoration of existing degraded wetlands could be achieved by maximising tidal flows in existing channels. New wetlands areas could also be established by excavation of areas less than 1.0 metre in elevation, the study indicated.

For the past two years, third year students from the University's Department of Biological Sciences, under the guidance of Dr Brian Conroy and Mrs Pam Lake, have been mapping the vegetation along Cobbans Creek on Kooragang Island. Dr Conroy explained that this is necessary to obtain an understanding of the species present before and after major earthworks are carried out. Biology honours student, Peter Nelson, is also conducting transplant experiments to ascertain how best to encourage saltmarsh and mangrove species to grow.

"NSW Fisheries wants to maximise fish productivity by re-establishing large areas of mangrove and saltmarsh in the area," Dr Conroy said, explaining that mangrove provides the necessary nutrients, while saltmarsh provides protected breeding habitats for fish species.

Dr Conroy indicated that careful site documentation and research must precede any major earthworks to ensure that all factors of the habitat are considered. Any increase in the total area of saltmarsh or mangroves will, however, enhance Hunter estuary fisheries habitat and also improve the habitat available for migratory wading birds.

The Kooragang Island study provides University students with the opportunity of working on a practical, applied project. "Our students get a great deal of satisfaction out of this type of work, as they feel that they are contributing something to their local environment," Dr Conroy said. But integrated projects such as these are beneficial not only for University students and researchers. They provide industry and government bodies with detailed scientific data and may also contribute to the community's general understanding of important environmental issues.

with their relative darkness compared with eucalypt forest and their structural and floristic complexity," he said.

His research involves an examination of local variations in rainforest composition and the relation of these variations to environmental factors, such as soil composition, slope characteristics and so on. By measuring the girth of individual trees, species by species, John and his researchers (largely University students) have tried to gain an understanding of the relative abundance of species in the rainforests around the Hunter Valley.

This region boasts four different types of rainforest: cool temperate, warm temperate, subtropical and dry rainforest. The first three are well represented on publicly owned land around the Barrington Tops area; however it is the fourth, the dry rainforest which is causing some concern for John’s group.

The Hunter’s dry rainforest is the most southerly occurring rainforest of this extent and type in Australia (there are also minor occurrences in the Illawarra). But there is a potential problem, says John.

"Almost all of the dry rainforest, which is largely located in the foothills country northwards from the Hunter River towards the Barrington Tops, is in private ownership,” John said. While rainforest located on publicly owned land, such as in National Parks and State Forests, is now largely or completely protected from disturbance, rainforest located on private land remains under the control of individual land holders.

Although John recognises that there is an obvious trend among land owners towards increased interest and care of the natural environment, he says that there should be more State Government recognition of the potential problem of private ownership of the remaining dry rainforest stands.

"I would like to see more comprehensive agreements developed between land owners and the State,” he said, adding that the whole concept could be “imaginatively” developed.

"Many of the patches of dry rainforest are still intact and many are sheltered by buffer fringes of eucalypt forest, which, like the rainforest, has little legal protection. I can see possibilities for some kind of new agreement so that these combined areas could be preserved," John said.

Research into the Hunter’s rainforests will continue at the University. "We will probably try to diversify the approach of our studies and begin to look at some of the more subtle aspects.

"One of the interesting things about rainforests is the diversity and richness of plants and animals, and the extent of possible interactions between the two," John said, adding that this is an area which has received little attention.

Areas designated by Kooragang Island Advisory Committee (1979)
Study Area covers Area D and Area E.
LYNEHAM LETS LOOSE

Paul Lyneham, federal political commentator for the ABC's 7.30 Report, leant casually against the balcony rail in the Shortland Union building, rolling a cigarette. His black, elastic sided boots and the roll-your-own tobacco looked strangely incongruous with his sober, dark suit and conservative tie. He is taller than the television shows but the authoritative voice really does have that sardonic drawl, his lip that slight tendency to curl.

On campus at the invitation of Convocation, the University's graduate body, to deliver the 1993 Newcastle Lecture, Lyneham was chatting amiably with 2NUR journalist, Matt Coleman, an OPUS journalist, and some students. The young people were keen to test his attitudes. Considering the influence he wields, does he have a vision of what society should be, he is asked. "Oh yes," Paul breathes out with a thin wisp of smoke, "I'm very keen on the idea of us becoming extremely wealthy, of looking after our environment and of providing secure jobs for our children and anyone else who wants one." His audience waits for the lip to curl without result.

Are you really as cynical as you appear? they ask him. "Cynicism is really just the true awareness of reality," Lyneham quips, explaining his respect for Australians' healthy refusal to easily tug the forelock. "The fifties and sixties saw a deviation from that fine iconoclastic tradition...we all became terribly respectful...but the sooner we get back to it, the better," Lyneham, whose self-appointed goal is to keep our politicians accountable, is urbane and laconic as he chats to the students, and welcomes a cold beer at the end of the interview.

His lecture was no less assured or relaxed. Light-hearted and entertaining, the talk was peppered with hilarious one-liners, many of which were completely libellous. Very few of Canberra's major players escaped his attention, with Paul Keating suffering, we were told, from "extreme Richardson syndrome...only the far right of his brain functions and then only intermittently", and with franchises for the Tim Fischer School of Deportment and Political Charisma being offered. A masterful speaker, Lyneham played the large audience (estimated at around 800) people, with laughter reverberating around the Great Hall for the duration of his hour long lecture.

While he did offer some fascinating opinions on the future of the nation and the economy, it was always interspersed with jokes. The economy, he told us, had been found by trackers hiding in an outback crevasse, deeply depressed, anorexic, and due to what the Prime Minister has done to it over the past year, pregnant, but alive, even if it is speaking Japanese with an American accent. We heard that the "paralysed rabbit syndrome" that has seen the nation's businessmen and manufacturers paralysed by their own pessimism, is coming to an end with the fostering of a new workplace productivity and a new leaner, meaner public sector.

While it was foolish not to worry about foreign debt, Lyneham told the audience, the best response to it was to buy Australian and acknowledge the success of our export heroes.

Throughout his lecture and the twenty minute question time that followed, Lyneham treated his audience to a total entertainment experience. The tall man from Canberra was erudite, witty, expansive, funny, and above all, human.
TOWARDS A RICHER FUTURE

The Vice-Chancellor, Professor Mortley, was the guest speaker at Convocation’s AGM on September 2. The meeting was chaired by the new Warden of Convocation, Ms Jean McGarry. The following people have been elected to the Convocation Management Committee: Mr Ron Yates (Deputy Warden), Ms Jill Scott, Mr Ray Hodgins, Mr John Broughton, Ms Isabel Hodgins, Mr Chris Tola, Ms Celina Kovi, Mr Les Pennington, Mr Ray Dooley, Mr David Donnelly and Mr Bruce Morris.

(Extracts from the Vice-Chancellor’s address to Convocation)

The Vice-Chancellor intends to assure that the next generation of staff and students will find a better funded and wealthier University than the one he found. He told his audience of his twenty year plan to raise several hundred million dollars in income. The vehicle for achieving this will be a new External Relations section, under the management of Associate Professor Jenny Graham.

“It involves careful planning and clear targets. It will be a slow process, probably not showing much progress for the first five years, but if we implement a plan, we will achieve something rather than nothing,” Professor Mortley said, adding that such a scheme will involve a little more administrative expenditure. “There is a tendency at the university toward an inferiority complex which should stop,” the Vice-Chancellor said. “There should be no apologies. We have to set very high goals.”

One of these goals should be to become fully fledged members of the international university community, which included attracting international scholars to come here. “This status is achievable and is happening already at Newcastle,” Professor Mortley said. Another goal should be to remain student orientated, not forgetting that our main purpose is to teach. We must provide excellent attention to our overseas students as well. Professor Mortley also stressed the importance of building on campus, “I’d like to see fairly ambitious buildings being built,” he said. “A building may cost 2 to 3 million dollars to build but if it is a good one it may make the difference between happy memories and unhappy ones for those who use it. We have the capacity to build a very fine campus.”

MEDICINE PROGRAM UNDER THE MICROSCOPE

The University’s innovative medicine teaching program has come under the microscope in South Australia with three universities planning to introduce graduate medical schools from 1996.

Fellow in Medical Education at Newcastle University, Dr Isobel Rolfe, recently took a team of eight students to Adelaide to demonstrate the highly successful problem-solving, community-based program which has been taught in Newcastle since the late 1970s.

The students will demonstrate the “Newcastle experience” to medical academics from Flinders University (SA), Sydney University and Queensland. The three universities will introduce four-year courses through their graduate medical schools, with Flinders being the first to implement the program in 1996.

Dr Rolfe said all students enrolling in the graduate schools would be of mature age and have their first degree, thereby reducing the number of years required to obtained their medical degree.

“The traditional path has been for students to undertake three years of pre-clinical, basic science experience before completing two clinical years,” said Dr Rolfe who researches and evaluates the Newcastle program.

“At Newcastle however, we have small groups, we concentrate on problem integration and clinical skills are taught from the first day. Our program includes both school leavers and mature age people.

“In Adelaide we showed how to problem solve as delegates from the three universities watched the students and tutor in action. We also conducted workshops on student roles in problem-based learning and also on how to be a tutor.”

For Dr Rolfe, it was a case of reverse roles at the curriculum conference which was held in Adelaide earlier this month. Dr Rolfe was in the second group of students to graduate from the Newcastle course and has since undertaken physician’s training and a degree in medical education at Dundee University in Scotland.

“I was very much part of Newcastle’s innovative program as a student and was very interested in taking the program to Adelaide where the universities involved will be drawing on the Newcastle experience (and those of McMaster University in Canada and Maastrict University in The Netherlands which have similar programs to Newcastle) to investigate teaching and curriculum reform,” commented Dr Rolfe.
Some 30 million people in the United States have no health insurance that covers prescription drugs. Many drugs are expensive and the lack of a government sponsored insurance scheme can lead to considerable hardship. In contrast, the Australian Government's Pharmaceutical Benefits Scheme ensures that all Australians have access to even expensive prescription drugs. To have drugs included in the Scheme, manufacturers must not only provide evidence that the drugs are safe and effective, but must also provide evidence of their cost-effectiveness compared to other therapies.

Recommendations regarding which drugs should be included in the Scheme are made by the Pharmaceutical Benefits Advisory Committee, which considers the effectiveness of new drugs and the need for them in the community. Following a change to legislation in the late 1980's the Committee is now required to consider cost-effectiveness of new drugs in addition to other criteria. In 1989 the Australian Government contracted a group of consultants from the University of Newcastle's Faculty of Medicine to develop a set of workable guidelines to implement this legislation.

The consultants included Dr David Henry from the Discipline of Clinical Pharmacology, Dr David Evans from the Centre for Clinical Epidemiology and Biostatistics, and research pharmacist, Ms Jane Robertson. The consultants helped decide how to make cost-effectiveness evidence of a regulatory requirement for drugs included in the Pharmaceutical Benefits Scheme. The guidelines were accepted by the Government and following a two-year run-in period, were made mandatory in January 1993.

"In deciding how to implement the policy, we had to confront many issues about how to judge value for money in pharmaceuticals and how to determine what a reasonable price is for a potentially life-saving drug," Dr Henry said, adding that the policy guidelines are based on clinical and economic principles rather than individual opinion.

"This process has been regarded as quite a radical move," he said.

In Australia, the policy remains controversial and has had a mixed response from the pharmaceutical industry. But interest overseas is high. Along with the head of the Australian Government's Pharmaceutical Evaluation Section, Andrew Mitchell (who is a Newcastle University graduate), Dr Henry recently presented papers at a US Food and Drug Administration meeting and at a Congressional Staff Seminar.

"One important element of the US health care reform will be the establishment of an out-patient prescription drug benefit," Dr Henry explained. "We were asked to present an overview of the Australian prescription drug program, focussing especially on cost-effectiveness assessment," he said.

While the presentations were well received, Dr Henry cannot predict whether the new Australian approach (based largely on advice from University of Newcastle academics) will be adopted in the US. "They will certainly take account of our unique program," he said.

As the chairperson of the Pharmaceutical Benefits Advisory Committee's Economic Working Party, Dr Henry is responsible for reporting to the parent committee about a drug's value for money, in terms of clinical and economic benefits, and the possible extent of its use. Based on these recommendations, the Pharmaceutical Advisory Committee makes an overall judgement on the perceived need and place of the drug and advises the Minister accordingly.

The reason for the move towards cost-effectiveness in pharmaceuticals is made obvious in the Preface to the Guidelines document: "Australia, like most countries, is faced with a steady increase in the total cost of pharmaceuticals. This means that in future, increasingly, we will be forced to choose which drugs will be subsidised by the Commonwealth Government. Economic analysis is one factor to be considered when making choices between competing therapeutic modalities."

In following the guidelines, companies will be asked to provide data which do not normally form part of a new drug application to a licensing authority. The effectiveness and cost of the drug will be considered, as will changes in the use of resources which are likely to result from its introduction.
RESEARCH AND SCHOLARSHIP RESEARCH

PIPADS - THE PARALLEL IMAGE PROCESSING AND DISPLAY SYSTEM

Over the past three years, the University of Newcastle has been involved in the single largest computer project in Australia. With a budget of $1.5 million, the task of producing a real-time visualisation engine was the objective of a consortium including CSIRO, BHP, UNSW-ADFA and the Department of Electrical and Computer Engineering at the University.

What does "real-time visualisation" mean? Within the context of the PIPADS (Parallel Image Processing and Display System) Project, this means the ability to present vast quantities of data on a computer screen in an easily interpretable manner within 1/20th of a second.

A typical application for the PIPADS machine comes from BHP: often it is possible to assess the mining prospects of an area of land by simple observation of the topology of that land. In the past this has involved an aerial inspection of the terrain in question, however with the PIPADS machine it is possible for geologists to undertake 'fly-overs' of a landscape without ever leaving their offices. The new technique makes use of spot height data extracted from stereoscopic satellite photographs, the data (containing millions of spot heights and their locations) is entered into a computer where the PIPADS engine can interpret the information and produce realistic images of the landscape.

The PIPADS machine enables us to view large arrays of data (millions of data points), from any angle, any azimuth, at any distance, and with light coming from any direction. A change in any (or all) of these parameters results in a new image being produced within 0.05 seconds. The production of such an image is the result of approximately 1,000,000,000 calculations -something which is well within the domain of supercomputing for real-time operation.

The PIPADS machine is targeted at a low-cost market. Supercomputers capable of performing these tasks retail at several millions of US dollars, whereas the PIPADS machine should be much cheaper.

How is this cost saving achieved?

The PIPADS architecture is designed with only one key application in mind - visualisation, and researchers at CSIRO's Division of Information Technology have developed new, highly efficient algorithms to perform this task. All that is required is the development of special purpose computer hardware to take full advantage of these algorithms, to be low cost, and to be very high performance. This has been the activity of the Application Specific Computer Design (ASCOD) team in the Department of Electrical and Computer Engineering in Newcastle.

SOCIAL WORK STUDENTS SURVEY

COMMUNITY NEEDS

Wyong Shire residents could have more facilities for leisure, meetings and community events following a survey conducted by second year Social Work students.

The survey, which will canvas opinion on community use and expectations of community centres in the area constitutes a research project which is part of their academic curriculum. It is being undertaken by 30 students under the supervision of two lecturers from the Department, Ms Yvonne Darlington and Professor Brian English.

Ms Darlington said the 16-week project will consider the role of council community halls and centres in enhancing the quality of life for residents of the shire. She said that in considering community centres, factors such as their location, use, identity, structure and context affect the way people live and use such centres.

"Other factors such as the role of shopping centres and other community focal points also affect how community centres operate," Ms Darlington said.

"The role of such centres then is a dynamic one, changing as society changes. "Hence the requirement to provide such centres differs today from the sixties and seventies and will be different again in five to 10 years time" she said.

The study will go some way to charting what makes a community centre relevant to its community. The information gathered will also help the Wyong Shire Council better plan its centres for the future.

Speaking at a function to launch the project, the Deputy Mayor of Wyong Shire, Mr John Millard, said that Wyong is the fastest growing area in Greater Sydney, its scenic and lifestyle attractions playing a large part in persuading people to move to the area.

He said that there are presently 39 community centres in the Shire and with the expected growth in the Wyong area in the next 10 years, there will be an increasing need for even more.
NEWCASTLE ENGINEERS IN $1.44 MILLION RESEARCH CONTRACT

A team of engineers and scientists led by Professor Graeme Jameson, has been awarded a total of $1.44 million for research into mineral processing. The project will involve a new and unproven process known as “high intensity conditioning”, in which finely ground ore is subjected to chemical reaction with intensive agitation, prior to flotation with air bubbles. The purpose of the project is to improve the overall efficiency of the flotation process, which is used to recover and concentrate valuable components of the ore.

"One of the aims of the project is to develop ways to scale-up the laboratory results to the full plant size," Graeme said. "The possibility that intensive mixing might improve the flotation process has been around for some time. Some good results have been achieved in the laboratory, but it has been difficult to put them into practice. We want to find ways to do that."

The project is being funded under the Collaborative Grants Scheme of the Australian Research Council (ARC), in which monies provided by the ARC are supplemented by cash support from industry.

The ARC is providing $600,000 over three years, and the minerals industry, through the Australian Minerals Industry Research Association (AMIRA) is contributing a further $840,000.

Two PhD students, Malcolm Engel and Tony Farmer, will study fluid dynamical aspects of the problem in the Department of Chemical Engineering. At the University of South Australia, a team led by Professor John Ralston, will investigate the chemistry of the process.

"This is an excellent example of the benefits when two complementary research groups come together on a project. The skills we have in Newcastle in fluid and particle mechanics, and the expertise in surface chemistry of the South Australian group, should lead to rapid progress," Graeme said.

HORMONES AND HIPS

Hormone Replacement Therapy (HRT) is being increasingly seen as the solution to a range of ailments and conditions that affect post-menopausal women. Among the claims made for estrogen treatment is that it substantially reduces the risk of bone fracture as a result of osteoporosis. Hip fracture, in particular, presents a significant public health issue, with women being hospitalised for long periods and frequently not fully recovering. It has been increasingly suggested that HRT could be a worthwhile intervention on a population scale in reducing hip fractures and osteoporosis.

A University of Newcastle research group, commissioned by the Australian Institute of Health to find out if published figures supported this proposition, have found they do not. In an interim report to the Institute, the Osteoporosis Study Group, have concluded that the evidence that HRT significantly reduces the risk of hip fracture is not strong enough to support population intervention. The group’s prime researcher, Ms Jane Robertson, said a meta-analysis (secondary data analysis) of the results of published trials of estrogen treatment as an intervention to prevent and treat osteoporosis and fracture was carried out.

While the results of random control trials did indicate that HRT seems to slow the rate of bone mineral loss that occurs in women after menopause, these trials did not investigate a hip fracture outcome. And while one might assume that reduced bone loss might indicate a reduced risk of fracture, these results tended to be derived from very short term studies carried out on small groups of women in a younger age group (around 50 years old). The group then turned to an analysis of epidemiological studies, identifying five cohort studies and nine case control studies from which they derived their results.

"Overall, we came to the conclusion that the best estimate of benefits we could derive (based on cohort studies and the better case control studies) was about a 15% reduction in the risk of hip fracture," Ms Robertson said. "In interpreting that, we need to take into account the background risk of hip fracture and try to express the benefits gained in terms of how many women need to be treated (with HRT) for the prevention of one hip fracture," she said. Taking into account the large numbers of women who would need to be treated from around 50 years of age to prevent a small number of fractures, the group concluded the evidence does not support population intervention.

"Our study is only one arm of the HRT story," Ms Robertson said, "an important aspect of which is its cardio-vascular benefits. I think our study may make people stop and evaluate the evidence to see if it is good enough to recommend that women start taking hormone therapy for twenty or more years to derive these supposed benefits," she said. The study group, which includes Dr David Henry, of the University of Newcastle Department of Clinical Pharmacology, bio-statistician, Ms Dianne Connell, Professor Bill Gillespie of the University’s Medical Faculty, and Mr Bob Cummings of Sydney University’s Department of Public Health, hopes to publish its findings.

Ms Robertson presented the group’s research in a poster format at the 9th International Conference of Pharmacoeconomics held in Washington, DC, at the end of August. Ms Di Connell presented the results at an International Epidemiology Association meeting held in Sydney in September.
NATIONAL AWARD FOR SPECIAL EDUCATION

Deputy Dean of the Faculty of Education, Associate Professor Lorna Chan, has been recognised for her contribution to the community in the area of Special Education by being named the recipient of the prestigious 1993 Mona Tobias Award.

Professor Chan received the national award at the recent annual meeting of the Australian Remedial Education Association (AREA) in Melbourne. During the award presentation Professor Chan was acknowledged for her contributions to research, teacher education and practice in Special Education. Recognition was made of the contributions her research has made to society’s understanding of student learning and its search for effective ways of promoting the learning of students with special needs.

One of Professor Chan’s publications, Methods and Strategies for Special Education, which she co-wrote with Professor Peter Cole from Edith Cowan University (WA), received special mention at the award presentation as it is widely adopted as a core textbook in Special Education teacher training and professional development courses in Australia.

The Award is presented annually by the AREA in memory of Mona Tobias, who was an outstanding teacher and pioneer in methods to help children and adults with learning difficulties before her death in 1980. Previous recipients of the award include Professor John McLeod (author of the GAP and GAPADOL Tests of Reading Comprehension), Professor Marie Neal (former Director of the Krongold Centre for Exceptional Children at Monash University) and Professor Gordon Stanley (Chairman of the WA Higher Education Board).

Professor Chan, who has been a lecturer at Newcastle University for the past six years, said she was honoured to receive the award.

“It’s good that research findings are contributing to practice,” said Professor Chan. “It’s long been said that there is no link between research and practice and it is pleasing to see that researchers and teachers are getting together to contribute to practice.”

During her acceptance speech Professor Chan outlined evidence from recent research supporting the proposition that the majority of individuals experience difficulties in learning, not only because they lack the ability to learn, but because of their inefficient and non-strategic ways of learning and inappropriate motivational orientations. During her speech on the topic, Remedial Education: Research and Practice, Professor Chan elaborated on techniques to promote motivation and facilitate active and strategic learning.

WESTERN SAMOAN OFFICIALS VISIT UNIVERSITY

The small Pacific nation of Western Samoa has about 75 students studying in Australian universities, an important factor in the development of the country according to its Minister for Education, Ms Fiame Naomi. The students, studying under AIDAB schemes, are being visited by Ms Naomi and the Western Samoa High Commissioner to Australia, Mr Feesago Fepulea'i. The Minister, who is also Pro-Chancellor of the University of the South Pacific, said it was important for her to ensure the schemes were working and to meet Australian officials at AIDAB and the universities where her students were enrolled.

Newcastle University currently has two Western Samoan students studying under the AIDAB Sponsored Training Program (STP). Luminado Aloaina is enrolled in the Foundation Program and will study Computer Science next year while Barbara Potoi is studying for her Bachelor of Economics. The two were interviewed and also lunched with Ms Naomi and Mr Fepulea'i during a recent visit to Newcastle.

Ms Naomi and Mr Fepulea'i also met the Vice-Chancellor, Professor Raoul Mortley, and members of staff to discuss topics such as scholarship administration, entry requirements, bridging programs and student welfare. “One of the main purposes of our visit is to assist our students, to see if there has been sufficient support in preparing them to study overseas, and to discuss their performance in their courses,” said Ms Naomi.

“It’s good to have a look and we traditionally visit our students in Australia. At present we have about 500 full-time and part-time students at the University of the South Pacific so you can see that the progress of our students in Australia is important to us as a nation.”
WARDEN BREAKS NEW GROUND

The newly elected Warden of the University’s graduate body, Convocation, is setting precedents with her appointment. Not only is Ms Jean McGarry the first female Warden, she is also a symbol of the success of amalgamation at the University. A graduate of the Newcastle College of Advanced Education, that became the Hunter Institute of Higher Education (HIHE), she was part of the Interim Steering Group that set up the first HIHE Convocation. “I have been interested in maintaining contacts with my alma mater ever since,” Ms McGarry explained. “I was Deputy President of Convocation at HIHE when amalgamation occurred and was part of the group that worked over the ensuing 18 months to bring the two bodies together,” she said. “We managed it in a way that was unique and bloodless and I think it could be used as a model to other organisations facing amalgamation.”

With external relations, including graduate contact, high on the Vice-Chancellor’s agenda for change, Ms McGarry sees development as important to the future of the University. “Even now, Universities are finding that funding is not there for them as it was in the past. On the other hand, demands on them to offer more places to students and to fund new buildings, is increasing. If the Canberra dollars continue to diminish, then Universities are simply faced with having to look elsewhere for funding.” While seeking to encourage Convocation members to think of the University if they are seeking to dispose of funds or making their wills, Ms McGarry sees her Committee’s foremost role as friend-raising not fundraising.

“There is a need for universities to maintain contact with the communities around them and I think if they pursue funds too vigorously, they risk alienating graduates. I see our first and foremost priority being to service the graduates but given that current students are future graduates, we need to look to their needs as well. Friend-raising to me is taking the time to keep in touch with graduates and provide them with information, as well as attempting to ascertain their needs and wants in order to offer them activities that will be of interest and benefit to them,” Ms McGarry said.

The new Warden, who succeeds Mr Vic Levi and is the ninth Warden since the first students graduated from the University in 1967, hopes to involve more young people in Convocation. “When I looked across the audience at the recent Newcastle Lecture (September 10), I was disappointed to see that the majority of faces were older people.

SENIOR ADMINISTRATOR APPOINTED TO UNI POSITION

The University has appointed a senior administrator from Queensland to its post of Academic Registrar and Senior Deputy Secretary.

Ms Gem Cheong is General Secretary at Griffith University and has wide experience in many facets of university administration. A graduate of the University of Singapore, Ms Cheong will be responsible for Newcastle University’s Academic Secretariat Unit and the Student Administration Unit.

The Vice-Chancellor, Professor Raoul Mortley, said Ms Cheong would bring depth and knowledge of many university functions which were vital in higher education today.

“This University is looking at many of its operations - administratively, academically and commercially - and the position of Academic Registrar and Senior Deputy Secretary has a very important role to play as we develop many of our systems and procedures,” said Professor Mortley.

“Ms Cheong will assist in the planning, development and policy formulation of the University and interact with senior officers in the implementation of academic policies. “Ms Cheong has demonstrated an understanding of the secretariat provisions that are required by this University and will be drawing on her many years of experience at Griffith University and in the Queensland Public Service and Singapore Public Service.”

Deeply involved in negotiations which led to Griffith University being transformed from a small institution of 5,500 students in 1989 to a multi-campus institution of 16,000 students, Ms Cheong has represented Griffith University in negotiations with external organisations over a range of issues and played a key role in restructuring the university’s administrative elements in 1991.

In her position as General Secretary she has also been the university’s legal adviser and been responsible for writing a range of important policy documents dealing with academic administration, research administration, records management and organisational matters and governance.

The Newcastle position has two major functions. As Academic Registrar Ms Cheong will be responsible for Student Administration operations which include access and school liaison, enrolment and examinations for students. The Deputy Secretary’s role will include assistance in provision of administrative support for executive committee and research, legal matters, legislation, official publications and certain statutory obligations.

Ms Cheong is expected to take up her new position in January next year.

I want to find a way to tap into the student body so they literally grow up with the idea of Convocation. We are currently involved in activities during Orientation Week, take part in Careers Fairs, and offer book prizes, but we need to find a way to move further in that direction.” Ms McGarry graduated from CAE in 1985 with an Associate Diploma in Social Welfare. She took a year off study to be with her young son, before tackling a Bachelor of Arts (Social Sciences) externally from Curtin University. She has a Diploma of Education from the University of Technology in Sydney. As a teacher of Retail Management at the Newcastle campus of TAFE, she feels her external studies have helped her significantly in the work she now does in curriculum development. She began her three year term as Warden on September 1.

Ms Jean McGarry - first female Warden of Convocation.

Ms Gem Cheong... new face on campus.
SCHOLARSHIPS AWARDED TO ENGINEERING UNDERGRADUATES

Nine first year Engineering students have each been awarded an undergraduate scholarship to the value of $500. Steven Rogers, Adam McKenzie, Clarissa Leach and Nicholas Dienar were the recipients of The Frank Henderson Scholarship awarded by the Department of Civil Engineering and Surveying. Brian McGregor received the Institute of Surveyors Scholarship and the Department of Mechanical Engineering Scholarship went to Christopher Wensrich, Peter Leonard, Patrick Noonan and John Waters.

EDITORIAL APPOINTMENT

Recognition of the calibre of space plasma physics research at The University of Newcastle has recently been acknowledged by the appointment of Associate Professor Brian Fraser as Australian Regional Editor for the American Geophysical Union Journal ‘Geophysical Research Letters’.

The appointment is for three years over 1994-1996. “Geophysical Research Letters” is published bi-monthly and is the premier international journal for new, important and short contributions to all areas of geophysics, including the solid earth, oceanography, vulcanology, seismology, geomagnetism, planetology and atmospheric, ionospheric and space physics. Although based in the USA, the American Geophysical Union has approximately 30,000 members world-wide.

Professor Fraser, from the Department of Physics, said that as well as undertaking the usual editorial duties, the American Geophysical Union expects its editors to actively solicit papers where potentially valuable, and perhaps even controversial, research is being carried out.

“It also provides a direct connection for Australian research to be reported to the international community of geophysicists,” said Professor Fraser.

COMPUTER ENERGY OUTFIGHTS THE SUN

If you are in the satellite communication system industry in Indonesia, a couple of days in March and September cause nothing but “communication breakdown.” As the sun rises on the island nation it overpowers satellite communication signals to cause a breakdown in data that is being sent to and from many of Indonesia’s major financial and business institutions.

Ian Dick, the Manager of TUNRA’s Industrial Electronics Division (TIED) learned of the problem late last year while promoting antenna tracking and control technology in Jakarta. “We found that there was a tremendous data communication problem for banks and companies because of the sun overpowering signals,” said Ian. “The Jakarta-based firm of Citra Sari Makmur (CSM) has about 200 VSAT (Very Small Aperture Terminal) antennae and it can’t afford the downtime it causes - even only a few minutes duration.”

VSAT are very small antennae of three metres or less used for single user transmission and reception of data. The solar outage, or blackout, occurs when the pointing angles of the VSAT to the satellite and to the sun are nearly coincident, thereby causing additional “noise” from the sun which blocks the transmitted signal. The users (VSAT operators and their customers) need to know exactly when the outage occurs to avoid loss of information. TIED Systems Engineer Brian Stephen, developed a computer software package to predict where the sun would be over Indonesia in March and September. After months of work, the “Solar Out” package now can inform CSM of when a “blackout” is likely, enabling the company to close down its data system until the antennae can again pick up the satellite signal.

Isaac Fananny, an engineer with CSM at the company’s “hub” station main sequence antenna spent three days here to learn the software program, just in time for the next eclipse. “The software may be a small factor in itself but the ability to predict the path of the sun has great consequences for Indonesia’s business, commercial and other enterprises attached to CSM’s satellite communication services,” said Brian.

TUNRA’s next objective is to market globally the “Solar Out” software and bring valuable export dollars not only to the University but also to Australia.

Standing L to R: TUNRA staff, Stephen Wellink, Brian Stephen and Ian Dick introduce the “Solar Out” package to Isca Fananny (seated)
HOCKEY GRAND FINAL TO UNIVERSITY

One goal makes all the difference. The difference between winning and losing and certainly the difference in becoming grand final winners after 30 years of competing.

This is how the University's First Grade Mens' Hockey team felt after their historic win in the Grand Final of the Newcastle A Grade Mens' Hockey Competition recently. Thirty years of competition reaching the major semis many times but never a grand final win. Now the drought is broken.

In a well played match with cliffhanger scoring, the University team managed to gain the extra goal late, clinching the game three goals to two over Norths. Two goals were scored by University captain and centre half, Shane Ambrose and one by Gerard Cocking, who also played in the Sydney Grand Final the weekend before.

A large crowd was at the field to lend support and cheer the team on to its success.

The Vice-Chancellor, Professor Mortley, wishes the team well before the game.

IAN HENDERSON AWARD TO UNIVERSITY POST-GRAD

The Newcastle Division of the Institution of Engineers Australia, held its public speaking competition, the Ian Henderson Award, on August 31 at the Newcastle Regional Museum.

Out of three excellent presentations, the winner was Ian Bryant, a post-graduate student in the Department of Civil Engineering and Surveying. Ian will now attend the Institution's National Public Presentation Competition to be held in Melbourne next year.

"I like this one..." The Art Exhibition held in conjunction with the University's Environment Week drew much attention.

UNI STEPS INTO DANCE AND DRAMA

Schools specialising in the performing arts have been established around the State, including the Broadmeadow School at Newcastle. In response, The University of Newcastle will offer a new course next year preparing teachers to specialise in dance and drama. The Director of the University's School of Education, Dr Allan Taylor, said he believed it would be the first course in NSW offering pre-service teacher education in the performing arts. The Bachelor of Education (Performing Arts) will provide graduates with skills in Drama and Dance. First year students will learn the theory and practice of dance and drama as well as practical teaching skills and education theory.

In the next three years, students will major in either dance or drama culminating in an independent action research/internship program.

Up to 35 student places will be offered each year in the four-year course.

"The course was created in response to curriculum changes in NSW which saw creative and performing arts identified as key learning areas," commented Dr Taylor.

"Applicants must attend an interview/audition at the University and demonstrate dance potential to meet the requirements of the Faculty Board. This will be in addition to obtaining a mark in the Higher School Certificate which satisfies the University's entry requirements."

Applications for 1994 admission must be made directly to the University with application forms being available from October.